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BIOPESTICIDAL ACTIVITY OF *VERTICILLIUM LECANII* AGAINST COWPEA APHID (*APHIS CRACCIVORA*)

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Abstract

Cowpea is a leguminous plant widely cultivated in the tropical and sub tropical regions of the world. Sucking pests like aphids pose serious damage to the cowpea plants either by direct feeding or by transmitting plant viral diseases. Due to the devastating effect of aphids on Cowpea at almost every stage of its development, several approaches have been adopted in its control. Research into the control of these insect pests has centered primarily on the use of synthetic insecticides like Azodrin, Thiodan DDT, Dursban etc. The use of synthetic organic insecticides in crop pest control programs around the world has caused tremendous damage to the environment, pest resurgence, pest resistant to insecticides, and lethal effect on non target organisms. Use of biopesticides as a component of Integrated Pest Management programme can greatly decrease the use of conventional insecticides and the present study aims at studying the efficacy of the entomopathogenic fungi *Verticillium lecanii* as a biocontrol agent against the cowpea aphid. The results of the present study has indicated that *V. lecanii* is a potent producer of chitinase and is highly effective in controlling the cowpea aphids with a LC₅₀ value of 13.674. Molecular identification of the pests collected from the fields was carried out using the CO1 DNA sequencing which suggested a 100% similarity in the BLAST search with *Aphis craccivora*.

Keywords: Cowpea, Aphids, *Verticillium lecanii*, Biocontrol, Chitinase

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Introduction

Cowpea (*Vigna unguiculata*) is an annual herbaceous legume, which belongs to the family *Papilionaceae* (*Fabaceae*), order *Leguminosae* and genus *Vigna*. The genus *Vigna* consists of over one hundred different species widely found in the tropical and sub tropical regions, and has great morphological and ecological diversity. Cowpea is known as vegetable meat due to high amount of protein in the grain with better biological value on dry weight basis and it is an important grain legume in the third world countries. The grain contains 26.61% protein, 3.99% lipid, 56.24% carbohydrates, 8.60% moisture, 3.84% ash, 1.38% crude fibre, 1.51% gross energy, and 54.85% nitrogen free extract. Cowpea is usually preferred by farmers because of its role in increasing soil fertility through nitrogen fixation and production of nutritious fodder for livestock (Oyewale and Bamaiyi 2013).

Cowpea is a hardy crop but it hosts many insect pests that attack vegetables. These include; leaf miners, white flies, leaf hoppers, mites, thrips, and aphids. These insect pests impose a serious threat to cowpea production. Sucking insects such as aphids cause serious damage to several agricultural, horticultural and plantation crops either by direct feeding or by transmitting plant viral diseases. Cowpea aphid has a broad host range with a preference for legume crops. Cowpea aphid is relatively small, ranging from 1.5 to 2.5 mm long. The adult may be winged (alate) or wingless (apterous) and is usually shiny black, while nymphs are smoky gray. When present, wings are large and transparent with few veins. Also, when viewed under magnification, the bottom half of the antennae and legs are light-colored or creamy white with blackish tips. The aphid prefers to feed on young, succulent developing shoots and newly expanding leaves.

Insect pests have remarkable capacity to develop resistance to insecticides. More than 600 species of plant feeding insect pests have developed resistance to insecticides. Management of insecticide resistance offers great promise as a complementary extension of integrated pest management (IPM). Since sucking pests like aphids have developed resistance to insecticides, biological control using microbial pathogens, particularly fungal pathogens has been explored for a number of pests (Shah and Pell 2003). The fungi parasitize the insects and cause severe epizootics than bacteria and viruses, and it is distributed worldwide. Several commercial formulations based on entomopathogenic fungi have been developed for the control of sucking pests in different countries (Rabindra *et al.*, 2007). There are many species of fungi attacking terrestrial and aquatic insects of agricultural and medical importance. Of these, few species such as *Verticillium lecanii* and *Hirsutella thompsonii* have received much attention as efficient biological control agents (Hall and Papierok 1982, Sattar 2002).

Verticillium lecanii (formerly known as *Cephalosporum lecanii*) was first described in 1861 and is a cosmopolitan fungus found on insects. It is a common pathogen of scale insects in tropical and subtropical climates. *V. lecanii* is known as “white-halo” fungus because of the white mycelia found on the edges of infected insects. The conidia of *V. lecanii* are slimy and attach to the cuticle of insects. The fungus infects insects by producing hyphae from germinating spores that penetrates the insect’s integument; the fungus then destroys the internal contents and the insect dies. The fungus eventually grows out through the cuticle and sporulates outside the body of insects. Infected insects appear as white to yellowish cottony particles (Kulkarni *et al.*, 2007)

V. lecanii is a specific parasite and it does not constitute danger for plants, entomophages, birds, fish and mammals. Owing to it the fungus is widely used as a component of biological control systems in agricultural crop defense.

Materials and methods

Maintenance and enumeration of culture

The *V. lecanii* culture was maintained on potato dextrose agar (PDA) plates and potato dextrose broth (PDB). Enumeration was done by the standard plate count method.

Chitinase assay

Chitinase activity was determined colorimetrically by detecting the amount of n-acetyl glucosamine (GlcNAc) released from a colloidal chitin substrate. The reaction mixture consisted of 0.3ml of crude enzyme and 0.2ml colloidal chitin (2%) in 50 mM acetate buffer, pH 4.6. The reaction was performed at 37° C for 30 minutes. The mixture was boiled for 10 minutes, chilled and centrifuged to remove insoluble chitin. The resulting adduct of reducing sugar were measured by the Dinitro salicylic acid (DNS) method. N-acetyl glucosamine was used as the standard.

Collection of pests

Cowpea aphids were collected from different agricultural fields around the District of Ernakulam, Kerala

Genomic DNA extraction from collected sample

The collected pest sample was ground with a pinch of silica powder by using a micropestle. The sample was again ground along with the addition of 100µl TNES buffer. Then added 500µl of TNES buffer and incubated at 60° c for 30 minutes. The sample was centrifuged at 10000 rpm for 10 minutes. To the supernatant, added equal volume of chloroform isoamyl alcohol and repeated the centrifugation. To the upper layer, added 1/10 volume of 3 molar sodium acetate and added equal volume of isopropanol and centrifuged at 10000

rpm for 10 minutes. The supernatant was discarded and the pellet was air dried and dissolved in 50 μ l TE buffer.

PCR amplification

Primer used for CO1 DNA typing

Forward primer: TATTATTAGACAAGGAATCTGGTAAA

Reverse primer: AGGAAATGTTGAGGGAAGAAAGTAA

PCR amplifications were performed in 25 μ l reaction mixture containing, deionised water (nuclease free water) - 17.7 μ l, Taq buffer (10X) - 2.5 μ l, MgCl₂ (15 mM)- 1.0 μ l, dNTPs mix (10mM each) - 0.5 μ l, Primer forward(10pm/ μ l) - 0.5 μ l, Primer reverse(10pm/ μ l) - 0.5 μ l, Taq DNA polymerase(5 units/ μ l) - 0.3 μ l, Template DNA (50ng/ μ l) - 2.0 μ l

To check DNA contamination, a negative control is set up omitting template DNA from the reaction mixture. Amplified products were loaded on 1.5% agarose gel for determining the size and the gene has sequenced by automated sequencing method.

The partial sequence was subjected to BLAST analysis for homology analysis using the online option available at www.ncbi.nlm.gov/BLAST.

Agarose gel electrophoresis

10 μ l of sample DNA was loaded with 4 μ l Bromophenol blue in 1.5% agarose gel. Commercially available molecular weight DNA markers were used as standards. The gel was run at constant voltage of 100V till the dye has travelled 3cm from the wells. The gel was viewed on UV transilluminator with the safety shield.

Biopesticidal activity of *verticillium lecanii* against cowpea aphids (*aphis craccivora*) and LC₅₀ calculation

Inorder to find out the biopesticidal activity of *V.lecanii*, an experiment was conducted, in which eight petri plates were taken and filled with natural

diet of *Aphis craccivora* such as cowpea leaves and beans. 10 aphids each were added to these plates. Sprayed 10 μ l, 12 μ l, 14 μ l, 15 μ l, 16 μ l, 18 μ l, 20 μ l, and 25 μ l PDB broth with inoculum (immediately after the plate count determination by standard plate count method) to respectively marked petri plates. The plates were then sealed with parafilm and observed after 24 hours.

After the observation and counting the number of living and dead pests from the experiment, LC₅₀ was calculated by using Probit analysis method (EPA PROBIT ANALYSIS PROGRAM, VERSION 1.5)

Results

Maintenance and enumeration of culture

The *V. lecanii* culture showed profuse growth on PDA plates. The mycelia appeared white in colour (Plate 1). The standard plate count performed indicated a count of 37 \times 10³ CFU/ml.



Plate 1. Pure culture of *V. lecanii* on PDA plate

Collection of pests

The pests collected from the cowpea plants are shown in Plate 2. Different stages like nymph, wingless males and females and winged males and females were represented in the collected samples.



Plate 2. Aphids collected from cowpea plants

DNA isolation and PCR amplification

The extracted DNA of the pest was electrophoresed through agarose gel (Figure 1). Low molecular weight DNA was observed on agarose gel up on UV illumination without protein and DNA contamination. The isolated pest DNA was amplified using PCR and the amplified product was run on 1.5% agarose gel containing ethidium bromide. The amplified DNA was observed on agarose gel without any non specific amplification (Figure 2)

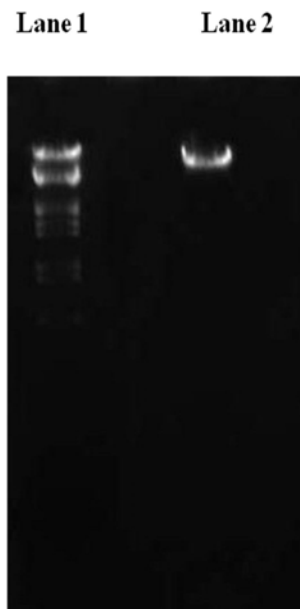


Figure 1. Agarose Gel Electrophoresis of isolated DNA sample (Lane 1 marker-EcoRI HindIII double digest of lambda phage DNA, Lane 2 genomic DNA- approx, 10000 kb).

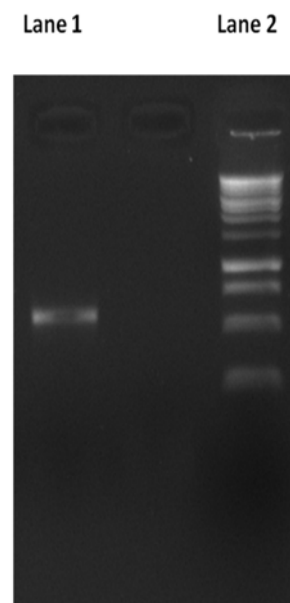


Figure 2. Agarose Gel Electrophoresis of amplified PCR products (Lane 1-amplicon, Lane 2- 1 Kb ladder)

DNA sequencing of the isolated sample

The partial sequence was generated by automated DNA sequencing (Figure 3). BLAST was used for gene identifications and sequence matching. The sequence showed 100% similarity with *Aphis craccivora*.

```
>unibiosys_M_CO1.FP_1957,Trimmed Sequence
AACTTTATATTTTCTATTTGGAATTTGATCAGGAATAATTGGATCTTCACTTAGTA
TTTTAATTCGATTA
GAATTAAGACAAATTAATTCAATTATTAATAATAATCAATTATATAATGTAATTG
TTACAATTCATGCTT
TCATTATAATTTTTTTTATAACTATACCAATTGTAATTGGAGGATTTGGAAATTGA
TTAATTCCATAAT
AATAGGTTGTCCAGATATATCTTTTCCACGATTAATAAATATTAGATTTTGATTAC
TACCACCTTCATTA
ATAATAATAATCTGTAGATTTATAATTAATAATGGAACAGGAACAGGATGAACT
ATTTATCCACCTTTAT
CAAACAATATTGCTCATAATAACATTTTCAGTTGATTTAACTATTTTCTCTTTCAT
TTAGCAGGTATTTT
ATCAATTCTAGGAGCAATTAATTTTATTTGTACTATTCTTAATATAATACCGAATA
ATATAAAATTAAT
CAAATTCCATTATCCCTTGATCAATCCTAATTACAGCTATATTATTAATTTTATC
ATTACCAGTCTTAG
CTGGTGCTATACTATATTATTAAGTATCGAAATTTAAATACATCATTTTTTTGAC
CCAGCAGGGGGAGG
AGATCCAATTCTTTATCAAC
```

Figure 3. Partial DNA sequence of the sample (CO1 sequencing)

Biopesticidal activity of *Verticillium lecanii* and LC 50 calculation

The result of the effect of different concentrations of *V.lecanii* on cowpea aphid is shown in Table 1. The data obtained from the experiment was subjected to probit analysis and LC₅₀ was calculated. The LC 50 value was computed to be 13.674 with 95% confidence level.

Table 1. Effect of different concentrations of *V. lecanii* on cowpea aphids

CONCENTRATION (37×10^3 CFU/ml)	NUMBER OF LIVE PESTS	NUMBER OF DEAD PESTS
10 μ l	7	3
12 μ l	6	4
14 μ l	7	3
15 μ l	4	6
16 μ l	3	7
18 μ l	2	8
20 μ l	2	8
25 μ l	1	9

Chitinase assay

Results of the chitinase assay performed with culture extract of *V. lecanii* indicated that the strain was able to produce a chitinase titer of 1.1 U/mL (Table 2).

Table 2. Chitinase activity of *V. lecanii*

Serial number	Conc. of standard.	OD at 510 nm.	Amount of chitinase activity.
1	100	0.158	
2	200	0.3863	
3	300	0.572	
4	400	0.615	
5	500	0.727	
Test.		0.43	245 μ g = 1.1075 U/mL from the standard graph

Discussion

Synthetic chemical pesticides remained the mainstay of pest eradication for more than 50 years. However, insecticide resistance, pest resurgence, safety risks for humans and domestic animals, contamination of ground water, decrease in biodiversity, and other environmental concerns have encouraged

researchers for the development of environmentally benign strategies for pest control including the use of biological control agents (Goettel *et al.*, 2005; Vincent *et al.*, 2007). Naturally occurring biological control agents are important regulatory factors in insect populations. Many species are employed as biological control agents for the abatement of pest and vector insects of agricultural, veterinary and medical importance (Tanada and Kaya 1993, Lacey and Kaya 2000).

Among micro-organisms, entomopathogenic fungi constitute the largest single group of insect pathogens. In the present study, the entomopathogenic fungus *V. lecanii* was used as a biocontrol agent against the cowpea aphid. Experiments to find out the efficacy of different entomopathogenic fungi against cowpea aphid, *Aphis craccivora* under laboratory and field conditions has already been attempted (Suresh *et al.*, 2012). In the study the authors have reported that *Verticillium lecanii* (VL3) caused higher percent mortality of adult nymphs of *Aphis craccivora*. The result of the present study is in compliance with the earlier reports and it has indicated that *V. lecanii* could be used as an effective biocontrol agent against cowpea aphids as is evident from the LC 50 value of 13.674. The biopesticidal study also indicated that about 90% of the aphids were killed by using 25 µl of the inoculums.

The mechanism of action of entomopathogenic fungi differs greatly in different species. Some species of fungi cause physical damage to the insect pests by profuse growth on the surface and once the fungus has passed through the cuticle of the exoskeleton, it even enters the circulatory system and produces toxins that overcome the insect immune system (Charnley 2003, Gabarty *et al.*, 2014). *V. lecanii* infects insects by producing hyphae that penetrates the insect's integument and the fungus then destroys the internal

contents of the insect pests. The effect of endotoxic compounds produced by *V. lecanii* on whitefly has also been reported (Gindin et al., 1994). Yet another major mechanism adopted by the entomopathogenic fungi is the production of chitinase, the enzyme involved in the degradation of chitin which is a major component of insect exoskeleton (Zhu et al., 2008). The present study has revealed that *V. lecanii* is capable of producing chitinases. Chitinase production from this species has already been reported (Lu et al., 2005). Thus it is highly probable that the enzymatic machinery of *V. lecanii* play a major role in the destruction of cowpea aphids and similar other insect pests.

Conclusion

Cowpea is an important grain legume in the third world countries as it provides good quality protein and high yields. This plant is highly susceptible to attacks by the sucking insect pests which greatly reduce the yield. Increasing environmental regulatory and market pressure, along with the increasing pest resistance is dictating a progressive move away from the chemicals for insect pest control. Pest control by natural biocontrol agents is a promising alternative to overcome the detrimental effects of chemical insecticides. The present study has successfully evaluated the effectiveness of the entomopathogenic fungi *Verticillium lecanii* as a biocontrol agent against the aphid *Aphis craccivora* which is the major insect pest of cow pea plants all over the world.

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ഉച്ചഭാഷിണിയുടെ സമരപാഠങ്ങൾ

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ശ്രീ ശങ്കരാചാര്യ സംസ്കൃതസർവ്വകലാശാല,റീജിയണൽ സെന്റർ,ഏറ്റുമാനൂർ 686631

രൂപരേഖ

വിവിധ സമാജങ്ങളിലൂടെയും വേദികളിലൂടെയും സ്ത്രീകൾക്കുവേണ്ടി വാദിക്കാനും വിപ്ലവവീര്യം മറ്റ് സ്ത്രീകളിലേക്കും പടരാനും തയ്യാറായ സ്ത്രീകളുടെ സമരങ്ങളെയാണ് ഇവിടെ അടയാളപ്പെടുത്തുന്നത്. സ്ത്രീകൾക്കും പൊതുക്കാര്യ പ്രസക്തിയുണ്ടെന്നും രാഷ്ട്ര നിർമ്മാണത്തിനും രാജ്യഭരണത്തിനും അവകാശമുണ്ടെന്നും ഒരു പൊതുസമൂഹത്തെ ബോധ്യപ്പെടുത്താനും അതിനുവേണ്ടി സമരം ചെയ്യാനും അവർ നിരന്തരം ഉച്ചഭാഷിണികളിലൂടെ ശബ്ദിച്ചു. ഒരു കാലഘട്ടത്തിന്റെ പൊതുബോധത്തോട് കലഹിച്ചുകൊണ്ട് വിപ്ലവമാറ്റങ്ങൾക്ക് അരങ്ങൊരുക്കിയ സ്ത്രീപ്രസംഗങ്ങളുടെ പ്രസക്തി ഇത്തരത്തിലാണ്. വടക്കുംകൂർ, പുത്തേഴത്ത് രാമൻമേനോൻ, ടി.കെ. വേലുപ്പിള്ള തുടങ്ങി ഇരുപതാം നൂറ്റാണ്ടിലെ പൗരപ്രമുഖരുടെ സ്ത്രീവിരുദ്ധനിലപാടുകളോട് പൊതു വേദിയിൽ നിന്നു എതിരിട്ട സ്ത്രീ സ്വരങ്ങളാണ് ഇവിടെ സ്ഥാനപ്പെടുക. ബി.ദഗീരമി അമ്മ, അന്ന ചാണ്ടി, അമ്പാടി കാർത്ത്യായനി അമ്മ, ടി.സി കൊച്ചുകുട്ടി അമ്മ,തച്ചാട്ട് ദേവകി അമ്മ, എൻ.ഹമീദാബീവി എന്നിവരെ പ്രത്യേകം പരാമർശിക്കുന്നു.

സൂചകപദങ്ങൾ

സ്ത്രീപ്രാതിനിധ്യം, വാഗ്സമരം, പൊതുരംഗപ്രവേശനം, സ്ത്രീസമാജം, ലിംഗഭേദം, അസ്വതന്ത്രത, ഉച്ചഭാഷിണി

ആമുഖം

രാഷ്ട്രീയ സാമൂഹ്യമണ്ഡലത്തിലേക്ക് പ്രവേശിക്കാനാകാത്ത വിധം ഗാർഹിക മണ്ഡലത്തിലേക്ക് സ്ത്രീകൾ മാറ്റിനിർത്തപ്പെട്ട ചരിത്രമാണ് ഇരുപതാം നൂറ്റാണ്ടിന്റെ ആദ്യ പതിറ്റാണ്ടുകളിലേത്. പൊതു ഇടങ്ങളിലുള്ള സ്ത്രീകളുടെ ഇടപെടലുകൾ അവളുടെ സദാചാരഗുണങ്ങൾക്ക് കോട്ടം വരുത്തുമെന്ന അന്നത്തെ പൗരപ്രമുഖർ തീർപ്പ് കല്പിച്ചിരുന്നു

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ന്നു. പദവിമുല്യങ്ങൾ കൊണ്ട് കെട്ടിയുയർത്തിയ മതിലുകളെ തകർക്കാതെ സ്ത്രീകളുടെ സാമൂഹ്യപ്രവർത്തനം അസാധ്യമായി തുടർന്നു. എന്നാൽ പത്രങ്ങൾ, ആനുകാലികങ്ങൾ, ചർച്ചാവേദികൾ, സമാജങ്ങൾ, വായനാസംഘങ്ങൾ തുടങ്ങിയവയിലൂടെ സ്ത്രീകൾക്കു തടസ്സമായി നിൽക്കുന്ന അസ്വാതന്ത്ര്യം, നിരക്ഷരത, സദാചാര നിഷ്കർഷകൾ എന്നിവയെക്കുറിച്ചെല്ലാം പൊതു ചർച്ചകൾ ഉണ്ടാകാൻ തുടങ്ങി. സ്ത്രീകൾ എന്ന ഒരു സംവർഗത്തെ മുന്നിൽകാണാനും സ്ത്രീകൾക്കുവേണ്ടി വാദിക്കാനും സ്ത്രീകളിൽ ചിലർ മുന്നോട്ടു വന്നു. വിവിധ സമാജങ്ങളിലൂടെയും വേദികളിലൂടെയും അവരുടെ വിപ്ലവവീര്യം മറ്റ് സ്ത്രീകളിലേക്കും പടർന്നു. സ്ത്രീകൾക്കും പൊതുകാര്യ പ്രസക്തിയുണ്ടെന്നും രാഷ്ട്രനിർമ്മാണത്തിനും രാജ്യഭരണത്തിനും അവകാശമുണ്ടെന്നും ഒരു പൊതുസമൂഹത്തെ ബോധ്യപ്പെടുത്താനും അതിനുവേണ്ടി സമരം ചെയ്യാനും അവർ നിരന്തരം ഉച്ചഭാഷിണികളിലൂടെ ശബ്ദിച്ചു. ഒരു കാലഘട്ടത്തിന്റെ പൊതുബോധത്തോട് കലഹിച്ചുകൊണ്ട് വിപ്ലവമാറ്റങ്ങൾക്ക് അരങ്ങൊരുക്കിയ സ്ത്രീപ്രസംഗങ്ങളുടെ പ്രസക്തി ഇത്തരത്തിലാണ്. വടക്കുംകൂർ, പുത്തേഴത്ത് രാമൻമേനോൻ, ടി.കെ. വേലുപ്പിള്ള തുടങ്ങി അക്കാലത്തെ പൗരപ്രമുഖരുടെ സ്ത്രീവിരുദ്ധനിലപാടുകളോട് പൊതുവേദിയിൽ നിന്നു എതിരിട്ട സ്ത്രീ സ്വരങ്ങളെയാണ് ഈ പ്രബന്ധത്തിലൂടെ വിശകലനം ചെയ്യുന്നത്. സാഹിത്യം, തൊഴിൽ, വിദ്യാഭ്യാസം, പൊതുകാര്യപ്രസക്തി, സാമൂഹത്തിലെ ഇടപെടൽ സ്വാതന്ത്ര്യം എന്നിങ്ങനെ സ്ത്രീകൾ ഏർപ്പെടേണ്ടുന്ന ഇടങ്ങളെക്കുറിച്ചുള്ള വാദപ്രതിവാദങ്ങൾ പൊതുവേദികളിൽ സാധ്യമാക്കിയ വാചാപ്രസംഗങ്ങളെ വിശകലനം ചെയ്തുകൊണ്ട് പാരമ്പര്യധാരണകളെ തിരുത്തിക്കുറിച്ച സമരവാക്കുകളെ ആ മട്ടിൽ വിശകലനം ചെയ്യുകയാണ് പ്രബന്ധത്തിന്റെ ലക്ഷ്യം.

വാചാപ്രസംഗങ്ങളും വിപ്ലവാശയങ്ങളും

സാഹിത്യ- സമൂഹ്യ- സാംസ്കാരിക - രാഷ്ട്രീയ മണ്ഡലങ്ങളിലെല്ലാം തന്നെ സ്ത്രീ പ്രാതിനിധ്യം കുറവായിരുന്ന പാശ്ചാത്തലത്തിൽ യോഗങ്ങളിലും വേദികളിലും സ്ത്രീക്കുവേണ്ടി ശബ്ദമുയർത്തിയവർ ചരിത്രത്തിൽ അടയാളപ്പെടുത്തേണ്ടവരാണ്. അതാതു കാലഘട്ടത്തിലെ പൗരപ്രമുഖരായ പുരുഷബുദ്ധി ജീവികളോട് അവരുടെ ആശയങ്ങളോട് ഏറ്റുമുട്ടി തുടർസംവാദങ്ങളിൽ ഏർപ്പെടാനും സ്ത്രീകളുടെ അവകാശങ്ങൾക്കു വേണ്ടി വാദിക്കാനും ഒരു സ്ത്രീവാദതലമുറ ഉണ്ടായിരുന്നു. ഇരുപതാം നൂറ്റാണ്ടിന്റെ ആദ്യപതിറ്റാണ്ടുകളിൽ അവരിൽ ചിലർ ഉച്ചഭാഷിണികളിലൂടെ ചെയ്ത സമരത്തിന്റെ ഫലപ്രാപ്തിയാണ് പിന്നീട്

സംഘടനകളിലേക്കും നിയമനിർമ്മാണ സഭയിലേക്കും അധികാരസ്ഥാനങ്ങളിലേക്കും കടന്നുവന്ന സ്ത്രീ സമൂഹത്തിലൂടെ ദൃശ്യമാകുന്നത്. സമൂഹത്തിൽ കാലാകാലങ്ങളായി നിലനിൽക്കുന്ന ഉറച്ചധാരണകളെ അടിച്ചമുടി ഇളക്കിക്കൊണ്ട് അലിഖിത നിയമങ്ങളെ തിരുത്തിക്കുറിച്ചുകൊണ്ട് ഒരു പൊതുസമൂഹത്തിനു മുന്നിൽ ഒരു പറ്റം സ്ത്രീകൾ വ്യത്യസ്തമേഖലകളിൽ നടത്തിയ ഈ രാഷ്ട്രീയ മുന്നേറ്റം എങ്ങനെയാണ് സ്ത്രീകളുടെ രാഷ്ട്രീയ പങ്കാളിത്തത്തെ, പൗരത്വത്തെ പുനർനിർമ്മിച്ചതെന്ന അന്വേഷണമാണ് ഇവിടെ നടത്തുന്നത്. സാഹിത്യ,രാഷ്ട്രീയമണ്ഡലത്തിൽ സവിശേഷപ്രാധാന്യം അർഹിക്കുന്ന ആറ് പ്രസംഗങ്ങളെ മുൻനിർത്തിയാണ് വിശകലനം.

സർഗാത്മകതക്കുവേണ്ടിയുള്ള വാഗ്സമരം

സാഹിത്യത്തിൽ സ്ത്രീകൾക്കുള്ള സ്ഥാനം ആസ്വാദനമാണെന്നും സ്ത്രീകളുടെ സാഹിത്യവാസന അവരുടെ ബാലന്മാരിൽ സർഗാത്മകത വളർത്തിയേക്കുന്നുമായിരുന്നു തൊള്ളായിരത്തി ഇരുപതുകളിലും സ്ത്രീകളും സാഹിത്യവും എന്ന വിഷയത്തെക്കുറിച്ചുള്ള പൊതുനിലപാട്. ഇവിടെയാണ് പൊതുവേദികളിൽ സ്ത്രീകളുടെ സർഗാത്മകതക്കുവേണ്ടി ശബ്ദിച്ചവരുടെ പ്രസക്തി. എഴുത്തുകാരികൾ നിരന്തരമായി പത്രമാസികകളിലും ആനുകാലികങ്ങളിലും എഴുതിക്കൊണ്ടിരിക്കുകയും പുസ്തകങ്ങൾ രചിക്കുകയും ചെയ്ത സാഹചര്യത്തിലും അവരുടെ സാഹിത്യപ്രവേശനം പല നിലയ്ക്കും എതിർത്ത പുരുഷാധിപത്യത്തോടുള്ള തുറന്ന വാഗ്സമരത്തിനു തയ്യാറായവരിൽ പ്രമുഖരാണ് ബി. ദാഗീരമിഅമ്മ, അമ്പാടി കാർത്യായനിഅമ്മ, ടി.സി. കൊച്ചുക്കുട്ടിഅമ്മ.ഇവരുടെ വാക്കുകൾ എങ്ങനെയാണ് അക്കാലത്തെ പൊതുബോധത്തെ അലോസരപ്പെടുത്തിയതെന്നും പിൻതലമുറയ്ക്ക് സാഹിത്യപ്രവേശനത്തിനു വാഴിയൊരുക്കിയതെന്നും വിശകലനം ചെയ്യേണ്ടതുണ്ട്.

1102-ൽ ഇടപ്പള്ളിയിൽ സാഹിത്യപരിഷത്തിന്റെ മൂന്നാം സമ്മേളനത്തിലാണ് അമ്പാടി കാർത്യായനിഅമ്മ സ്ത്രീകളും സാഹിത്യവും എന്ന വിഷയത്തെക്കുറിച്ച് പ്രസംഗിക്കുന്നത്. സാഹിത്യമണ്ഡലം തീർത്തും പുരുഷന്മാരുടേതാണെന്നും സ്ത്രീകൾക്ക് സ്വതന്ത്രസാഹിത്യപ്രവർത്തനത്തിന് അവസരം നഷ്ടമായിരിക്കുന്നെന്നും കാർത്യായനിഅമ്മ പറയുന്നു. “പണ്ഡിതന്മാരായ കവിവര്യന്മാരുടെയും ഗദ്യകാരന്മാരുടെയും പ്രകടനങ്ങൾ കേട്ടതിനുശേഷം സ്ത്രീകളായ ഞങ്ങൾക്ക് സാഹിത്യലോകത്തിൽ സ്വതന്ത്രമായി സഞ്ചരിക്കുന്നതിനുള്ള പ്രാപ്തിയോ അവകാശമോ നഷ്ടമായിരിക്കുന്നുവെന്ന് ഞങ്ങൾക്ക് തന്നെ തോന്നിപ്പോകുന്നു.”

ടി.സി.കൊച്ചുക്കുട്ടിഅമ്മ 1938 ഏപ്രിൽ 28-ന് കോട്ടയത്തെ സാഹിത്യപരിഷത്തിൽ *മലയാളസാഹിത്യത്തിൽ സ്ത്രീകളുടെ സ്ഥാനം* എന്ന വിഷയത്തെക്കുറിച്ചാണ് സംസാരിച്ചത്. സാഹിത്യത്തിലേക്കുള്ള സ്ത്രീപ്രവേശനത്തെ തടയുന്ന സാഹചര്യങ്ങളെയുൾപ്പെടെ പ്രശ്നവൽക്കരിച്ചുകൊണ്ട്, സാഹിത്യത്തിൽ സ്ത്രീകളുടെ ഇടത്തെക്കുറിച്ച് ഗൗരവമായി ചർച്ച ചെയ്യുന്ന പ്രസംഗമാണത്. ഭാഷാസാഹിത്യത്തിലേക്കുള്ള സ്ത്രീകളുടെ പങ്കിനെപ്പറ്റി ആലോചിക്കുമ്പോൾ ലജ്ജിച്ച് തല താഴ്ത്തേണ്ടി വരുമെന്നതാണ് വസ്തുതയെന്ന് പറഞ്ഞുകൊണ്ട് എന്തുകൊണ്ടാണ് സ്ത്രീകൾക്ക് സാഹിത്യത്തിൽ സ്ഥാനമില്ലാതായിപ്പോകുന്നതെന്ന അന്വേഷണത്തിലേക്ക് തിരിയുന്നു. “കേരളകവികുലചക്രവർത്തി, സരസദ്രുതകവി കിരീടമണി, കേരളവ്യാസൻ, കേരളപാണിനി, കേരളകാളിദാസൻ എന്നിങ്ങനെയുള്ള ഭാഷാസാഹിത്യബഹുമതിമുദ്രകൾ ലഭിച്ചിട്ടുള്ള മഹാപുരുഷന്മാരുടെ നാമങ്ങൾ ഭാഷാസാഹിത്യം നിലനിൽക്കുന്നേടത്തോളം കാലം സാഹിത്യചരിത്രത്തിൽ സ്ഥിരപ്രതിഷ്ഠിതങ്ങളായിരിക്കുമെന്നതിന് സംശയമില്ല. നേരെ മറിച്ച് ഭാഷാസാഹിത്യത്തിൽ സ്ത്രീകൾക്കുള്ള സ്ഥാനം എന്ത്? മേൽപ്പറഞ്ഞവരിൽ ഒരാൾ ആളോടെങ്കിലും കിടപിടിക്കത്തക്ക ഒരു സാഹിത്യപ്രണയിനി ഇതു വരെ കേരളത്തിൽ ഉണ്ടായിട്ടുണ്ടോ?”(1938:28). ഇരുപത്തിയൊന്നാം നൂറ്റാണ്ടിലും പ്രസക്തമാണ് കൊച്ചുക്കുട്ടിഅമ്മയുടെ ചോദ്യം. ഉണ്ണിയാർച്ച മുതൽ ബി.കല്യാണിയമ്മ വരെ നീണ്ടുനിൽക്കുന്ന ഒരു ചരിത്രഘട്ടത്തെ, അതിന്റെ സാംസ്കാരികപശ്ചാത്തലത്തെ ലേഖിക വിശകലനം ചെയ്യുന്നുണ്ട്. കളരിപ്പയറ്റിലും യുദ്ധത്തിലും അസാധാരണസാമർത്ഥ്യം പ്രകടിപ്പിച്ചിരുന്ന ഉണ്ണിയാർച്ച, താഴത്ത് മഠത്തിലെ മാതൃ തുടങ്ങിയ സ്ത്രീകൾക്ക് വിദ്യാഭ്യാസമോ സാഹിത്യാഭിരുചിയോ ഇല്ലായിരുന്നെന്നും ഗ്രന്ഥപാരായണം മാത്രമാണ് വിധിച്ചിരുന്നതെന്നും പറഞ്ഞശേഷം യുദ്ധത്തിന്റെ സാമൂഹ്യാന്തരീക്ഷം മാറിയപ്പോൾ കേരളത്തിലുണ്ടായ സാംസ്കാരികാന്തരീക്ഷം എങ്ങനെ പുരുഷന്മാരെ സാഹിത്യാഭ്യാസികളും സ്ത്രീകളെ വീട്ടമ്മമാരുമായി മാത്രം മാറ്റിയെടുത്തു എന്നും നിരീക്ഷിക്കുന്നു: “എന്നാൽ ക്രമേണ രാജ്യത്ത് സമാധാനവും ക്ഷേമവുമുണ്ടായി, യുദ്ധത്തിന്റെ ആവശ്യം കുറഞ്ഞുവന്നതോടുകൂടി പുരുഷന്മാർ കളരിപ്പയറ്റിനു വേണ്ടി ജീവിതകാലം മുഴുവൻ വിനിയോഗിക്കാതെ കുറേസമയം സാഹിത്യാഭ്യാസത്തിനും നീക്കിവച്ച് തുടങ്ങിയെങ്കിലും സ്ത്രീകൾ മുന്നേപോലെ ഗ്രന്ഥവായന മാത്രം ശീലിച്ച് കുടുംബപ്രാരാബ്ധനിമഗ്നകളായിത്തന്നെ കഴിച്ചുവന്നു”(1938:28). പിന്നീട് മനോരമത്തമ്പുരാട്ടി, കുട്ടിക്കുഞ്ഞുത്തകച്ചിയെപ്പോലുള്ളവർ വന്നെങ്കിലും അവർക്കൊന്നും വേണ്ടത്ര പ്രോത്സാഹനമോ സ്ഥാനമോ ലഭിച്ചില്ല.

സാഹിത്യരചനയിൽ പാടവമുണ്ടായിരുന്ന സ്ത്രീകൾക്കെല്ലാം പല വിധത്തിലുള്ള ആക്ഷേപങ്ങൾ കേൾക്കേണ്ടി വന്നു. കവയത്രിക്ക് അവരർഹിക്കുന്ന യോഗ്യതയും ബഹുമതിയും നൽകുവാൻ പുരുഷന്മാർ തയ്യാറല്ലായിരുന്നു. പുരുഷന്മാരുടെ ഇത്തരം പരിഹാസപരാമർശങ്ങൾ പ്രാസംഗിക എടുത്തുപറയുന്നുണ്ട്.

“സാഹിത്യത്തിൽ സ്ത്രീകൾക്ക് പുരുഷന്മാർ എന്തെങ്കിലും സ്ഥാനം കൊടുത്തിട്ടുണ്ടെങ്കിൽത്തന്നെ അത് അവരുടെ സാഹിത്യസൃഷ്ടികളിൽ നായികയാക്കിക്കൊണ്ടാണ്. ദാവനാലോകത്ത് അവർക്കിത്രയും സ്ഥാനം ലഭിക്കുന്നുണ്ടെങ്കിലും അർഹിക്കുന്ന സ്ഥാനം രചനാമണ്ഡലത്തിലില്ല.ദാഷാസാഹിത്യത്തിൽ അധികം കൃതികളും പുരുഷനിർമ്മിതമാണല്ലോ.....പുരുഷനിർമ്മിതമായ ദാഷാസാഹിത്യകൃതികളിൽ സ്ത്രീലോകത്തിന് ഇത്രയും പ്രാധാന്യം നൽകിയിട്ടുള്ള സ്ഥിതിക്ക്, സാഹിത്യചരിത്രത്തിൽ അതേ സ്ഥാനമില്ലെങ്കിലും പുരുഷന്മാരോട് സമമായ വിലയും നിലയും സ്ത്രീകൾക്ക് നൽകുവാൻ പുരുഷന്മാർ തയ്യാറല്ലാത്തതിന്റെ രഹസ്യം എന്തായിരിക്കും.ദാവനാലോകത്തിൽ എത്ര വലിയ സ്ഥാനം കൊടുത്താലും ലോകവ്യവഹാരത്തിൽ സ്ത്രീകൾ തങ്ങളോട് കിടപിടിക്കുന്നത് പുരുഷന്മാർക്ക് രസമില്ലാഞ്ഞിട്ടായിരിക്കുമോ അഥവാ, സ്ത്രീകൾ തങ്ങളെ തട്ടിച്ചെങ്കിലോ എന്ന ഭയം കൊണ്ടോ സ്ത്രീകളർഹിക്കുന്ന സ്ഥാനം പുരുഷന്മാർ നൽകാത്തത്”(1938:30).

സാമൂഹ്യസ്വാതന്ത്ര്യവും രാഷ്ട്രീയവും

1913 മുതൽ 1937വരെയുള്ള കാലയളവിൽ സ്ത്രീകളുടെ സ്വാതന്ത്ര്യത്തിനും പൊതുരംഗപ്രവേശനത്തിനും രാഷ്ട്രനിർമ്മാണത്തിലെ പങ്കാളിത്തത്തിനും വേണ്ടി പ്രസംഗവേദികളിലൂടെ സ്ത്രീകൾ നടത്തിയ സമരത്തെയാണ് ഇവിടെ അടയാളപ്പെടുത്തുന്നത്.

തച്ചാട്ട് ദേവകിഅമ്മ *സ്ത്രീവിദ്യാഭ്യാസത്തിന്റെ ഉദ്ദേശ്യം* എന്ന വിഷയത്തിൽ 1913-ൽ ഒരു സ്ത്രീസമാജത്തിൽ ചെയ്ത പ്രസംഗം 'സ്ത്രീകൾക്കു വിദ്യാഭ്യാസം ആവശ്യമില്ല,അതു അവരുടെ സദാചാരത്തിനു വിഘ്നം മൂണ്ടാക്കും' എന്ന സാമൂഹ്യധാരണയെ ചോദ്യം ചെയ്തുകൊണ്ട് സ്ത്രീയുടെ വിദ്യാഭ്യാസത്തിനു വേണ്ടി വാദിക്കുന്ന ഒന്നായിരുന്നു. പൊതുരംഗപ്രവേശനം അസാധ്യമായിരുന്ന സവിശേഷ രാഷ്ട്രീയ സാഹചര്യം കണക്കിലെടുത്തുകൊണ്ട് ദേവകിഅമ്മ പറയുന്നത് ഇങ്ങനെയാണ്. “സ്ത്രീകൾ പൊതുരംഗത്ത് പ്രവേശിച്ചില്ലെങ്കിലും അവർ കഴിവുള്ള സന്തതികളെ വളർത്തിയാൽ അതുതന്നെ ലോകക്ഷേമത്തിനവർ നൽകുന്ന

സംഭാവനയല്ലയോ? അതുകൊണ്ട് അവരുടെ വിദ്യാഭ്യാസത്തിന്റെ ലക്ഷ്യം അവരെ രണ്ടാംകിട പുരുഷന്മാരാ കലല്ല, മറിച്ച് ദയ, കരുണ, സ്നേഹം, മമത, ക്ഷമ മുതലായ ഗുണങ്ങളെ വളർത്തലാണ്” (1913:16).

ഒന്നരപ്പതിറ്റാണ്ടിനുശേഷം സ്ത്രീകളുടെ അസ്വാതന്ത്ര്യത്തെക്കുറിച്ചും പൊതു രംഗപ്രവേശനത്തെക്കുറിച്ചും ആവേശത്തോടെ സംസാരിച്ച അന്നാചാണ്ടിയാണ് വേദികളിലൂടെ സ്ത്രീയെ രാഷ്ട്രീയ മണ്ഡലത്തിലേക്കു ക്ഷണിച്ചത്. അതുവരെ ലിംഗഭേദത്തെക്കുറിച്ചും സ്ത്രീത്വത്തെക്കുറിച്ചും സ്ത്രീസ്വാതന്ത്ര്യത്തെക്കുറിച്ചുമുള്ള ചർച്ചകൾ ആനുകാലികങ്ങളിലും സ്ത്രീസമാജങ്ങളിലും മാത്രമായി ഒതുങ്ങി നിൽക്കുകയായിരുന്നു. ഇത്തരം വിഷയങ്ങളെ പൊതുചർച്ചകളാക്കി മാറ്റിയത് അന്നാചാണ്ടിയാണ്. തിരുവനന്തപുരത്ത് 1929-ൽ വിദ്യാവർധിനിസഭയിൽ വാർഷികത്തോടനുബന്ധിച്ച് അന്നാചാണ്ടി നടത്തിയ പ്രസംഗം ഇത്തരത്തിലുള്ളതാണ്. ശ്രീ ചിത്തിരതിരുനാൾ വായനാശാലയുടെ വാർഷികയോഗത്തിൽ തിരുവിതാംകൂറിലെ നിയമസഭാംഗവും എഴുത്തുകാരനുമായ സദസ്വതിലകം ടി.കെ. വേലുപ്പിള്ള സ്ത്രീകൾക്ക് സർക്കാർ ഉദ്യോഗം നൽകേണ്ടതില്ല എന്നതിനെക്കുറിച്ച് പ്രസംഗിച്ചിരുന്നു. ഇതിനുള്ള മറുപടിയായിരുന്നു അന്നാചാണ്ടിയുടെ പ്രസംഗം. അന്നത്തെ തിരുവിതാംകൂർ ഹൈക്കോടതി ജഡ്ജിയായിരുന്ന പി.കെ നാരായണപിള്ളയുടെ അദ്ധ്യക്ഷതയിൽ നടന്ന യോഗമായതുകൊണ്ടുതന്നെ അന്നാചാണ്ടി കോടതിയിൽ ഒരു അന്യായം സമർപ്പിച്ചതിന്റെ വാദിഭാഗമായി കാര്യങ്ങൾ അവതരിപ്പിക്കുകയാണ് ചെയ്യുന്നത്. പ്രസംഗം തുടങ്ങുന്നത് ഇങ്ങനെയാണ്:

“ഈ കേസിൽ പ്രധാനമായി ഞങ്ങൾക്ക് വാദിക്കുവാനുള്ളത് ഈ അന്യായത്തിന് അശേഷം ഉത്തമവിശ്വാസം ഇല്ലെന്നുള്ളതാണ്. സുദീർഘമായ അന്യായത്തിൽ നിന്ന് സ്ത്രീകൾക്ക് പുരുഷന്മാരുടെ ഗൃഹ ജീവിതസുഖത്തിനായി സൃഷ്ടിക്കപ്പെട്ടിരിക്കുന്ന ഒരു കുട്ടം ജീവിക്കളാണെന്നും പരിശുദ്ധമായ അടുക്കളമന്ദിരങ്ങൾക്ക് വെളിയിലുള്ള അവരുടെ ജീവിതം കുടുംബക്ഷേമത്തിന് ഹാനികരമാണെന്നും അതിനാൽ അവരുടെ ഉദ്യോഗസംരംഭങ്ങൾ എല്ലാം നാശപേതുകമാണെന്നും കണ്ട് അതിനെ നിരോധിക്കണമെന്നുമാണ് അന്യായക്കാരന്റെ അത്യാവശ്യമെന്ന് കാണാൻകഴിയും” (1929 :133).

കേരളത്തിൽ സ്ത്രീകൾക്ക് സ്വാതന്ത്ര്യമില്ലെന്നുമാത്രമല്ല പല നിലയിൽ അടിമകളായി കഴിയുകയാണ് അവർ എന്നു അന്നാചാണ്ടി പ്രസ്താവിച്ചു. ജാതിമതഭേദമന്യേ സ്ത്രീക്ക് അടിമത്തം വിധിച്ചിരിക്കുന്നെന്നും 'പെണ്ണ്' എന്നാൽ 'അടിമ' എന്ന ഒരു സംവർഗത്തെ വിഭാവനം ചെയ്യുന്നുവെന്നും അവർ വിളിച്ചു പറഞ്ഞു.

വൃഷലികളും വട്ടക്കൂടകും ഓട്ടുവളകളും അന്തർഗൃഹങ്ങളുമായിക്കഴിയുന്ന അന്തർജനങ്ങൾ,തൊണ്ടക്ക് മുഴയില്ലാത്തതിനാൽ ആത്മാവില്ലാത്ത കൂട്ടമെന്ന് അപഹസിക്കപ്പെട്ട് ഗോഷാവലയത്തിൽ നിത്യനരകമു നുഭവിക്കുന്ന മുഹമ്മദീയ സഹോദരികൾ, മണ്ണുവാരിക്കളിക്കുന്ന ഇളം പ്രായത്തിൽ വിവാഹബന്ധത്തിൽപ്പെട്ട് താരൂണ്യത്തിൽ പ്രവേശിച്ചു യൗവനത്തിൽ കാലുണുമ്പോഴേക്കും വൈധവ്യം സംഭവിച്ചു മൊട്ടച്ചികളായി ജീവിതത്തെ പഴിച്ചു കഴിയുന്ന ബ്രാഹ്മണബാലികമാർ, സ്ത്രീധനമേർപ്പാടിന്റെ കാർക്കശ്യത്താൽ ആജീവനാന്തം ശപിക്കപ്പെട്ടവരായി കഴിയുന്ന ക്രിസ്തീയ വനിതകൾ, ഇവരൊക്കെ കേരളത്തിൽ അധിവസിക്കുന്ന അടിമകൾതന്നെ” (1929:136).

സ്ത്രീകൾ ഗൃഹചക്രവർത്തിനികളാണെന്നു പറഞ്ഞുകൊണ്ട് വേലുപ്പിള്ള നടത്തിയ പരാമർശങ്ങളെ അന്നാചാണ്ടി യുക്തിയുക്തം എതിർക്കുന്നുണ്ട്. അതു ഗാർഹികാടിമത്തമാണെന്നു പ്രാസംഗിക വിശദമാക്കുന്നു. മരുമക്കത്തായത്തിൽ സ്ത്രീക്ക് ചക്രവർത്തി സ്ഥാനമുണ്ടെന്നും പറയുമ്പോഴും ഒപ്പുവെക്കാൻ പറയുന്നിടത്ത് ഒപ്പുവരുന്നതിൽ കവിഞ്ഞ് യാതൊരു സ്വാതന്ത്ര്യവും കാണുന്നില്ലെന്ന് അന്നാചാണ്ടി വിശദീകരിക്കുന്നു. നായർ സ്ത്രീകൾക്ക് സമുദായോദ്ധാരണ പ്രവർത്തനങ്ങളിൽ പങ്കുകൊള്ളാൻ ഒരു സ്വാതന്ത്ര്യവുമില്ലെന്ന് സേദാഹരണം അവർ സമർത്ഥിക്കുന്നു. “സ്ത്രീകളോട് രണ്ടുവാക്ക് സംസാരിക്കാനായി യോഗം ദാരവാഹികളുടെ അനുപേക്ഷണീയമായ നിർബന്ധം മൂലം ഇറങ്ങിപ്പുറപ്പെട്ട എനിക്ക് ആ വിശാലമായ ഹാളിൽ ഒറ്റ പെൺകുഞ്ഞിനെപ്പോലും കാണാനായില്ല. കാര്യം അന്വേഷിച്ചപ്പോൾ ഉത്സവത്തിനും മറ്റും പോകുമെങ്കിലും ആ സ്ഥലത്തുള്ള സ്ത്രീകളെ പൊതുയോഗങ്ങളിൽ ഹാജരാകാൻ പുരുഷന്മാർ സമ്മതിച്ചുതുടങ്ങിയിട്ടില്ലെന്ന് അറിഞ്ഞു. സ്ത്രീകളുടെ സ്വാതന്ത്ര്യചരിത്രം ഈ വിധത്തിൽ ഇരിക്കുമ്പോൾ അവരെ ഗൃഹചക്രവർത്തിനികളെന്നോ ആരാധ്യദേവതമാരെെന്നോ നാമകരണം ചെയ്യുന്നതിൽ യാതൊരർത്ഥവുമില്ല ” (1929:137).

വൈവാഹികജീവിതത്തിനു തടസ്സം വരുമെന്ന് പറഞ്ഞുകൊണ്ട് ഉദ്യോഗസ്ഥകൾ അവിവാഹിത കളായിരിക്കണമെന്ന് വേലുപ്പിള്ള പറഞ്ഞതിനോടും അന്നാചാണ്ടി ഇടയുന്നു.

ഉദ്യോഗത്തിനു തടസ്സമായി വേലുപ്പിള്ളി നിരത്തിയ കാര്യങ്ങളെ അക്കമിട്ട് എതിർക്കുന്നുണ്ട് അവർ. വിവാഹിതകളായി പൊതു-രാഷ്ട്രീയ മേഖലകളിൽ ശോഭിക്കുന്നവരെ അവർ ഉദാഹരിക്കുന്നു.

“പ്രസംഗകർത്താവുപോലും ദേവിയെന്നു പുകഴ്ത്തുന്ന ആ ദാരതകോകിലം തന്റെ കത്തിച്ചിലിക്കുന്ന ദേശാഭിമാന്യതയെ പാശ്ചാത്യരാജ്യം മുഴുവനും പരത്തി ദാരതമാതാവിനെ സന്തുഷ്ടയാക്കുന്ന ശ്രീമതി സരോജിനി നായിഡു വിവാഹിതയും മാതാവും അല്ലയോ? ബലവത്തായ അടുക്കള അഴികളിൽ ബന്ധിക്കപ്പെട്ടിരുന്നവെങ്കിൽ ഈ ശ്രീമതിക്ക് ദാരതീയ പുരുഷപുവംഗന്മാർക്കുപോലും അപ്രാപ്യമായ രാഷ്ട്രീയ ഒന്നുതന്നെ പ്രാപിക്കുവാൻ സാധിക്കുമായിരുന്നോ? ലോകത്തിലെ സുപ്രസിദ്ധകളായ മാന്യമഹിളാരത്നങ്ങൾ ആരും വിവാഹിതകളെന്നും പറഞ്ഞ് അടുക്കള അഴികളിൽ ബന്ധിക്കപ്പെട്ടവരല്ല. അപ്രതീക്ഷിതമായ ശക്തിയോടുകൂടി പാഞ്ഞുവരുന്ന സ്ത്രീ സ്വാതന്ത്ര്യ പ്രവാഹത്തെ അടുക്കളവാദിച്ചിറകെട്ടി തടുക്കുവാൻ സാധിക്കയില്ല തന്നെ. തിരുവിതാംകൂർ കൊച്ചി നിയമസഭാ സമാജികകളായ ശ്രീമതിമാരും വിവാഹിതകളല്ലയോ? ആരാധ്യമായ പൊതുജനസേവകൊണ്ടും അന്ത്യതവൈദ്യശാസ്ത്ര പ്രവീണതയാലും പ്രകീർത്തിനികളായ ശ്രീമതി ചിന്നമ്മയും മിസ്സിസ് ലൂക്കോസും ദർശനമതികളാകകൊണ്ട് രാജ്യത്തിനെന്ന് ദോഷം വന്നു” (1929: 143).

ഇത്തരത്തിൽ അന്നാചാണ്ടി നടത്തിയ വാചാപ്രസംഗം സ്ത്രീക്ക് സാമൂഹ്യ- സാമുദായിക - രാഷ്ട്രീയ പ്രവേശനത്തിനും പങ്കാളിത്തത്തിനും സ്വാതന്ത്ര്യം ആവശ്യമാണെന്നും സ്വതന്ത്ര്യത്തിന്റെ അടിസ്ഥാനശിലയായ സാമ്പത്തിക സ്വാതന്ത്ര്യത്തനർഹമാക്കുന്ന ഉദ്യോഗത്തിന് സ്ത്രീകൾ അർഹരാണെന്നും പൊതുസമൂഹത്തെ ബോധ്യപ്പെടുത്തി. സ്ത്രീകൾക്കെതിരെ ഫയൽ ചെയ്ത വേലുപ്പിള്ളിയുടെ ആരോപണങ്ങളെ, പെണ്ണിനുവേണ്ടി വാദിക്കാനെത്തിയ വക്കീലായി സ്വയം അവരോധിച്ചുകൊണ്ട് ന്യായവാദങ്ങൾ നിരത്തി കോടതി മുമ്പാകെ എതിർവാദങ്ങൾകൊണ്ട് നേരിട്ടു. പ്രസംഗം ചുരുക്കുന്നത് ഈ അന്യായത്തിന്മേൽ തീർപ്പുകൽപ്പിക്കാൻ കോടതിയോട് അപേക്ഷിച്ചുകൊണ്ടാണ്.

പൊതുവേദികളും സമ്മേളനങ്ങളും സ്ത്രീകളെ അകറ്റി നിർത്തിയതിലുള്ള പ്രതിഷേധം സാമൂഹ്യപ്രതിബന്ധതയുള്ള സ്ത്രീകളെ എക്കാലത്തും ചൊടിപ്പിച്ചിട്ടുണ്ട്. ദാഷാപോഷിണി സഭയിൽ ഒരൊറ്റ സ്ത്രീക്ക് പോലും അംഗത്വം നൽകാത്തതിനെക്കുറിച്ചും സമസ്ത കേരള

സാഹിത്യപരിഷത്തിന്റെ സമ്മേളനത്തിൽ സ്ത്രീകളെ പങ്കെടുപ്പിക്കാത്തതിനെക്കുറിച്ചും വാക്കുകളിലൂടെ സമരം ചെയ്ത മറ്റൊരു പ്രമുഖയാണ് ബി. ദാഗീരമിഅമ്മ. 'ഇറങ്ങിപ്പോക്ക് നടത്തിയാണ് ഒരു ഘട്ടത്തിൽ അവർ പ്രതിഷേധം അറിയിച്ചത്. 1932-ൽ എറണാകുളത്ത് വെച്ചു നടത്തിയ പരിഷത്തിന്റെ സമ്മേളനത്തിലെ അവരുടെ പ്രസംഗം മഹിളയിൽ മഹിളാഭാഷണം എന്ന ഭാഗത്ത് രേഖപ്പെടുത്തിയിട്ടുണ്ട്. 'പുരുഷ സാഹിത്യസദസിൽ സ്ത്രീകൾ പ്രസംഗിക്കേണ്ട' എന്ന് അന്നത്തെ പുരുഷബുദ്ധി ജീവിസമൂഹം കല്പന പുറപ്പെടുവിച്ചപ്പോൾ അതുവരെ സ്ത്രീഗുണങ്ങളെക്കുറിച്ച് പറഞ്ഞു നടന്ന ദാഗീരമി അമ്മ ആ അനീതിക്കെതിരെ ശബ്ദിച്ചു. പരിഷത്തിന്റെ ലിംഗഭേദത്തെ ചോദ്യം ചെയ്യാനും സമമായ പങ്കാളിത്തത്തിനുവേണ്ടി വാദിക്കാനും അവർ മടിച്ചില്ല.

“എറണാകുളത്ത് വെച്ച് സാഹിത്യപരിഷത്തിന്റെ അനുബന്ധമായി നടത്തപ്പെട്ട മഹിളാ സമ്മേളനത്തിൽ പ്രസംഗിച്ചപ്പോൾ പുരുഷസാഹിത്യമെന്നും സ്ത്രീസാഹിത്യമെന്നും രണ്ട് വിഭാഗങ്ങൾ സൃഷ്ടിച്ച് ഒരു സാഹിത്യസദസ്സിൽ സ്ത്രീ എന്നും പുരുഷൻ എന്നുള്ള വിഭിന്നത പ്രത്യക്ഷപ്പെടുത്തണമെന്ന് പരിഷത്ത് പ്രവർത്തകന്മാർ നിശ്ചയിച്ചതും പുരുഷസാഹിത്യസദസ്സിൽ സ്ത്രീകൾക്ക് പ്രസംഗിക്കാൻ പാടില്ലെന്നും തീരുമാനിച്ചതും ആവശ്യമില്ലാത്ത സംഗതിയാണെന്ന് മഹിള പ്രസാധിക അന്നു പ്രസ്താവിക്കുകയുണ്ടായി” (1932 :158).

സംഘടനകളിലും പരിഷത്ത് പോലുള്ള കൂട്ടായ്മകളിലും സ്ത്രീക്കു പ്രവേശനം നിഷേധിച്ചതിനെ ചോദ്യം ചെയ്തതോടെ ഇത്തരം പ്രവണതകൾ കാലക്രമേണ കുറഞ്ഞുവന്നതായി കാണാം. തീർത്തും യാഥാസ്ഥിതികരായി കഴിഞ്ഞിരുന്ന മുസ്ലീം വനിതാസമൂഹത്തിനു ആദ്യമായി 1937-ൽ തിരുവല്ലയിൽ വെച്ച് ഒരു സമ്മേളനത്തിനു കൂടാൻ സാഹചര്യമുണ്ടായപ്പോൾ സ്വാഗതപ്രസംഗത്തിൽ എൻ. ഹമീലാബീവി ഇത്തരം സാഹചര്യങ്ങളെക്കുറിച്ച് വിലയിരുത്തി സംസാരിക്കുന്നുണ്ട്.

“അറിവില്ലായ്മയുടെ അടിമത്തട്ടിൽ, അസ്വതന്ത്രരുടെ അടുക്കളയിൽ കുരിശുൾ തിരകളിൽ മുങ്ങിമറിഞ്ഞ് ഇതികർത്തവ്യതാമൂഢരായി കാലം കഴിക്കേണ്ടിവന്ന നമ്മൾക്ക് ഇങ്ങനെ ഒരു സമ്മേളനം നടത്തുന്നതിനുണ്ടായിട്ടുള്ള മഹാദാഗധേയം തന്നെയാണ് ആ മഹാസൗന്ദര്യം” (1937 : 103).

സംഘടനാനിർമ്മാണമാണ് ഇനി നമുക്കു വേണ്ടതെന്നും അതിലൂടെ ഒരു ജനസമൂഹമായി നിന്നുകൊണ്ട് വനിതകൾക്കുള്ള സമൂഹനത ബോധ്യപ്പെടുത്തണമെന്നും ഹമീലബീവി പറയുന്നു. സഹോദരികളേ എന്നദിസംബോധന ചെയ്തുകൊണ്ട് ഓരോരുത്തരും അവരവരുടെ ദിക്കിൽ ഒരോ സമാജങ്ങൾ തുടങ്ങണമെന്നും അവ സമ്മേളിപ്പിച്ച് അഖിലതിരുവിതാംകൂർ മുസ്ലീം വനിതാസമാജവും പിന്നീട് ഒരഖില രാജ്യ സമ്മേളനവും സംഘടിപ്പിക്കണമെന്നും പ്രാസംഗിക ഉദ്ബോധിപ്പിച്ചു.

ഉപസംഹാരം

സാമൂഹ്യ- രാഷ്ട്രീയ പ്രവർത്തനങ്ങളിലെ സ്ത്രീ പങ്കാളിത്തത്തെ പ്രശ്നവൽക്കരിക്കുന്ന ക്രിയാത്മക പങ്കാളിത്തം നൽകാത്തതിനെ പൊതുവേദികളിൽ ചോദ്യം ചെയ്യുന്ന സ്ത്രീകളെ ഒരു നൂറ്റാണ്ട് മുൻപെ കാണാം. 1911-ലെ പെരുന്ന നായർ സമ്മേളനത്തിൽ കെ. ചിന്നമ്മ സാമൂഹ്യ പരിഷ്കരണത്തിൽ സ്ത്രീകൾക്ക് നൽകേണ്ട പ്രവർത്തനസ്വാതന്ത്ര്യത്തെക്കുറിച്ച് പ്രസംഗിക്കുന്നതിൽ തുടങ്ങി സാഹിത്യ സമ്മേളനത്തിലെ പങ്കാളിത്തക്കുറവിനെ വിമർശിക്കുന്ന ദഗീരമിഅമ്മയിലൂടെയും സ്ത്രീകൾക്കു സാമൂഹ്യസ്വാതന്ത്ര്യം നിഷേധിക്കുന്നതിനെ എതിർക്കുന്ന അന്നാചാണ്ടിയിലൂടെയും സംഘടിക്കാൻ ആഹ്വാനം ചെയ്യുന്ന ഹമീലബീവിയിലൂടെയും പിന്നീട് ഇരുപത്തിയൊന്നാം നൂറ്റാണ്ടിലെത്തി നിൽക്കുന്നു. പണ്ഡായത്തുദരണം മുതൽ രാഷ്ട്ര ഭരണത്തലപ്പത്തുവരെ സ്ത്രീകൾ എത്തി നിൽക്കുന്ന ഒരു രാഷ്ട്രീയപാശ്ചത്തലത്തിൽ അതിലേക്കുള്ള ചരിത്ര വഴികളെ കണ്ടെടുക്കുന്നതും ചരിത്രസമരങ്ങളെ സ്ഥാനപ്പെടുത്തുന്നതും വിസ്മൃത സ്ത്രീചരിത്രത്തിന്റെ വീണ്ടെടുപ്പിനെ സാധ്യമാക്കിയേക്കും.

വളരെ ലളിതമെന്നു തോന്നുമെങ്കിലും പൊതുവേദിയെ അദിസംബോധന ചെയ്ത് അതുവരെ നിലനിന്ന പുരോധിപത്യയുക്തികളെയും തന്ത്രങ്ങളെയും ചോദ്യം ചെയ്ത് 'സ്ത്രീകൾ' എന്ന ഒരു പൊതുസംവർഗത്തെ വിഭാവനം ചെയ്യാനും അത്തരത്തിലുള്ള കൂട്ടായ്മയെ രൂപപ്പെടുത്തി അവരെ ക്രിയാത്മകരാക്കാനും ഈ പ്രാസംഗികരുടെ വാക്കുകൾക്കായി. വേദികളിൽ മുഖാമുഖം നിന്ന് സമരം ചെയ്ത കേരളത്തിന്റെ ആദ്യകാല സ്ത്രീപോരാളികളാണ് പിന്നീട് സംഘടനകൾ, നിയമനിർമ്മാണ സഭകൾ, അധികാര കേന്ദ്രങ്ങൾ തുടങ്ങിയവയിലെ സ്ത്രീ പ്രാതിനിധ്യത്തിലേക്ക് എത്തിച്ചത്. ആ നിലയ്ക്ക് നോക്കുമ്പോൾ ഉച്ചദാഷിണികളുടെ മുഴക്കിയ സമരകാഹളം ഏറെ ഫലപ്രദമായി എന്നു നിശ്ചയമായും പറയാം.

സഹായകഗ്രന്ഥങ്ങൾ

അന്ന ചാണ്ടി (1929) സ്ത്രീസ്വാതന്ത്ര്യത്തെപ്പറ്റി, *സഹോദരൻ വിശേഷാൽപ്രതി*.

കാർത്ത്യായനി അമ്മ അമ്പാടി (1926) സ്ത്രീകളും സാഹിത്യവും, വിദ്യാവിലാസിനി.

കൊച്ചുകുട്ടി അമ്മ ടി.സി (1938) മലയാളസാഹിത്യത്തിൽ സ്ത്രീകളുടെ സ്ഥാനം, *മാതൃഭൂമി* മെയ്, 23.

ദേവകി അമ്മ തച്ചാട്ട് (1913) സ്ത്രീവിദ്യാഭ്യാസത്തിന്റെ ഉദ്ദേശ്യം, *ലക്ഷ്മീദായി*. 20:1

ദേവിക ജെ (2010) *കുലസ്ത്രീയും ചന്തപ്പെണ്ണയും ഉണ്ടാകുന്നതെങ്ങനെ?*, സെന്റർ ഫോർ ഡെവലപ്മെന്റ് സ്റ്റഡീസ്, തിരുവനന്തപുരം.

ദേവിക ജെ (2011) *കല്പനയുടെ മാറ്റൊലി*, കേരളശാസ്ത്രസാഹിത്യപരിഷത്തു, തൃശൂർ.

ദശീരഥി അമ്മ ബി (1931) സ്ത്രീകളും സാഹിത്യവും. *മഹിള*. 11:1

ദശീരഥി അമ്മ ബി (1932) മഹിളാഭാഷണം. *മഹിള*. 12:4.

മിനി സുകുമാരൻ & ദേവിക, ജെ (2006) കേരളീയപൊതുമണ്ഡലത്തിൽ സ്ത്രീവാദരാഷ്ട്രീയത്തിന്റെ സാധ്യതകൾ, *ആണരണുനാട്ടിലെകാഴ്ചകൾ*, വുമൺസ് ഇംപ്രിന്റ്, തിരുവനന്തപുരം.

ഹമീലാബീവി എൻ (1937) സ്വാതന്ത്ര്യപ്രസംഗം. *മുസ്ലീംവനിത*. 1:4

മാധ്യമങ്ങൾ മലയാളികളുടെ സാംസ്കാരിക രാഷ്ട്രീയ നിലപാടുകളിൽ വരുത്തുന്ന മാറ്റം

രേണു*

മലയാളവിഭാഗം, എസ്.ബി. കോളജ്, ചങ്ങനാശേരി

രൂപരേഖ

മലയാളിയുടെ ചിന്താധാരയെ സ്വാധീനിച്ച മാധ്യമങ്ങളിൽ ഇന്നും ഏറ്റവും പ്രമുഖമായത് പത്രങ്ങളാണ്. സാക്ഷരത ഇതിനൊരു പ്രധാനപ്പെട്ട കാരണമാണ്. മലയാളി = മാധ്യമം എന്ന് വരെ ഇന്ന് അറിയപ്പെടുന്നു. ഇത്തരമൊരു സാഹചര്യത്തിൽ മലയാളിയുടെ രാഷ്ട്രീയ സാംസ്കാരിക നിലപാടുകളിൽ പത്രങ്ങൾ ചെലുത്തുന്ന സ്വാധീനം സമഗ്രപഠനത്തിന് വിധേയമാക്കുന്നതാണ് ഈ പ്രബന്ധം. സാർവദേശീയ, ദേശീയ, പ്രാദേശിക പ്രശ്നങ്ങൾ പോലും പത്രങ്ങൾ വായനാ സമൂഹത്തിന് മുന്നിലെത്തിക്കുന്നു. പത്രങ്ങൾ നൽകുന്ന വിവരങ്ങൾ, ചിന്തകൾ, ആശയങ്ങൾ, സമീപനങ്ങൾ, വീക്ഷണ വ്യതിയാനങ്ങൾ മലയാളിയുടെ ചിന്തയെ സ്വാധീനിക്കുന്നു. ഇത് രാഷ്ട്രീയ സാംസ്കാരിക നിലപാടുകളിൽ പ്രതിഫലിക്കുന്നുമുണ്ട്. ഈ പ്രതിഫലനമാണ് പഠനത്തിന്റെ കേന്ദ്രപ്രമേയം. ഈ കേന്ദ്രപ്രമേയത്തിന്റെ വെളിച്ചത്തിൽ സ്ത്രീ പ്രശ്നങ്ങളെ പത്രങ്ങൾ എങ്ങനെ സമീപിക്കുന്നു എന്ന് പ്രബന്ധം ചർച്ചചെയ്യുന്നു. ഇന്നത്തെ സമൂഹത്തിൽ സ്ത്രീകളും കുട്ടികളും ഏറെ പീഡനങ്ങൾ ഏറ്റുവാങ്ങുന്നുണ്ട്. 1990-കൾ മുതലാണ് ഇത്തരം പത്രവാർത്തകൾ ഏറെയും വർദ്ധിച്ചുവന്നത്. സ്ത്രീയുടെ മേലുള്ള കടന്നുകയറ്റം ഒരു സാംസ്കാരിക പ്രശ്നവും അതിനേക്കാളുപരി ഒരു രാഷ്ട്രീയ പ്രശ്നവുമാണ്. ഈ സാമൂഹിക വിഷയം പത്രങ്ങൾ പുറത്തു കൊണ്ടുവരുന്ന രീതിയും അവ മലയാളി വായനാസമൂഹത്തിൽ സൃഷ്ടിക്കുന്ന പ്രതികരണവും പ്രബന്ധം പഠനവിധേയമാക്കുന്നു. ഇതിലേക്ക് അടുത്തകാലത്ത് ഏറെ ഒച്ചപ്പാടാണുണ്ടാക്കിയ ഡൽഹി സംഭവം ഉദാഹരണത്തിന് എടുക്കുന്നു.

ക്രിമിനൽ വാസന ഇന്നത്തെ സമൂഹത്തിൽ ശക്തിപ്പെടുന്ന ഒന്നാണ്. ലൈംഗിക പീഡനങ്ങളും വ്യാപകമാകുന്നുണ്ട്. ഇങ്ങനെ പെരുകി വരുന്ന ലൈംഗികപീഡനങ്ങളെ സമൂഹം എങ്ങനെ സമീപിക്കണമെന്നത് ചർച്ചാ വിഷയമാകണം. ഇത്തരം ചർച്ചകൾക്ക് പത്രങ്ങൾ നൽകുന്ന റിപ്പോർട്ടിങ്ങുകൾക്ക് ഏറെ പ്രാധാന്യമുണ്ട്. അവയാണ് വായനാസമൂഹത്തിന്റെ ചിന്താധാരകളെ മാറ്റി പ്രതിഷ്ഠിക്കുന്നത്. പത്രങ്ങൾ ഈ അർത്ഥത്തിൽ അവയുടെ കടമകൾ നിർവ്വഹിക്കുന്നുണ്ടോ എന്നും ഉണ്ടെങ്കിൽ ഏതു പരിധിവരെ എന്നുള്ള ചോദ്യങ്ങളും ഈ പ്രബന്ധം ഉന്നയിക്കുന്നു.

സൂചക പദങ്ങൾ: സ്ത്രീ, മലയാളി, ഡൽഹി, ക്രിമിനൽ വാസന, ഉത്തരവാദി പ്രക്ഷോഭ സമരം, വിമോചന സമരം, പത്ര സമീപനം, പൊതുബോധം

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ആമുഖം

കേരളം നൂറുശതമാനം സാക്ഷരത നേടിയ സംസ്ഥാനമാണ്. അച്ചടി മാധ്യമങ്ങൾ മലയാളിയുടെ മനസ്സിൽ എന്നും ഇടംനേടി പോന്നിട്ടുണ്ട്. 20-ാം നൂറ്റാണ്ടിന്റെ ആദ്യകാലത്ത് ഒരു നൂനപക്ഷം മാത്രമാണ് പത്രം വായിച്ചിരുന്നത്. മഹാഭൂരിപക്ഷത്തിനും എഴുത്തും വായനയും അന്ന് അന്യമായിരുന്നു. സാധാരണജനതയുടെ ജീവിതത്തിൽ അന്ന് പത്രങ്ങൾ കാര്യമായ യാതൊരു സ്വാധീനവും ചെലുത്തിയില്ല. ഇൻഡ്യൻ സ്വാതന്ത്ര്യസമരത്തിന്റെ വാർത്തകൾ പോലും മലയാളക്കരയെ വലുതായി ഉലച്ചില്ല. എന്നാൽ കേരളത്തിന് പുറത്ത് എത്തിപ്പെട്ട അഭ്യസ്തവിദ്യരായ മലയാളിയെ പത്രവാർത്തകൾ ഏറെ സ്വാധീനിച്ചു. ഇതിന്റെ പ്രതിഫലനം അവരുടെ സാംസ്കാരിക രാഷ്ട്രീയ നിലപാടുകളിൽ കാണാൻ കഴിയും.

കേരളവും പത്രങ്ങളും

കേരളത്തിലെ സാമൂഹിക പരിവർത്തനത്തെ ത്വരിപ്പിച്ചതിൽ പത്രങ്ങൾക്കുള്ള പങ്ക് അതിപ്രധാനമാണ്. മലയാളിയുടെ ചിന്തയെ പത്രങ്ങൾ വികസ്യമാക്കി. കേരളത്തിൽ വായനക്കാരുടെ വലിയൊരു സമൂഹത്തെ പത്രങ്ങൾ സൃഷ്ടിച്ചു. മലയാള ഭാഷയിലെ ആദ്യത്തെ പത്രമായ രാജ്യസമാചാരം 1847-ൽ പ്രസിദ്ധീകരിക്കപ്പെട്ടു. തൊട്ടുപിറകെ പത്മിമോദയം വെളിച്ചം കണ്ടു. 1848-ൽ ജ്ഞാനനികേഷപം പുറത്തുവന്നു. മലയാളത്തിലെ ലക്ഷണമൊത്ത പത്രമെന്ന നിലയിൽ അറിയപ്പെടുന്ന കേരളമിത്രം 1881-ൽ പ്രതിവാര പത്രമായി പ്രസിദ്ധീകരിക്കപ്പെട്ടു. ഇതിന്റെ ഒന്നാമത്തെ പത്രാധിപർ കണ്ടത്തിൽ വർഗ്ഗീസ് മാപ്പിള ആയിരുന്നു.

19-ാം നൂറ്റാണ്ടിന്റെ അവസാനമാകുമ്പോഴേക്കും കേരള പത്രീകയും (1884) നസ്രാണി ദീപികയും (1887) മലയാള മനോരമയും (1888) അച്ചടി മഷി പുരണ്ടു. 20-ാം നൂറ്റാണ്ടിന്റെ ആരംഭത്തോടെ പത്രങ്ങൾ മലയാളക്കരയിൽ എണ്ണത്തിൽ പെരുകി. 1902-ൽ കേരളത്താരകയും 1906ൽ കെ. രാമകൃഷ്ണപിള്ള പത്രാധിപരായി സ്വദേശാഭിമാനിയും 1907-ൽ മിതവാദിയും 1911-ൽ കേരള കൗമുദിയും 1922-ൽ സ്വരാട്ടും 1923-ൽ മാതൃഭൂമിയും 1924-ൽ അൽ അമീനും 1930-ൽ മലയാള രാജ്യവും 1934-ൽ ചന്ദ്രികയും വായനക്കാരുടെ കൈകളിലെത്തി. അധിക കാലം നീണ്ടുനിന്നിട്ടില്ലാത്ത ഒട്ടേറെ പത്രങ്ങൾ 1920കൾക്ക് ശേഷം രൂപം കൊണ്ടു. ഇവയെല്ലാം മലയാളക്കരയിൽ നല്ലൊരു വായനാ സമൂഹത്തെ വാർത്തെടുത്തു. സ്വദേശാഭിമാനിയും മിതവാദിയും കേരളകൗമുദിയും മാതൃഭൂമിയും അക്കാലത്ത് വലിയ ജനസ്വാധീനത നേടിയെടുത്തു. പത്രവായനക്കാരുടെ ചിന്താമണ്ഡലത്തെ ഇളക്കി പ്രതിഷ്ഠിക്കാൻ ഇവയിൽ

പല പത്രങ്ങൾക്കും കഴിഞ്ഞു. ഭരണാധികാര സ്ഥാപനങ്ങളെ വിറകൊള്ളിക്കാനും അവയുടെ തലപ്പത്തുള്ളവരുടെ ഗർഹ്യമായ നടത്തയെക്കുറിച്ച് മുഖപ്രസംഗം എഴുതാനും സ്വദേശാഭിനാനി തയ്യാറായി. ഉൽപതിഷ്ണുക്കളായ വായനക്കാരെ ഇത് കുറച്ചൊന്നുമല്ല പിടിച്ചുലച്ചത്.

കായിക പ്രാധാന്യമുള്ള വാർത്തകളെ/വിശേഷങ്ങളെ ചുടോടെ പകർന്നു കൊടുക്കാൻ രാമകൃഷ്ണപിള്ളയുടെ പത്രപ്രവർത്തനങ്ങൾക്ക് കഴിഞ്ഞു. പത്രങ്ങൾ രാജകാര്യങ്ങളിലും പൗരവകാര വിഷയങ്ങളിലും ഇടപ്പെട്ട് ജനതയുടെ താല്പര്യം പൊതുശ്രദ്ധയിൽ കൊണ്ടു വരണമെന്ന നിർബന്ധ ബുദ്ധി രാമകൃഷ്ണ പിള്ള പ്രകടിപ്പിച്ചു. രാജസേവകാരുടെ അഴിമതികളെയും ഉദ്യോഗസ്ഥ വൃന്ദത്തിന്റെ അപരാധങ്ങളെയും ദിവാനായിരുന്ന രാജഗോപാലാചാരിയുടെ നടപടികളെയും വസ്തുതകൾ നിരത്തി അതിനിശിതമായി വിമർശിച്ചുകൊണ്ട് രാമകൃഷ്ണപിള്ള മുഖപ്രസംഗങ്ങൾ എഴുതി.

മലയാള പത്രപ്രവർത്തന ചരിത്രത്തിൽ എന്നും ഓർമ്മിക്കുന്ന ഒരു മുഖപ്രസംഗം സ്വദേശാഭിനാനി പത്രത്തിൽ 1910 ഓഗസ്റ്റ് 24-ന് പ്രസിദ്ധപ്പെടുത്തി. രൂക്ഷമായ ദാഷ്യത്തിൽ നാടുനീങ്ങിപ്പോയ വിശ്വ വിഖ്യാതനായ വിശാഖം തിരുനാൾ തിരുമനസ്സ് കൊണ്ട് ദേശസഞ്ചാരം കഴിഞ്ഞ് മടങ്ങി എഴുന്നള്ളിയ സന്ദർഭത്തിൽ തിരുമനസ്സിലെ പള്ളി ബോട്ടടുത്ത ചാകെ കടവിലും പിന്നീട് വലിയ കൊട്ടാര ഉദ്യോഗസ്ഥാരെ അവിടുന്ന് കഠിനമായി അധികേഷപിച്ചിരിക്കുന്നുവെന്ന് ഞങ്ങൾ കേട്ടിട്ടുണ്ട്. വിശാഖം തിരുനാൾ തിരുമനസ്സ് ഉണ്ടായിരുന്നുവെങ്കിൽ മിസ്റ്റർ ആചാരിയുടെ ഇന്നത്തെ കുറ്റത്തിന്, തിരുമനസ്സിലെ കുതിരക്കാരന്റെ കൗഞ്ചികൊണ്ട് ഈ മന്ത്രിസ്ഥാന വ്യഭിചാരിയുടെ തൊലിപൊളിച്ചു വിടുമായിരുന്നു എന്നുള്ളതിൽ ഞങ്ങൾക്ക് സന്തോഷമില്ല. ചാട്ടുളിപ്പോലെ തുള്ളത്തുകയറിയ ഈ മുഖപ്രസംഗത്തിന്റെ പേരിൽ തിരുവിതാംകൂർ സർക്കാർ 1910 സെപ്റ്റംബർ 26-ന് രാമകൃഷ്ണപിള്ളയെ നാടുകടത്തിക്കൊണ്ടുള്ള രാജകീയ വിളംബരം പുറപ്പെടുവിച്ചു. ജനങ്ങളുടെ പൗരബോധം ഉയർത്താനും അവരിൽ ശരിയായ അവബോധം ഉണർത്തിക്കൊണ്ടു വരാനും പത്രങ്ങൾക്കുള്ള അപാരമായ സിദ്ധി സവിശേഷതയാണ് രാമകൃഷ്ണപിള്ളയ്ക്ക് എതിരായ നടപടിയിലൂടെ വ്യക്തമാക്കപ്പെട്ടത്. ഒരു ലക്ഷം ബയണറുകളെക്കാൾ മൂന്നു പത്രങ്ങളെ താൻ ഭയപ്പെടുന്നുവെന്നാണ് നെപ്പോളിയൻ ബോണോപാർട്ട് പറഞ്ഞത്. ജനതയുടെ മേൽ പത്രത്തിനുള്ള സ്വാധീനം എത്രമാത്രം ഉണ്ടെന്ന് ഇത് വ്യക്തമാക്കുന്നു. പൊതു ജനാഭിപ്രായത്തിന്റെ സമ്മർദ്ദം വായു സമ്മർദ്ദം പോലെയാണ്. നമ്മൾക്കത് കാണാൻ കഴിയില്ല. പക്ഷേ അതേസമയം ഒരു ചതുരശ്ര

ഇഞ്ച് സ്ഥലത്ത് അത് പതിനാറ് നാത്തലാണ് എന്ന ജെ.ആർ ലോവലിന്റെ അഭിപ്രായം പൊതുജനാഭിപ്രായത്തിന്റെ സമ്മർദ്ദശക്തിയെ ഉദാഹരിക്കാൻ പോരുന്നതാണ്. ഈ പൊതുജനാഭിപ്രായം ഉയർത്തുന്നതിൽ പത്രങ്ങൾക്കുള്ള കഴിവ് അപാരവും അനുപമവുമാണ്.

പത്രത്തിലെ ശക്തിയേറിയ ലേഖനങ്ങളും വാർത്തകളും ഫീച്ചറുകളും ദൃക്സാക്ഷി വിവരണങ്ങളും റിപ്പോർട്ടുകളും മുഖപ്രസംഗങ്ങളുമെല്ലാം ഒരു ജനതയെ ഉദ്ബുദ്ധമാക്കാൻ പര്യാപ്തമാണ്. പത്രത്തിന്റെ രാഷ്ട്രീയ സാമൂഹിക സാംസ്കാരിക സാഹിത്യമേഖലകളിലെ ഇടപെടൽ ശേഷി വർദ്ധിക്കുന്നതിനനുസരിച്ച് ജനങ്ങളുടെ ചിന്താ ശീലത്തിൽ വൻ മാറ്റങ്ങൾ സൃഷ്ടിക്കപ്പെടുന്നു. ജനായത്തരംരണത്തിനുവേണ്ടിയുള്ള പത്രങ്ങളുടെ നിലപാടുകൾ മലയാളിയെ സ്വാധീനിച്ചതുകൊണ്ടു കൂടിയാണ് ഉത്തരവാദി പ്രക്ഷോഭ സമര പ്രവർത്തനങ്ങൾക്ക് പൊതുജന സമ്മതിയും പൊതുജനങ്ങളുടെ പിൻബലം വലിയൊരളവിൽ ലഭിച്ചതും. മലയാളി മെമ്മോറിയലിനും (1891) ഈഴവമെമ്മോറിയലിനും (1896) മലയാളക്കരയിലെ പൊതു ജനങ്ങൾക്ക് ഇടയിൽ അഭിപ്രായരൂപീകരണം ഉണ്ടാക്കാൻ കഴിഞ്ഞതിന്റെ പിന്നിലും പത്രങ്ങളുടെ സ്വാധീനം എടുത്തുപറയത്തക്കതാണ്. മെമ്മോറിയലിനെ അനുകൂലിച്ചും പ്രതി കൂലിച്ചും അക്കാലത്തെ പത്രങ്ങളിലും ആനുകാലികങ്ങളിലും വാർത്തകൾ വന്നിരുന്നു. ഈ പ്രചാരണത്തിലൂടെ അവയുടെ ശരിയും തെറ്റു തിരിച്ചറിയാനും സർക്കാർ സർവ്വീസിൽ വിദേശ ബ്രാഹ്മണർ പുലർത്തിയിരുന്ന മേധാവിത്വം അവസാനിപ്പിച്ച് വിദ്യാഭ്യാസത്തിനനുസരിച്ച് സ്വദേശീയർക്ക് ജോലി നൽകേണ്ടതിന്റെ ആവശ്യകത ബോധ്യപ്പെടുത്താനും പത്രങ്ങൾക്ക് കഴിഞ്ഞു. ഇത്തരം മൊരു പൊതുബോധത്തിന്റെ അടിസ്ഥാനത്തിൽ സംഘടിതമായ മുന്നേറ്റങ്ങളും സാധ്യമാണെന്ന് തെളിയിക്കപ്പെട്ടു. ജനാഭിപ്രായം രൂപീകരിക്കുന്നതിൽ പത്രങ്ങൾക്കുള്ള ഈ കഴിവ് ആധുനികകാലത്താണ് ഏറ്റവും സർഗ്ഗാത്മകമായി പ്രകടമാവുന്നത്.

20-ാം നൂറ്റാണ്ടിന്റെ അവസാനത്തോടെ പത്രങ്ങളുടെ സ്വാധീനം മലയാളിയുടെ ചിന്തയെ കീഴ്മേൽമറിച്ചു. ആദ്യകാലപത്രങ്ങൾ വാർത്തകൾ മാത്രമാണ് വായനക്കാരിൽ എത്തിച്ചിരുന്നെങ്കിൽ പിന്നീടങ്ങോട്ട് വായനക്കാരുടെ കാഴ്ചപ്പാടുകളിൽ മൗലികമായ മാറ്റം വരുത്തുന്നതിനും ഒരു പ്രത്യേക പ്രശ്നത്തിൽ ശരിയായ അവബോധ രൂപീകരണത്തിനും ഇടം നൽകുന്ന വിധം പത്രപ്രവർത്തനം വളർന്നുയരുന്നു. പത്രങ്ങൾ സാധാരണക്കാരുടെ അധ്യാപകരാണ്. അവരവരുടെ സർവ്വകലാശാലയുമാണ്. പടിഞ്ഞാറൻ രാജ്യങ്ങളിലെ പത്രങ്ങളുടെ മാതൃകയിൽ കേരളക്കരയിൽ ആരംഭിച്ച പത്രങ്ങൾ മലയാളിയുടെ ജീവിതത്തെ മാറ്റി

ത്തിർക്കുന്നതിൽ നിർണ്ണായക പങ്കുവഹിച്ചു. 19-ാം നൂറ്റാണ്ടിലെ കേരളത്തിൽ സഞ്ചാര സ്വാതന്ത്ര്യമോ, വസ്ത്രധാരണ സ്വാതന്ത്ര്യമോ, സമീപന സ്വാതന്ത്ര്യമോ, വിദ്യാലയ പ്രവേശന സ്വാതന്ത്ര്യമോ, ആരാധനാ സ്വാതന്ത്ര്യമോ പൊതുക്കിണറ്റിൽ നിന്ന് വെള്ളം കോരാനുള്ള സ്വാതന്ത്ര്യമോ, മാറു മറയ്ക്കാനുള്ള സ്വാതന്ത്ര്യമോ മഹാഭൂരിപക്ഷം ജനതയ്ക്കും സ്വപ്നംകൂടി കാണുവാൻ കഴിയുമായിരുന്നില്ല. കേരളത്തിലെ സാക്ഷരതാ വളർച്ചയുടെ തോത് ജീവിത സാഹചര്യങ്ങളുമായി ബന്ധപ്പെട്ടാണ് നിൽക്കുന്നതെന്ന് കാണാൻ കഴിയും. 1901-ൽ പുരുഷ സാക്ഷരത 19.15, സ്ത്രീ സാക്ഷരത 3.15, 2001-ൽ പുരുഷ സാക്ഷരത 94.20, സ്ത്രീ സാക്ഷരത 87.86.

സാക്ഷരതയിലുണ്ടായ ഈ വളർച്ച ജീവിതഗുണമേയിലും ചിന്തയിലും പ്രതിഫലിക്കുന്നുവെന്ന് ഒട്ടേറെ ചരിത്ര സംഭവങ്ങൾ നിരത്തി ഉദാഹരിക്കാൻ കഴിയും. കേരളത്തിലെ ആധുനിക കാലഘട്ടത്തിലെ അതിപ്രശസ്തമായ ഒരു രാഷ്ട്രീയ സംഭവം ഇതിന് പഠനവിഷയമായി സ്വീകരിക്കുന്നു.

കേരളവും വിമോചന സമരവും (1959)

കേരളത്തിലെ ആദ്യത്തെ ജനകീയ സർക്കാർ അധികാരത്തിൽ വന്നത് 1957 ഏപ്രിൽ 5-നാണ്. ബാലറ്റുപെട്ടിയിലൂടെ കമ്മ്യൂണിസ്റ്റ് പാർട്ടി ഒരു സംസ്ഥാനത്ത് ഭരണാധികാരത്തിൽ വരുന്നതും ആദ്യമായിട്ടായിരുന്നു. അധികാരമോഹത്തെ പലരും പലതലങ്ങളിൽ അടയാളപ്പെടുത്തി. അധികാരത്തിൽ വന്നശേഷം സർക്കാർ കൈകൊണ്ട നയങ്ങളും നടപ്പിലാക്കിയ പരിപാടികളും രൂക്ഷമായ വിമർശനത്തിന് വിധേയമായി. കേരളം രണ്ടു ചേരിയായിത്തീർന്നു. ഇതിന്റെ ഒരു ഭാഗമാണ് 1959-ലെ വിമോചന സമരം. ഈ സമരത്തെപ്പോലിപ്പിച്ചെടുത്ത് വളർത്തി ഒരു മഹാസംഭവമാക്കി മാറ്റിയത് അക്കാലത്തെ പത്രങ്ങളാണ്. ഇത് ഗൗരവപൂർണ്ണമായ പഠനം ആവശ്യപ്പെടുന്ന ഒന്നാണ്. അക്കാലത്തെ പത്രസമീപനം സമരത്തിന് അനുകൂലവും പ്രതികൂലവുമായുള്ള റിപ്പോർട്ടുകളും വിവരങ്ങളും കൊണ്ട് നിറഞ്ഞതായിരുന്നു. അന്നത്തെ പത്രങ്ങളുടെ (1959-ജൂൺ, ജൂലൈ മലയാള മനോരമ, മാതൃഭൂമി, കേരളഭൂക്ഷണം) ലക്കങ്ങൾ പഠനത്തിന് വിധേയമാക്കിയിരുന്നു.

1959 ജൂലൈ ഒന്നിന്റെ ഒട്ടേറ്റ പത്രങ്ങളും കേരളത്തിലെ വൻ ജനകീയ മുന്നേറ്റത്തെക്കുറിച്ചാണ് തലക്കെട്ടുകൾ നിരത്തിയത്. അക്കാലത്തെ ഇരുപത്തിയൊൻപത് പത്രങ്ങളിൽ ഇരുപത്തിയെട്ട് പത്രങ്ങളും സർക്കാരിനെതിരെ അണിനിരന്ന വാർത്തകൾ ദാവനാവിലാസത്തടെ റിപ്പോർട്ട് ചെയ്തു. ഇത് ജനതയെ കണക്കറ്റ് സ്വാധീനിച്ചു. സ്ത്രീകളും

കുട്ടികളുമടക്കം വലിയൊരു ജനസഞ്ചയം സർക്കാരിനെതിരെ അണിനിരക്കുവാൻ പത്രങ്ങൾ ഉയർത്തിക്കൊണ്ടുവന്ന പ്രചാരവേല പൊതുബോധനിർമ്മിതിയ്ക്ക് കഴിഞ്ഞു. പൊതുപിൻതുണ സമരത്തിന് നേടിക്കൊടുക്കാനാണ് പത്രങ്ങൾ ശ്രമിച്ചത്. സമൂഹത്തിൽ പൊതുബോധം എങ്ങനെ പത്രങ്ങൾ നിർമ്മിക്കുന്നുവെന്നതിന് ഒത്ത തെളിവാണ് വിമോചനസമരകാലത്തെ പത്രങ്ങളുടെ പ്രവർത്തനം. സർക്കാരിനെതിരെയെപ്പൊതുജനാഭിപ്രായം സൃഷ്ടിച്ചെടുക്കുന്നതിൽ അക്കാലത്തെ പത്രങ്ങൾ വലിയൊരുവേളം വിജയിച്ചു എന്നാണ് 1959 ജൂലൈ 31-ന് ഉണ്ടായ ജനകീയ സർക്കാരിന്റെ പിരിച്ചു വിടൽ നടപടി. തുടർന്നുള്ള രാഷ്ട്രീയ മാറ്റവും ഇത് തന്നെ വ്യക്തമാക്കുന്നു. അക്കാലത്തെ പത്രനിഷർദ്ദിപ്പുകളും വിശകലന രീതികളും അവതരണവും ജനങ്ങളെ നല്ലൊരുവിധി സ്വാധീനിച്ചു. ജനാധിപത്യ വ്യവസ്ഥയിൽ പത്രങ്ങളുടെ ഈ അഭിപ്രായ രൂപീകരണത്തിനുള്ള കഴിവ് സീമയറ്റതാണ്. ജനങ്ങളിലേക്ക് ആശയങ്ങളുടെ കുത്തൊഴുക്ക് തന്നെ കടത്തിവിടാൻ പത്രങ്ങൾക്ക് ഇന്ന് അനായാസം കഴിയുന്നു. ലോകകക്ഷിനുവേണ്ടി നടന്ന കായിക മാമാകം മലയാളക്കരയെ സ്വാധീനിച്ചത് അടുത്ത കാലത്ത് നാം കണ്ടു. പത്രപ്രവർത്തനത്തിലെ നൂതനധാരകളും അതിന്റെ ശാസ്ത്രവും കലയും എല്ലാം ഇതിന് സഹായകരമായ രീതിയിൽ കേരളത്തിൽ വളർന്നു വന്നിട്ടുണ്ട്.

ലോകത്തിന്റെ വടക്കും തെക്കും കിഴക്കും പടിഞ്ഞാറുമുള്ള ഒട്ടേറെ വാർത്തകളും (News-N-North, E-East, W.West, S-South) അന്നത് രാവിലെ തന്നെ പത്രത്തിലൂടെ മലയാളിയുടെ മുന്നിലെത്തുന്നു. നവമാധ്യമങ്ങളുടെ വേലിയേറ്റം വന്നിട്ടും പത്രവായന മലയാളിയുടെ മാറ്റിവയ്ക്കാനാവാത്ത ഒരു പ്രഭാതകൃത്യമായി ഇന്നും തുടരുന്നു. പലപത്രങ്ങളും രാവിലെ തന്നെ വായിക്കുന്നവരാണ് അധികംപേരും, മലയാളി = മാധ്യമം എന്നു വരെ ഇന്ന് അറിയപ്പെടുന്നു.

പത്രങ്ങൾക്ക് വലിയ പ്രചാരമുള്ള സംസ്ഥാനമാണ് കേരളം. ഇൻഡ്യയിൽ ഒരു ലക്ഷം പേർക്ക് 1300 കോടി പത്രം എന്നാണ് കണക്ക്. കേരളത്തിൽ 20 പത്രങ്ങളുടെ നാല്പത് ലക്ഷം കോപ്പികൾ മലയാളികൾ വായിക്കുന്നു. പത്രം വാങ്ങാൻ മലയാളി ഒരു കൊല്ലം അഞ്ഞൂറുകോടി രൂപയ്ക്കടുത്ത് ചെലവഴിക്കുന്നു. അതായത് ശരാശരി 120 ലക്ഷം രൂപ പത്രത്തിനുവേണ്ടി ഒരു ദിവസം മലയാളി മുടക്കുന്നുവെന്ന് അടുത്ത കാലത്ത് നടന്ന ഒരു മാധ്യമ പഠനം സൂചിപ്പിക്കുന്നു. ഇന്ന് ഇരുപത്തിനാല് മണിക്കൂറും മലയാളി പത്രങ്ങളുടെയും നവമാധ്യമങ്ങളുടെയും വലക്കണ്ണികൾക്കുള്ളിലാണ്. ഇത് മലയാളിയുടെ ചിന്താലോകത്തെയും രാഷ്ട്രീയ സാംസ്കാരിക വിലയിരുത്തലിനെയും സ്വാധീനിക്കും.

ഈ പശ്ചാത്തലത്തിൽ സ്ത്രീയുടെ പ്രശ്നങ്ങൾ, അവർക്ക് നേരെ പെരുകി വരുന്ന അതിക്രമങ്ങൾ, ലൈംഗികാക്രമണങ്ങൾ എന്നിവ എങ്ങനെ പത്രങ്ങൾ റിപ്പോർട്ട് ചെയ്യുന്നുവെന്നും അവ എങ്ങനെ വിശകലനം ചെയ്ത് അവതരിപ്പിക്കുന്നുവെന്നും അവയുടെ സ്വാധീനം എങ്ങനെ മലയാളിയുടെ മനസ്സിൽ മാറ്റം വരുത്തുന്നുവെന്നും പ്രബന്ധം പരിശോധിക്കുന്നു.

2012 ഡിസംബർ 12-ന് ഉണ്ടായ ഡൽഹി സംഭവം ഇതിന് ഉദാഹരണമായി സ്വീകരിക്കുന്നു.

സ്ത്രീക്ക് നേരെ നടക്കുന്ന അതിക്രമങ്ങൾ

ബലാത്സംഗം ഉൾപ്പെടെ എല്ലാതരത്തിലുമുള്ള സ്ത്രീ പീഡനങ്ങൾ രാജ്യത്തിന്റെ എല്ലാ പ്രദേശത്തും പെരുകുകയാണ്. 1990-കൾ മുതലാണ് സ്ത്രീപീഡനങ്ങളുടെ കണക്കുകളിൽ അമ്പരപ്പുളവാക്കുന്ന വിധം കുതിച്ചുകയറ്റം ആരംഭിച്ചത്.

1980-ന് മുമ്പുള്ള മലയാളപത്രങ്ങളിൽ സ്ത്രീപീഡനങ്ങൾ വലിയ വാർത്തയായി സ്ഥാനം പിടിച്ചിരുന്നില്ല. സ്ത്രീ ആത്മഹത്യപോലും അന്ന് പത്രങ്ങളുടെ അകത്താളിലെ ചെറിയ കോളങ്ങളിൽ മാത്രമാണ് സ്ഥാനം പിടിച്ചത്.

സ്ത്രീ വിദ്വേഗം തൊഴിൽ അന്വേഷിച്ച് അടുക്കളയിൽ നിന്ന് പുറംലോകത്തേക്ക് എത്തിയപ്പോൾ അവർക്ക് നേരെയുള്ള കൈയേറ്റങ്ങളും പെരുകി. ട്രെയിൻ യാത്രകളും ബസ് യാത്രകളും അവർക്ക് ദുരിതവും മരണവും സമ്മാനിക്കുന്നു. ഒടുവിലൊടുവിൽ ആയപ്പോഴേക്കും സ്ത്രീ സുരക്ഷിതയല്ലാത്ത നാടായി രാജ്യം മാറിയെന്ന് പലരും വിലപിക്കുന്ന സ്ഥിതിയും ഉണ്ടായി. വിദ്യാലയങ്ങളിലും വീടുകളിലും അവർ സുരക്ഷിതയല്ലെന്ന സ്ഥിതിയും നിലവിലുണ്ട്. അടുത്തകാലത്തേറെ ഒച്ചപ്പാടുണ്ടാക്കിയ ഇത്തരം ഒട്ടേറെ സംഭവങ്ങൾ പത്രങ്ങൾ റിപ്പോർട്ട് ചെയ്തിരുന്നു.

ചെറുപ്രായത്തിൽപ്പെട്ട പെൺകുഞ്ഞു മുതൽ മുത്തശ്ശിമാർ വരെയുള്ളവർ മാനദംഗത്തിന് ഇരയാകുന്ന സംഭവങ്ങൾ നിത്യനയെന്നവണ്ണം പത്രങ്ങളിൽ വാർത്തയാകുന്നു. ഇൻഡ്യയിൽ ഓരോ മുപ്പത്തിനാലു മിനിറ്റിലും ഒരു ബലാത്സംഗം നടക്കുന്നു എന്നാണ് ഒരു പഠനം വ്യക്തമാക്കിയത്. ഈ കണക്ക് ആരെയും ഞെട്ടിപ്പിക്കുന്നതാണ്. ഒരോ നാല്പത്തിരണ്ട് മിനിറ്റിലും ഒരു ലൈംഗികാതിക്രമവും ഓരോ തൊണ്ണൂറ്റി മൂന്ന് മിനിറ്റിലും ഒരു സ്ത്രീധനമരണവും ഇൻഡ്യയിൽ നടക്കുന്നു. സ്ത്രീ സുരക്ഷിതയല്ലാത്ത രാജ്യങ്ങളുടെ പട്ടികയിൽ ഇൻഡ്യ നാലാം സ്ഥാനത്താണ്. നഗരങ്ങളിൽ കൂട്ട ബലാത്സംഗങ്ങൾ വ്യാപകമാണ്. ഈ വിധത്തിൽ സ്ത്രീകൾക്ക്

നേരെ പെരുകി വരുന്ന ലൈംഗികാതിക്രമങ്ങളെ എങ്ങനെ സമൂഹം സമീപിക്കണമെന്നത് ചർച്ച ചെയ്യപ്പെടണം. ഇതിന് പത്രങ്ങളോളം പറ്റിയ മറ്റൊരു ബഹുജനജ്ഞാപന വേറെയില്ല. ഡൽഹി പെൺകുട്ടിക്ക് നേരെ നടന്ന കൈയേറ്റവും അവളുടെ മരണവും പത്രങ്ങൾ റിപ്പോർട്ട് ചെയ്തത് ഉദാഹരണമായെടുത്തുകൊണ്ട് ഇത് പഠിക്കാവുന്നതാണ്.

ഡൽഹി സംഭവം

ഓടിക്കൊണ്ടിരുന്ന ബസ്സിൽ വെച്ച് അതിക്രൂരമായി ഡൽഹി പെൺകുട്ടി ബലാത്സംഗം ചെയ്യപ്പെട്ട വാർത്ത 2012 ഡിസംബർ 12-നാണ് പത്രങ്ങൾ റിപ്പോർട്ട് ചെയ്തത്. പത്രങ്ങളിൽ കേവലമൊരു വാർത്തയായി വന്ന ഈ സംഭവം വളരെ പെട്ടെന്ന് ഇൻഡ്യ മുഴുവൻ ശ്രദ്ധപിടിച്ചു പറ്റുന്ന ഒന്നായി മാറി. പത്രങ്ങളിലെ റിപ്പോർട്ടിങ്ങിന്റെ പ്രത്യേകതയാണ് ഇത് സാധ്യമാക്കിയത്. ഒരു ബഹുജനമുന്നേറ്റം തന്നെ ഡൽഹിയിൽ വളർന്നു വരാൻ ഇത് കളം ഒരുക്കി. സ്വതന്ത്ര ഇൻഡ്യയുടെ ചരിത്രത്തിലാദ്യമായി സ്ത്രീകൾ രാഷ്ട്രപതി ദവനിലേക്ക് പോലീസ് ബാരിക്കേഡുകൾ തകർത്ത് ഇറച്ചു കയറി. പോലീസും പട്ടാളവും നോക്കി നിൽക്കെയാണ് ഇത് സംഭവിച്ചത്. ഡൽഹി സംഭവം സംബന്ധിച്ച് പത്രങ്ങൾ വിവരങ്ങൾ പുറത്തുകൊണ്ടു വന്ന രീതി ജനമനസ്സുകളെ പിടിച്ചുലച്ചു. പത്രറിപ്പോർട്ടിങ്ങ് വായനാ സമൂഹത്തിലുണ്ടാക്കിയ ചടുലമായ പ്രതികരണങ്ങളായിരുന്നു ഡൽഹിയിലെ ജനകീയ പ്രക്ഷോഭത്തിനും ഇൻഡ്യയിലെ വിവിധങ്ങളായ സംസ്ഥാനങ്ങളിൽ നടന്ന പ്രതിഷേധത്തിനും വഴി മരുന്നിട്ടത്.

പോലീസ് കേസെടുത്ത് അന്വേഷിച്ച് അതിസാധാരണമായി എഴുതിത്തള്ളുമായിരുന്ന ഒരു കേസാണ് ഒരു സാമൂഹ്യ സാംസ്കാരിക രാഷ്ട്രീയ പ്രശ്നമാക്കി പത്രങ്ങൾ ഉയർത്തിയത്. വികലമോ വഴിപിഴച്ചതോ ആയ ഏതാനും വ്യക്തികളുടെ ഒരു സ്ത്രീക്ക് നേരെയുള്ള ആക്രമണോത്സുകത എന്നതിൽ നിന്ന് സ്ത്രീയുടെ മേലുള്ള ഒരു കടന്നുകയറ്റമായി ഇത് ചിത്രീകരിക്കപ്പെട്ടു. ഇൻഡ്യയിലെ എല്ലാ സംസ്ഥാനങ്ങളിലെയും പെൺകുട്ടികളുടെ, സ്ത്രീകളുടെ പ്രതീകമായി ഡൽഹി പെൺകുട്ടിമാറി. അവർക്ക് വേണ്ടി പ്രാർത്ഥിക്കാനും അവർ ജീവിതത്തിലേക്ക് തിരിച്ചു വരാനും എല്ലാവരും ആഗ്രഹിച്ചു. ലൈംഗികാതിക്രമത്തിൽപ്പെട്ട് പൊലിഞ്ഞുപോകുന്ന എല്ലാ സുന്ദര ജീവിതങ്ങളുടെയും ദുരന്തപ്രതീകമായി അവർ മാറി.

കുറ്റവാളികളെ വളരെ വേഗത്തിൽ നിയമത്തിനു മുന്നിൽ കൊണ്ടുവരാനും അവർ അർഹിക്കുന്ന ശിക്ഷലഭ്യമാക്കാനും ജനകീയ മുന്നേറ്റത്തിന് കഴിഞ്ഞു. പത്ര റിപ്പോർട്ടിങ്ങിലൂടെ ഉയർന്നു വന്ന പൊതുബോധത്തിന്റെ ഫലമായിട്ടാണ് പ്രതികളിൽ ഒരാളുടെ അമ്മയ്ക്ക് മകൻ

തെറ്റ് ചെയ്തിട്ടുണ്ടെങ്കിൽ അർഹിക്കുന്ന ശിക്ഷ ലഭിക്കണമെന്ന് പറയാൻ ഇടവന്നത്. ഇതിന്റെ തന്നെ അനന്തരഫലമാണ് മറ്റൊരു പ്രതി ജയിലിനുള്ളിൽ ആത്മഹത്യ ചെയ്യാൻ ഇടയായതും പത്രങ്ങളിലൂടെ ഉള്ളുലയുന്ന വിധം ഡൽഹി പെൺകുട്ടിയുടെ കഥ പുറത്തു വന്നപ്പോൾ ക്രൂരമനസ്സിനുമകളായ പ്രതികൾക്ക് പോലും അതിന്റെ ആഘാതം താങ്ങാനായില്ല.

ഡൽഹി സംഭവവും മലയാളി സമൂഹവും

മലയാളത്തിലെ മുഖ്യധാര മാധ്യമങ്ങളെല്ലാം ഡൽഹി സംഭവത്തിന് വൻ പ്രധാന്യമാണ് നൽകിയത്. 2010 ഡിസംബർ മുതൽ മാർച്ച് വരെയുള്ള പത്രങ്ങൾ ഇക്കാര്യത്തിന് പഠന വിധേയമാക്കിയിരിക്കുന്നു. പത്രങ്ങളിൽ തുടർച്ചയായി വന്ന റിപ്പോർട്ടിങ്ങുകളും വാർത്തകളും മലയാളി മനസ്സിനെയും മുറിവേല്പിച്ചു. ലൈംഗികാതിക്രമങ്ങളോട് ഏതാണൊരു നിഷേധദാവം പ്രകടിപ്പിക്കുന്നവരാണ് മലയാളികളിൽ അധികവും, ഇക്കാര്യത്തിൽ പാരമ്പര്യവിശ്വാസങ്ങൾ മലയാളിയുടെ മനസ്സിനെ വല്ലാതെ വരിഞ്ഞുമുറിക്കിയിട്ടുണ്ട്. സ്ത്രീക്ക് നേരെ ലൈംഗികാതിക്രമണങ്ങൾ നടന്നാൽ അത് സ്ത്രീയുടെ കുഴപ്പമായി കാണാനുള്ള ത്വര മലയാളി സമൂഹത്തിന് കൂടുതലാണ്. കുടുംബത്തിനകത്തും പുറത്തും വൻതോതിൽ സ്ത്രീകൾ അതിക്രമത്തിന് വിധേയരാകുന്നതിന്റെ ഒരു കാരണം ജനങ്ങളുടെ മനസ്സിൽ പതിഞ്ഞുപോയ ആൺകോയ്മാ മൂല്യങ്ങളുടെ അതിപ്രസരമാണ്. ലിംഗപരമായി സമൂഹത്തിൽ തുടർന്നു വരുന്ന അസമത്വങ്ങളാണ് ഇതിന്റെ അടിത്തറ. ഇത് കാണാതെ പോകരുത്. എന്നാൽ ഈ ധാരണകളെ എല്ലാം മാറ്റിമറിച്ചുകൊണ്ടാണ് ഡൽഹി പെൺകുട്ടിക്ക് വേണ്ടി മലയാളി മനസ്സ് ജാഗരൂകമായത്. അവളുടെ കൂട്ടുകാരനോടൊപ്പമുള്ള രാത്രിയിലെ യാത്രയെപ്പറ്റി മലയാളി യാതൊന്നും പറഞ്ഞില്ല.

കുറ്റവാളികളെ നിയമത്തിനുമുന്നിൽ കൊണ്ടുവരണമെന്ന് ആവശ്യപ്പെട്ടുകൊണ്ട് പ്രതിഷേധങ്ങളിലും പെൺകുട്ടിയുടെ ജീവൻ തിരികെ ലഭിക്കാനുള്ള പ്രാർത്ഥനായോഗങ്ങളിലും മലയാളികൾ പങ്കാളികളായി, ഇവയിലെല്ലാം ആരുടെയും നിർബന്ധം ഇല്ലാതെ തന്നെ ജനങ്ങൾ ഒഴുകിയെത്തി. ഡൽഹി പെൺകുട്ടിക്ക് ആവശ്യമായ പരിചരണം ഉറപ്പുവരുത്താനും മലയാളി സമൂഹം ആവശ്യപ്പെട്ടു. ചെറിയ കൂട്ടായ്മപോലും ഡൽഹി സംഭവത്തിൽ പ്രതികരിച്ചു. പത്രങ്ങൾ അവയെല്ലാം വൻ പ്രാധാന്യത്തോടെ പ്രസിദ്ധീകരിക്കുകയും ചെയ്തു.

ക്രിമനൽ വാസന ഇന്നത്തെ സമൂഹത്തിൽ ശക്തിപ്പെട്ടു വരുന്ന ഒന്നാണ്. സ്ത്രീക്ക് നേരെയെന്ന് പലപ്പോഴും ഇതിന്റെ കൈയേറ്റം ഉണ്ടാകുന്നത്. ഇതിന് ഒട്ടേറെ കാരണങ്ങളുണ്ട്.

സ്ത്രീയെ ഉപദേശ വസ്തുവായി മാത്രം കാണുന്ന മുതലാളിത്ത സംസ്കാരം ഇന്നത്തെ ചെറുപ്പക്കാരെ കണക്കു് സ്വാധീനിക്കുന്നുണ്ട്. പത്രത്താളുകളിൽ പരസ്യങ്ങൾക്ക് സ്ത്രീയുടെ നഗ്നമേനിയായ് എപ്പോഴും അകമ്പടിയായി നിലകൊള്ളുന്നത്. സ്ത്രീ സൗന്ദര്യം പരസ്യോപാധിയായി മാത്രം കാണപ്പെടുന്നു. ജീർണ്ണിച്ച ഒരു കമ്പോള സംസ്കാരത്തിന്റെ പ്രതീകമാണ് ഇവ. ഇത് യുവാക്കളെ സ്വാധീനിക്കുന്നില്ലെന്ന് പറയാൻ കഴിയില്ല സംസ്കാരം നഷ്ടപ്പെട്ട മനുഷ്യൻ മുഗ്മായ് തീർന്നതിന്റെ തെളിവാണ് ഡൽഹി സംഭവവും പിന്നെയും തുടരുന്ന ബലാത്സംഗങ്ങളും ലൈംഗികാതിക്രമങ്ങളും.

ഉപസംഹാരം

ഡൽഹി അധികാരത്തിന്റെ കേന്ദ്രമാണ്, അവിടെയാണ് കൈയേറ്റം നടന്നത്. അത് ഇൻഡ്യയ്ക്ക് ഏൽക്കുന്ന കളങ്കമാണ് ഇതാണ് പത്രവിപ്ലവങ്ങളുടെ കാരണം. എന്തിനെയും വില്പന ചരക്കാക്കുന്ന ഒന്നാണ് വർത്തമാന കാലസമൂഹം. എന്നാൽ ഈ സമൂഹത്തിനകത്ത് നിൽക്കുമ്പോഴും അതിനെ മറികടന്ന് സ്ത്രീപ്രശ്നങ്ങളെ സമീപിക്കാൻ ജനതയെ പ്രാപ്തമാക്കിയത് പത്രങ്ങളുടെ ഇടപെടൽ ശേഷിയാണ്. ഡൽഹി സംഭവത്തോടുള്ള മലയാളി മനസ്സിന്റെ പ്രതികരണവും ഇത് വ്യക്തമാക്കുന്നു. മലയാളിയുടെ ചിന്താശീലങ്ങളിൽ മാറ്റം വരുത്താൻ പത്രങ്ങൾക്ക് കഴിയുന്നുണ്ട്. അവരുടെ രാഷ്ട്രീയ സാംസ്കാരിക നിലപാടുകളിലും ഈ മാറ്റം പ്രകടമാവുന്നു. ജനാധിപത്യ സമൂഹത്തിൽ പൗരബോധവും ട്രൈലാ കാരുത്തിലും വ്യക്തമായ അവബോധവും നിർമ്മിക്കാൻ പത്രങ്ങൾക്കുള്ള കഴിവ് അനന്തമാണ്. പത്രങ്ങൾ അവയുടെ ഈ കടമ പൂർണ്ണ അർത്ഥത്തിൽ നിർവഹിക്കുന്നുണ്ടോയെന്നും ഈ പ്രബന്ധം പരിശോധിക്കുന്നു.

ഡൽഹി സംഭവത്തിലെ ക്രൂരതയുടെ വിവരങ്ങൾ നൽകിയപ്പോൾ അവയെല്ലാം ഒറ്റപ്പെട്ടതായിട്ടാണ് പത്രങ്ങൾ റിപ്പോർട്ട് ചെയ്തത്. സ്ത്രീ പ്രശ്നങ്ങളെ ഒറ്റപ്പെട്ടതായി ചിത്രീകരിക്കാതെ അതിന്റെ രാഷ്ട്രീയവും സാമ്പത്തികവും സാംസ്കാരികവുമായ തലങ്ങളെ അപഗ്രഥിക്കാൻ മുഖ്യധാര പത്രങ്ങൾ തയ്യാറായില്ല. ഡൽഹി പെൺകുട്ടിയുടെ മേലുള്ള കടന്നുകയറ്റം കേവലം ഒരു വ്യക്തിയുടെ അല്ലെങ്കിൽ ഒന്നോ രണ്ടോ വ്യക്തികളുടെ കാമാതുരതയല്ല. മറിച്ച് സമൂഹത്തിൽ നിലകൊള്ളുന്ന ജീർണ്ണിച്ച സംസ്കാരത്തിന്റെ പ്രതിഫലനമാണ് അവയെന്ന ബോധം ജനങ്ങളിൽ എത്തിക്കാൻ പത്രങ്ങൾക്ക് കഴിഞ്ഞില്ല. ജലത്തിൽ പൊന്തികിടക്കുന്ന ഐസുകൂട്ടയുടെ മുകൾഭാഗം മാത്രമാണ് നിരീക്ഷകന്റെ ശ്രദ്ധയിൽ

വരിക എന്നാൽ ഐസുകട്ടയുടെ ദുരിദാഗവും ജലപരപ്പിനു താഴെയാണ്. ഇതേപോലെ ഡൽഹി സംഭവത്തിനു പിന്നിലെ സാമൂഹ്യ രാഷ്ട്രീയ ചലനങ്ങളെ ചർച്ചയ്ക്കെടുക്കുവാനുള്ള അവസരമായി ഡൽഹി സംഭവം മാറിയില്ല. ഡൽഹി സംഭവം സെൻസേഷണലായിട്ടാണ് പത്രങ്ങൾ അവതരിപ്പിച്ചത് എന്ന പരാതി ഉയരുന്നത് ഈ പശ്ചാത്തലത്തിലാണ്.

ഈ പരിമിതി ഉള്ളപ്പോൾപ്പോലും ജനതയുടെ അഭിപ്രായ രൂപീകരണത്തിനും നിലപാടുകളിലെ മാറ്റം മറിക്കലുകൾക്കും പത്രങ്ങൾ ചെലുത്തുന്ന സ്വാധീനം തർക്കമറ്റതാണ്.

ഗ്രന്ഥസൂചി

അനിൽകുമാർ കെ. (2012) മാധ്യമങ്ങളുടെ എഴുതാപ്പുറങ്ങൾ ഒരു മാർക്സിസ്റ്റ് നിരീക്ഷണം. ചിന്തപബ്ലിഷേഴ്സ്, തിരുവനന്തപുരം.

തോമസ് എം വി (2000) മാധ്യമങ്ങളും മലയാള സാഹിത്യവും. നാഷണൽ എജ്യൂക്കേഷണൽ റിസേർച്ച് സെന്റർ, തിരുവനന്തപുരം.

പരമേശ്വരൻപിള്ള, എരുമേലി (2007) മലയാള സാഹിത്യം കാലഘട്ടങ്ങളിലൂടെ കറന്റ് ബുക്സ്, കോട്ടയം.

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വിജ്ഞാനകൈരളി: ജൂലൈ 2008. വാല്യം 39. ലക്കം 7.

USE OF SOCIAL NETWORKING SITES BY THE ACADEMIC COMMUNITY IN A DIGITAL ENVIRONMENT

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Abstract

A social networking site is an online platform that is used by people to build social networks or social relations with other people who share similar personal or career interests, activities, backgrounds or real-life connections. Social networking sites are a global phenomenon. The most widely using Social Network Sites (SNS) are Facebook, Whatsapp, MySpace, LinkedIn and Twitter. SNS is a way to shape personal identities of youngsters. The purpose of the study was to identify the use of social networking sites for transferring and sharing information by the students of the University of Calicut. Structured interview schedule were used to collect data from a representative sample of 100 students. The interview enquired into the purpose of use of SNS, reasons for preferring SNS and the contents likely to share with others. The study revealed that all the post graduate students are aware and use SNS for sharing knowledge and information.

Keywords: Social Networking Site, Information, knowledge, Internet.

Introduction

Social networking sites are modern communication medium through which people connect to one another, share ideas, experiences, videos, photos, messages and information of interest. These networks help us to share the knowledge about current affairs, politics, new technology, game and software, location based services, online shopping and so on. The main social networks

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are those that contain category places, means to connect with and a recommendation system linked to trust. Cambridge English Business Dictionary defines Social Networking Site (SNS) as a website that is designed to help people communicate and share information photographs etc. with a group. Social networking sites help schools and universities to leverage and complement formal education activities and enhance learning outcomes. Social networking can provide opportunities for new relationships as well as strengthening existing relationships. These sites play an important role in information and knowledge sharing. They are becoming very popular means of both interpersonal and public communication in Kerala. Objectives of this study is

- 1) To analyze the various types of Social networking sites used by the student community.
- 2) To analyze the extent of usage of social networking sites among the post graduate students of the University of Calicut
- 3) To analyze the purpose of usage of social networking sites by the students of the University of Calicut
- 4) To identify the benefits of using Social networking sites

Methodology

This study is prepared on the basis of an empirical data collected among the postgraduate students under the University of Calicut, Kerala. Data from 100 samples were collected by questionnaire survey. The samples were selected through a purposive random sampling from the University students. Personal interviews and various available literatures, especially web contents are also used as supporting materials.

Results

The Various Categories of Social Networking Sites

SNSs are influencing youth and adult life in a major way. Facebook, Whatsapp, You Tube, Twitter, MySpace, LinkedIn, Skype, Instagram, Telegram, Google+ are the widely using social networking sites among students. Majority of respondents use the following sites more than others: Facebook (98%), Whatsapp (96%), You Tube(70%) ,Google +(42%) while other sites like twitter, MySpace, LinkedIn, Instagram and Skype ranked low in the extent of utilization (table 1). All respondents are using one or more social networking sites.

Table 1: Proportion of students using various social networking sites

Social Networking Sites	Respondents (Percentage)
Facebook	98(98%)
Whatsapp	96(96%)
YouTube	70(70%)
Twitter	25(25%)
MySpace	10(10%)
LinkedIn	15(15%)
Google+	42(42%)
Instagram	28(28%)
Skype	12(12%)

Purpose of use of social networking sites

Social networking sites provide variety of benefits like information and content sharing, social interaction, personal identity, entertainment, professional and academic development, creating new relationships, updating information, instant messaging and cell phone texting. Majority of students (80%) use social networking sites for communicating and interacting with friends. 50 % students

use social networking sites for interaction with their teachers. The analysis shows that the student community uses social networking sites for multi purposes like updating information, entertainment, online learning and so on (table 2).

Table 2: Purpose of using social networking sites

Purpose	Respondents
Communicating and interacting with friends	80 (80%)
Sharing latest news and events	65(65%)
Communicating and interacting with teachers	50(50%)
Online learning	38(38%)
Professional and academic activities	64(64%)
Updating information	45(45%)
Meeting new people	20(20%)
Entertainment	70(70%)

Devices used to access social networking sites

Youths are enthusiastic users of social media sites and apps and digital devices are popular among the youth. Smart phone, laptops, tablets are widely used to connect social networking sites. The students use smartphone as their primary device to access SNS (table 3).

Table 3: Devices used to access social networking sites

Devices	Respondents
Smart Phone	100(100%)
Laptop	60(60%)
Tablet PC	20(20%)
Desktop PC	35(35%)
Others	15(15%)

Places of access social networking sites

People can access information and knowledge from different places at their convenience. Majority of students access SNS from the University campus because of the unlimited access of WiFi provided by the University. 70 percentage of respondents access SNS from home (table 4).

Table 4. Places for accessing social networking sites

Places	Respondents
Home	70(70%)
University	100(100%)
Internet Café	20(20%)
Hostel	60(60%)

Duration of accessing social networking sites

Duration of time depends upon personal interest. The smartphone is the primary device used for gaming and text messaging. 50 percent of the students use social networking sites 2-4 hours per day whereas 8 percent use social networking sites less than one hour per day (table 5).

Table 5. Duration of using social networking sites

Duration	Respondents
Less than one hour	8(8%)
1-2 hours	25(25%)
2-4 hours	50(50%)
Above 4 hours	17(17%)

Benefits of using social networking sites

People can create personal profiles, share pictures, videos and text updates to their friends, family and people all over the world through SNS. It is clear that majority of the respondents use social networking sites for chatting and sharing latest news and events (table 6). All respondents believed that

social networking sites are very beneficial as a way to connect and reconnect with friends and relatives. 25 percent of students responded that social networking sites is very beneficial for their studies as they can find articles related to their academic and professional purpose and they can post their ideas through discussion forums in social networking sites.

Table 6. Benefits of using social networking sites

Benefits	Respondents
Staying connected	50(50%)
Research and learning	25(25%)
Strengthening interpersonal relationship	30(30%)
Information sharing	40(40%)

Discussion

The study revealed that the various categories of social networking sites used by the post graduate students of the University of Calicut include Facebook, Whatsapp, YouTube, Twitter, Google+, Telegram, MySpace, LinkedIn, Skype. These types of social networking sites can help members to find other users with similar interests. Wan (2013) examined significant factors that contributed knowledge sharing through social network. It is observed that the students pursuing higher education share information using web technologies (Hassan and Oyefolahn 2014). Future studies can focus on why Facebook and Whatsapp have created popularity compared to other social networking sites. People use both these sites frequently. Studies conducted by Valkenburg and Peter (2009) observed that students frequently use social networking sites for instant messaging and it boosts their social relationships and well-being. Wellman et al., 1996 found that the flow of information through social networking sites itself generates access to new information. In

short, social networking sites are very important for interaction among people, exchange and share ideas in a collaborative way.

Conclusion

The result obtained from the study shows that a reasonable number of student of the University of Calicut use social networking sites. The study revealed that most of the students use social networking sites for communicating and interacting with their friends, watching movies, sharing ideas about politics, new events and academic purpose. All the students are aware about information sharing through social networking sites and they are interested in uploading contents about new information, events, videos, photos etc. The main reason behind the use of social networking sites is to make, maintain and foster social relationships.

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A PROPOSED MODEL FOR IDENTIFICATION OF SPHECIDAE USING DNA BARCODING

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Abstract

As a dominant group of predators, sphecid wasps form excellent bioindicator tools in predicting the diversity of other groups of animals and for all the species of a given area. Sphecid wasps are closely associated to human habitats evoking great deal of anxiety and fear. Morphology based identification system, though useful for adults are only partially successful for larval identification. The integration of DNA barcoding with traditional morphology-based taxonomy, host records, and other data might substantially improve the accuracy of identifications. The current paper proposes a model for the use of DNA barcoding for identification and cataloging of sphecid wasps.

Keywords: Sphecids, morphology, taxonomy, mitochondrial gene *COI*, DNA barcoding

Introduction

The sphecids form a monophyletic assemblage of wasps with 9716 described species coming under 318 genera. In the current system of classification being followed, they come under the Order Hymenoptera, Suborder Apocrita, Super family Apoidea with five included families- Heterogynaidae, Ampulicidae, Sphecidae and Crabronidae, together with Apoidea, the bees (Pulawski 2013). They are valuable in predicting the diversity of other groups of animals and for all the species of a given area. They form part of several functional niches (predators, cleptoparasites and pollinators),

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have economic importance (pollinators and pest management) and reflect the patterns of other taxa in a given habitat (Gayubo *et.al.*, 2005). Sphecid wasps are closely associated to human habitats evoking great deal of anxiety and fear, are regarded as nuisance by the people and nest mounds considered unsightly. Prompt and frequent removal of nests is posing a threat to these relatively harmless insects. Sphecids form one of the surrogate taxa for biodiversity assessments. The taxonomic identification based on morphology is often complicated, especially of larvae (Jurga *et.al.*, 2014). Some larvae die during hibernation and thus remain unidentified, leading to a partial loss of data.

Barcoding studies so far in Sphecidae

Araújo *et.al.*, (2002) differentiated ten different variants by C-banding pattern of the short (heterochromatic) arm of chromosome 14 in the crabronid wasp *Trypoxylon (Trypargilum) albitarse*. Hastings *et.al.*, (2008) used DNA barcoding to observe interactions among three putative species of *Sphecius*. Jurga *et.al.*, 2014 used mitochondrial DNA subunit 1 cytochrome c oxidase sequence to identify 33 wasp species from the families Vespidae, Pompilidae and Crabronidae and concluded that DNA barcoding can provide an accurate DNA identification system for the taxa. The barcoding of sphecids wasps has so far been mainly concentrated in Biodiversity Institute of Ontario with 138 specimen databases submitted

Objectives

The limitations in morphology-based identification systems and the decreasing taxonomic expertise signal the need for a new solution to taxon recognition. DNA barcoding represent a promising approach to the diagnosis of biological diversity. India has a rich fauna of sphecid wasps, but only very few attempts have been made to collect and describe members of this group,

especially larvae. DNA barcoding of sphecids is still at infancy in India. The present paper makes an attempt to propose an approachable working model for identifying, cataloguing and creating an inventory of these species in an area.

Methodology

- 1) Site selection: can be based on ecological integrity, should be taxonomically broad and need to extend beyond the focal geographic region to ensure that potential sister taxa are evaluated and can be discriminated.
- 2) Specimen collection: collecting scheme can be executed over a period using various collection methods like pitfall traps, pan traps, malaise traps and sweep netting. The specimens can be preserved in 96% ethanol (Jurga *et.al.*, 2014).
- 3) DNA barcode analysis: Tissue to be lysed and total DNA extracted from thoracic muscles or entire thorax of adult wasps and from VII-IX larval segments (Jurga *et.al.*, 2014). The DNA extracts for all specimens are stored as a DNA Archive where they can be available for future study. A region of the mitochondrial gene *COI* (cytochrome c oxidase subunit I) is used for barcoding (Hebert *et al.* 2003a). 700bp long *COI* 5' region sequenced and analysed using primer pair C_LepFolF + C_LepFolR (Blagoev *et al.* 2015). For the derived sequences from animal specimens, the records assigned Barcode Index Numbers (BINs) by the Refined Single Linkage (RESL) algorithm implemented on Barcode of Life, BOLD –Publicly accessible (Ratnasingham and Hebert, 2013). Identifications can be based on sequence similarity (<15% for family, <5% for genus).

Future Aspects

DNA barcoding will help to assign unknown individuals to species status and enhance the discovery of new species, even from bits and pieces of tissues. Barcoding will help in the development of a comprehensive databank, with voucher specimens representing described species, against which sequences from sampled individuals can be compared (Hebert *et al.* 2003b). The integration of DNA barcoding with traditional morphology-based taxonomy, host records, and other data might substantially improve the accuracy of identifications and will significantly accelerate further studies.

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CORPORATE GOVERNANCE PRACTICES IN STATE BANK OF INDIA

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Abstract

The word Corporate Governance is a current buzzword in management literature. It has received an increasing amount of attention in recent years. Corporate Governance is a set of processes, customs, polices and laws that affects the way a company is directed, administrated and controlled. The worldwide collapses of large companies like Enron, Tycoon, Global Crossing etc. shows the importance of Corporate Governance. The present study aims at studying the corporate governance practices of one of the most dominated public sector banks in India. Thus the study is conducted to ensure compliance of Corporate Governance codes in SBI. Since SBI plays a major role in banking sector with huge customers as well as investor base.

Keywords: Corporate governance, Public sector banks, SBI, Corporate Governance

Introduction

The word governance came from 'Gubernate' which means to steer i.e. to steer an organization in the desired direction. It is a set of rules, process or laws by which the business are operated, regulated and controlled. During the past two decades corporate governance has been receiving major attention globally. The worldwide collapses of large companies like Enron, Tycon, etc made the importance of corporate governance to India. The scam related to Satyam computers brought the topic again into focus recently. Corporate Governance is

the application of best management practices, compliance of law in true letter and spirit and adherence to ethical standards for effective management and distribution of wealth and discharge of social responsibility for sustaining development of all stakeholders (Institute of Company Secretaries of India, ICSI). Thus good governance is a safeguard against corruption and mismanagement in large organization. It ensures that the cooperation is trustworthy and the shareholders can invest with confidence. In India Securities and Exchange Board of India (SEBI) has come up with clause 49 where by SEBI has made corporate governance compulsory for all the listed companies in India. All the listed companies are mandatory required to follow the rules mentioned in clause 49.

Corporate Governance and Mandatory Requirements

‘The Clause 49 of the Listing Agreement contains a number of provisions to ensure good corporate governance. SEBI has ensured that a company is required to make up specified disclosures at the time of issue and make continuous disclosures as long as its securities are listed on exchanges. The standards for these disclosures have been specified in the Companies Act, Disclosure and Investor Protection Guidelines, Listing, Agreement, Regulations, etc. Clause 49 contains a series of mandatory items and seven non-mandatory items which are to be followed by listed companies.

Mandatory Requirements of Clause 49

Companies are required to comply with the following aspects under the mandatory category.

- Board of Directors
- Audit Committee
- Subsidiary Companies
- Disclosures

- CEO / CFO Certification
- Corporate Governance Report

Some of the mandatory requirements are:

Composition of Board

There should be an optimum combination of Executive and Non Executive directors not less than 50% of board of directors should be Non-Executive Directors. If chairman is a Non-Executive Director, at least one-third of the board should comprise of Independent Directors. In case the chairman is an Executive Director at least half of board should comprise of Independent Directors.

Board and committee procedure

As per the Clause, the board should meet at least 4 times a year with a maximum time gap of 4 months between 2 meetings.

Code of Conduct

The board shall lay down Code of Conduct for all board members and senior management of the company. The Code of Conduct shall be posted on the website of the company. All board members and senior management personnel shall affirm compliance with code on an annual basis.

Audit Committee

All listed companies should have a qualified and independent audit committee. The members of the audit committee shall be designated by the board annually. The chairman of the audit committee shall be an Independent Director.

Composition and qualification

The audit committee shall have minimum 3 directors as members. Two third of the members of audit committee shall be Independent Director.

Disclosures

Clause 49 of the listing agreement puts a responsibility of disclosure up on the listed companies

- Disclosure on related party transactions
- Disclosure of accounting treatment
- Disclosure on risk management
- Disclosure on share issue
- Disclosure on remuneration of directors
- Disclosure related to management
- Disclosure to shareholders
- CEO/CFO Certification - The CEO and CFO should certify to the board that they have reviewed financial statement and the cash flow statement for the year.

Objective of the Study

In this paper an attempt has been made to examine the extent of compliance of the Corporate Governance codes by the selected public sector bank State Bank of India.

Methodology

Data for the study have been collected from the secondary sources. Annual reports of the bank, relevant research publications and books were used for collecting data. The present study is envisaging on the reported Corporate Governance disclosure practices of the surveyed bank for the financial year 2014-2015. The present study is limited to a few parameters of good governance and also the study is based on a single financial year 2014-15.

Result

Composition of Board of Directors

As far as the composition of Board is concerned SBI has complied with provisions laid down in clause 49 of the Listing Agreement. There is an optimum combination of Executive and Non Executive Directors. The Board composition is in such a way that 5 Executive Directors and 10 Non Executive Director. The chairman of SBI is an Executive Director.

Separation of role of chairperson and CEO

It has been observed that SBI has separated the role of chairperson and CEO and CMD

Composition of audit Committee

Audit committee of the board has 8 members of the Board of Directors, including 2 Whole Time Directors, 2 Official Directors and 4 non- Official, Non- Executive Independent Directors. The meetings of the committee are chaired by a Non- Executive Directors.

Board Committee Meetings

SBI has conducted a minimum 4 board meeting in each year with a gap not more than 4 months between any 3 board meetings. During the year 2014-15, 12 board meetings were held.

Audit Committee meetings

SBI has met more than 4 times in a year. During the year 2014-15, 11 meetings were held to review various matters. The constitution and quorum requirements were also complied with.

Disclosures

SBI has completed with the responsibility of disclosure as per the clause 49 of the Listing Agreement. Bank has disclosed all the relevant mandatory information in the leading newspapers and also published in websites. Annual report is sent to all the shareholders of the bank.

Composition of Remuneration Committee

Remuneration Committee of the Board was constituted on 22nd march 2007, for evaluating the performance of Whole Time Directors of the bank in connection with the payment of incentives, as per the scheme advised by Government of India. The committee consists of 4 members consisting of Government nominee Director, RBI nominee Director and 2 other Directors.

Corporate Social responsibility Committee

This committee was constituted on 2014 as a measure of good corporate governance to review the activities undertaken by bank under Corporate Social Responsibility policy. The committee has 7 members and Senior Managing Director on the committee is the chairman. During the year 2014-15, 2 meetings of the committee were held.

Code of Conduct

Senior management of SBI has affirmed compliance with the banks code of conduct for the financial year 2014-15. Declaration to this effected signed by the chairman and has been published in the Annual Report.

Corporate Governance Report

SBI has published detailed compliance report on corporate governance in a separate section in the Annual Report 2014-15.

Conclusion

Good Governance is integral to the very existence of an institution. It inspires and strengthens investor's confidence. SBI is committed to the best practices in the area of Corporate Governance. It is evident from the study that SBI has been complied with Corporate Governance practices with relation to various parameters like Board size, Board committee, Audit committee etc. all the mandatory requirements of SEBI under the clause 49 of Listing Agreement has been complied by the bank and also true and full disclosure of all the relevant information is also ensured. Practice of Good Governance ensured effective management and control of business and enables the bank to maintain a high level of business ethics and to optimize the value for all its stakeholders.

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FUNGAL ALKALINE PROTEASE - A PROMISING ALTERNATIVE IN LEATHER INDUSTRY

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Abstract

The microbes in nature have enormous potentials and the ecological role played by these unnoticed groups is very significant. The enzymes secreted by the microorganism's viz., bacteria, fungi etc. can utilize hair, hoof, nail, feather etc. as their sole carbon and nitrogen sources. The enzymatic degradation of keratin substrates by the fungal enzyme is focussed in dehairing process of the animal skin. Among eight of the fungal strains tested, high enzyme yielding *Chrysosporium keratinophilum* was selected for further activity on dehairing cattle hide. Optimal requirements for skin dehairing conditions by keratinase included time of reaction, reaction temperature, pH values and crude enzyme concentration. Experimental results revealed that optimal keratinase activity by standard assay of the selected fungal enzyme was exhibited at pH 9 for a contact time of 5 hr. at temperature 50 °C. Enzymatic dehairing gives lengthier, stronger wool, which requires minimum washing afterwards. Hair gets removed along with epidermal layer and this makes the process of hair-loosening easier. The enzymatic dehairing is a more environmental friendly process. Instead of traditional chemical process, this capacity of the fungal enzyme can be substituted in dehairing.

Key words: Cattle hide, Dehairing, *Chrysosporium keratinophilum*, Leather, Solid state fermentation

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Introduction

Enzymes are vitally important to the existence of life. Current leather-processing procedures generate a considerable amount of chemical waste during all stages of processing and cause serious environmental pollution (Ludvik 2000). In the conventional pre-tanning process, depilation of animal hide is done by employing lime and sulphide. These two chemicals alone account for 70% of the total pollution in terms of biological oxygen demand (BOD), chemical oxygen demand (COD), total dissolved solids (TDS) and total suspended solids (TSS) Marsal *et al.*, (1999). The alkaline nature of tannery effluents and the high sulphide content pollute ground water sources and cause serious health problems to the tannery workers and people living in the vicinity of leather-processing industries (Ramasami *et al.*, 1999). A number of attempts have been made to find alternative methods for depilation of animal hide. The use of microbial enzymes, especially extracellular proteases have proved to be highly effective in depilating of animal hides (Puvanakrishnan and Dhar 1988) Though a number of bacterial and fungal strains are known to grow on hides, only a few of them have been shown to produce extracellular proteases with depilatory activity (Yates 1972, Nilegaonkar *et al.*, 2007), In principle, the proteases having high depilatory properties with mild or no collagenolytic activity are considered to be the best proteases for depilating animal hide (Anbu *et al.*, 2005, Friedrich *et al.*, 2005, Giongo *et al.*, 2007, Macedo *et al.*, 2005). There are diversified forms of enzymes which play dynamic roles in different areas. Proteases belong to a group of proteolytic enzymes that are obtained by microbial fermentations and are meant to use in leather industry for dehairing, bating and soaking purposes. Their major use is in detergent industry too where they are used for breaking proteinaceous matter caused by body secretions, food stuffs and blood stains. These enzymes are obtained from plants, animals and

microbial sources. Animal and microbial proteases from fungi and bacteria are used in the pretanning processes of leather manufacture. The use of pure proteolytic enzymes for the removal of hair from animal hides dates back to the early 1900s (Röhm 1913). Until recently, most proteases used in enzymatic dehairing studies were bacterial in origin. Filamentous fungi, such as *Aspergillus*, have been the organism of choice for large scale production of bulk industrial enzymes, as the fungi can be grown on relatively inexpensive (agricultural waste) media and the fungi can secrete bulk quantities of enzymes (Bergquist *et al.*, 2002). A proteolytic enzyme that had been isolated from *Aspergillus tamaritii* was used to dehair goat skins (Dayanandan *et al.*, 2003). Leather-making, is a by-product of the meat industry and reduces potential waste as well as contributes to economic growth (Germann 1999). The objective of this study is to develop an efficient- low cost and high yielding enzymatic dehairing system for cattle hides.

Materials and methods

Isolation of fungus from soil

Hair baiting technique was applied to isolate the fungus *Chrysosporium keratinophilum*. Sterile petri dishes with SDA agar was used to grow the fungus isolated from the soil baited with hair. It was then stored in SDA slants and kept at room temperature.

Effects of different Solid Substrates

Different solid substrates like rice bran, wheat bran, wheat flour, ground nut cake and coconut cake were used to study their effect on alkaline protease production. Fermentation was carried out at room temperature. The best solid substrate achieved by this step was wheat bran and it was selected for subsequent experiments.

Solid state fermentation

Solid state fermentation of *Chrysosporium keratinophilum* was carried out in 250ml. Erlenmeyer flasks. Fungal spores from the slants were used as inoculum for SSF. The activity of the enzyme was assayed using the sample collected from the culture media.

Alkaline protease Assay

Enzyme extraction and estimation of moisture content were carried out and the alkaline protease activity was determined (Lowry *et al.*, 1951). One unit of enzyme activity is defined as the amount of enzyme liberating one microgram of tyrosine per minute per ml. under the defined conditions.

Optimization of Fermentation process

Factors like selection of solid substrates, incubation temperature, incubation period and pH effecting the secretion of proteolytic enzyme under SSF were optimized.

Application of enzyme in dehairing process

The dehairing efficacy of the enzymes was assessed by applying the same on the Buffalo skin. The method adopted was dip method of enzymatic unhairing, the hides or skins were kept immersed in the enzyme solution at the required pH in sterilized petri dishes. Wet skin was selected and cut into two square pieces. They were washed thoroughly in soap water and tried. Two petri dishes were taken for the experimental set up. The sterilized skins were put into each plate. 20ml. of extracted enzyme was added to the first plate (experiment). 20 ml. of distilled water was added into the second plate. The skins were completely immersed in the enzyme. After every 2 hours interval the hairs were tried to remove from the skin using sterile forceps.

Results

Experimental results revealed that wheat bran acted as the better substrate in growing the fungus. Optimal protease activity by standard assay of the selected fungal enzyme was exhibited at pH 9.0 for a contact time of 5 hr. at temperature 50 °C. After 8 hrs. most of the hairs of the skin were removed. The skin in the control setup didn't show any change.

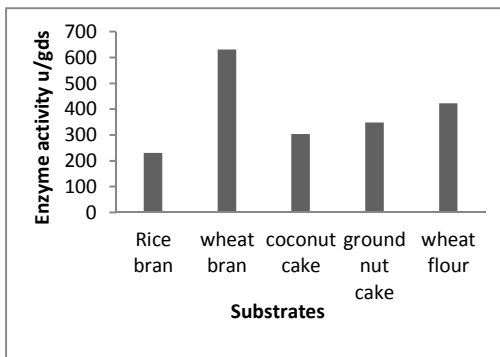


Figure 1. Activity of enzyme on different solid

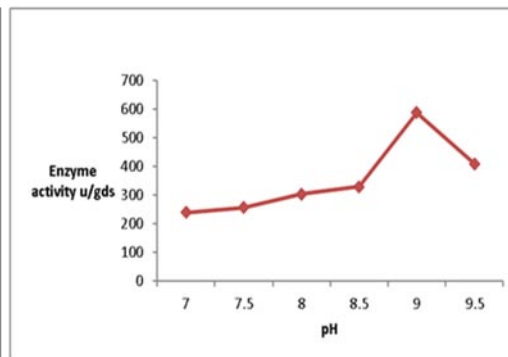


Figure 2. Activity of enzyme on different pH substrates

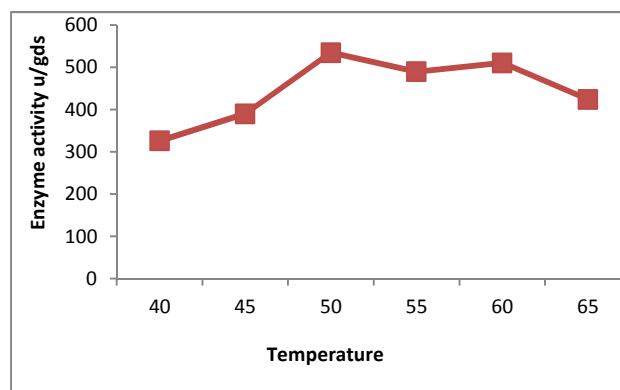


Figure 3. Activity of enzyme at different temperatures

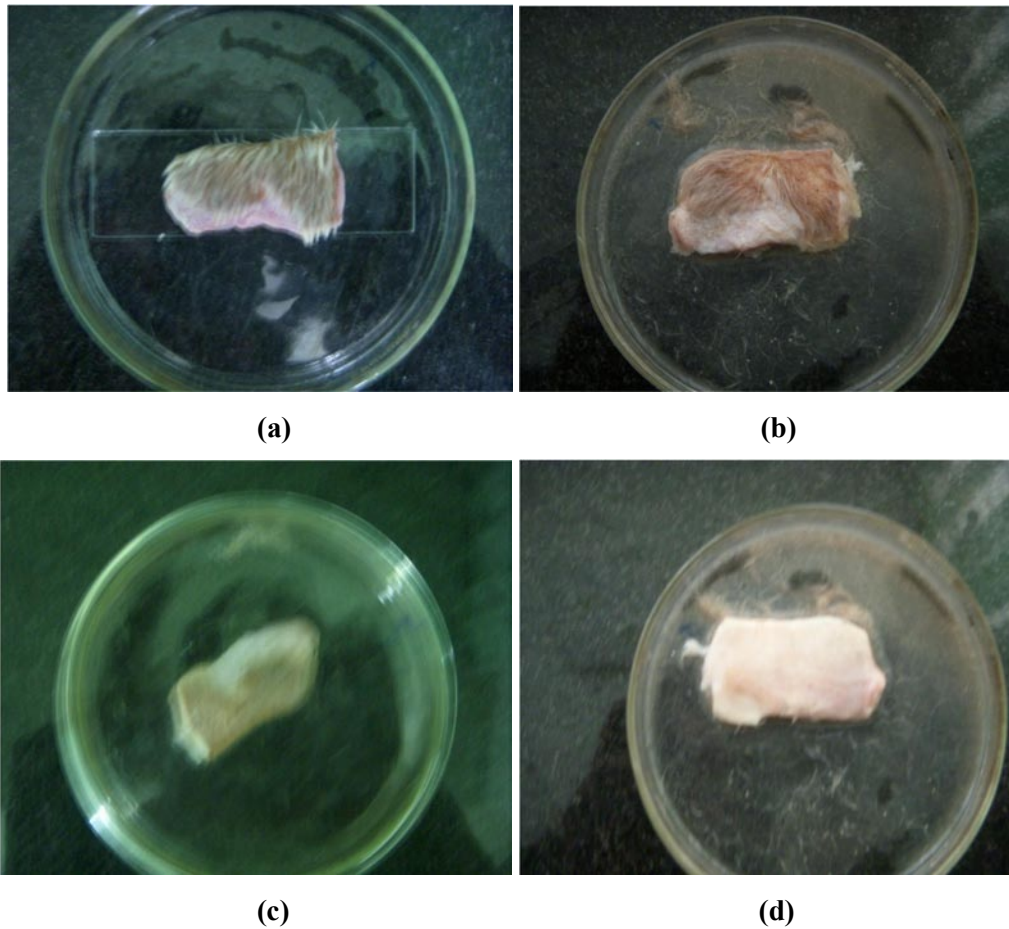


Figure 4. Dehairing at different time intervals (a) 2hrs (b) 4hrs (c) 6hrs (d) 8hrs

Discussion

Enzymes are important in reducing both energy consumption and combating environmental pollution. Enzymatic dehairing in tanneries has been envisaged as an alternative to sulphides (Beynon and Bond 1989; Altschul *et al.*, 1997). Alkaline proteases can be used which enables the swelling of hair roots, and the subsequent attack of protease on the hair follicle protein allowing easy removal of the hair (Gupta *et al.*, 2002). The enzyme from *Chrysosporium keratinophilum* showed good dehairing capacity in the experiment. A large

proportion of the known alkaline proteases are derived from microorganisms, especially from fungal strains. Enzymatic unhairing accomplished by proteolytic enzymes is of great commercial importance contributing to more than 40% of the world's commercially produced enzymes. Approximately 50% of the enzymes produced is used for industrial process (Pepper *et al.*, 1963). Further, proteolytic enzymes are more efficient in enzymatic dehairing rather than amyolytic enzymes (Puvankrishanan 2003). The enzymes cause loosening of the hair, without damaging the fibrous collagen of dermis. Enzymatic dehairing has several advantages like significant reduction or even complete elimination of the use of sodium sulfide, total recovery of hair resulting good quality with good saleable value and creation of an ecologically conducive atmosphere for the workers.

Conclusion

The potential use of protease enzymes in leather processing eliminates the pollution causing chemicals such as sodium, lime and solvents. The study reports revealed that alkaline protease isolated from *Chrysosporium keratinophilum* has the potential to replace sodium sulfide in the routine dehairing process.

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THE INFLUENCE OF CONTINUING EDUCATION PROGRAMME (CEP) IN THE QUALITY OF LIFE OF THE NEO LITERATE – A CASE STUDY OF ERNAKULAM DISTRICT IN KERALA

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Abstract

Kerala has the distinction of being a historic state in India so far as literacy development is concerned. It has the highest percentage of literacy amongst the states of India. The total literacy campaign and the continuing education programme is effectively implementing by the Kerala State Literacy Mission Authority (KSLMA) with the help of local administrative governments. The programme has launched on 2nd October 1998 in all the 14 districts of Kerala. The CEP provides lifelong learning facilities at various learning centers. The major Continuing Education Programmes are; Equivalency Education Programme, Income Generating Programme, Quality of Life Improvement Programme and Individual Interest Promotion Programme. The influence of CEP in the behavioural, social, political and economical life of the beneficiaries is studied with the help of the Questionnaire and Interview Schedule. The findings revealed that the programme of CEP has a positive change in behavioural, social, economic and political life of the beneficiaries. It has a significant influence and provides a multi dimensional development of the beneficiaries.

Key Words: Continuing Education Programmes, Equivalency Education, Income Generation, Quality of Life Improvement, Individual Interest Promotion

Introduction

Literacy is the only way that allows an individual to participate in contemporary social, economic and political development. The developing

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countries consider literacy as a pre-eminent requirement and gave central priority to it. Literacy is a basic human right and considered as a critical step to lifelong learning. This has been affirmed in a succession of mandates from the 1948 Universal Declaration of Human Rights, which declared under Article 26 that everyone has the right to education. Indian constitution incorporated right to education in the Directive principles of state policy and later in 2002 it became a fundamental right under article 21A. To scourge illiteracy is the primary mission of the government in the post independence period and the government has been formulated and implemented various programme to eradicate illiteracy such as NAEP, RELP, MPFL. The 3 major campaigns of NLM is Total Literacy Campaign, Post literacy campaign, Continuing educational programme.

The Scheme of Continuing Education (CE) was launched in 1998 as a fully funded centrally- sponsored scheme. The scheme initially envisaged 100 percent assistance to the states for the first three years of implementation. The State Governments were required to share 50 percent of the expenditure during the 4th and 5th years of the project, and thereafter take over total responsibility of the programme. The basic unit of the scheme was the Continuing Education Centre (CEC) with a Nodal Continuing Education Centre (NCEC) overseeing the working of a cluster of CECs. The beneficiaries of the programme were the neo-literate who has completed the literacy classes, school dropouts, pass out of primary schools and other members of the community who were interested in availing of the opportunities for lifelong learning. At present all over the state the (Kerala State Literacy Mission) KSLM has 4000 continuing centres.

The beneficiaries of the Continuing Education Programmes (CEP) are the neo-literate who have completed their literacy classes, school dropouts, pass out

of primary education and interested in availing opportunities for lifelong learning. The most important programme of the CEP is the equivalency programme in which more number of people participated. In this study, the effectiveness and evaluation of CEP were studied by conducting a survey of the participants in the Ernakulam district of Kerala.

Objectives is to study whether the participants of the CEP could

- Retain and sustain the benefits of total literacy and provide an opportunity to the neo literate to take their learning beyond basic literacy.
- Improve the living conditions and quality of life.
- Create an awareness about the spirit of democratic citizenship and improvement of environment
- Improve the economic conditions of the marginalized people

Methodology of the study

Descriptive method is used to find out the influence of CEP in the quality of life of the neo literate in Ernakulam district of Kerala. Questionnaire were prepared and distributed to the beneficiaries by visiting the centres. A face to face interview was also organized with the beneficiaries. The data collected are edited, coded and tabulated for the purpose of analysing and explanatory research strategy is also used. Respondents were learners of IVth equivalency VIIth equivalency and Xth equivalency. Among them a few beneficiaries were the participants of income generating programme too. This study seeks to examine the impact of the programme in the quality of life of the neo-literates and beneficiaries (table 1). Primary analysis was done by examining and studying the documents already availed and the literary

review. Illustration of the different programmes initiated by the literacy mission that helps to understand the effectiveness of the same is analyzed. The interactive sessions were organized with the officials of literacy mission and the neo literate who are the beneficiaries of the programme. Thirty continuing education centres from the district were selected and 60 respondents were taken to study.

Table 1. Variables considered under this study

Dependant variables	Independent variables
Economic empowerment	Income generating programme
	Employment generation
	Communication skill
	Self confidence
Social empowerment	Relation with developmental agencies
	Health and hygiene
	Decision making ability
	Behavioural changes
	Exercising right to vote
Political empowerment	Political participation
	Development of citizenship

The continuing education programme aims to provide formal education to all at school levels. This programme tries to attend the multifarious development of the learner. The most important initiative of the CEP is the equivalency programme. The effectiveness and evaluation were studied by conducting a survey amongst the 60 beneficiaries. They were learners of IVth equivalency, VIIth equivalency and Xth equivalency.

Table 2: Socio economic profile of the participants

Sl No.	Particulars	Respondents from which data collected		
		Number	Percentage	
1	Age	Below 30	20	33
		30-45	25	42
		45 and above	15	25
		Total	60	100
2	Sex	Male	19	32
		Female	41	68
		Total	60	100
3	Income	No income	4	7
		10000-50000	25	42
		50000-200000	21	35
		200000-500000	10	16
		Above 500000	0	
		Total	60	100
4	Occupation	Business	3	5
		Driver	15	25
		Anganavadi workers	6	10
		Salesman/insurance	8	13
		Painting /Welding	12	20
		Govt/Semigovt. Employees	3	5
		Bank Employees	3	5
		Total	60	100
		5	Religion	Hindu
Christian	14			23
Muslim	6			10
Total	60			100

Source: Primary data

Table 3: Factors that motivated people to join CEP

Factors that motivated people to join CEP	No. of persons	Percentage
Acquire Knowledge	35	58
Skill development	9	15
Improve economic condition	10	17
Improve the quality of life –socially and politically	6	10

During the survey, information on factors that motivated the members to join the programme were collected. More than half of the respondents were

joined the programme with a view to increase their knowledge. All the study materials are provided by the District literacy mission.

Results

Social empowerment of the neo literate

The social empowerment of every individual means equal status with others irrespective of any ground in the society. The social empowerment can be measured in terms of improvement in their communication skills, self confidence, decision making ability, the way to involve in social issues, their knowledge about health and hygiene and behavioural changes etc.

Table 4: Social empowerment of the respondents

SI No.	Variables		Pre-CEP (%)	Post CEP (%)
1	Communication skills	Hesitate to talk	85	8
		Talks freely	3	81
2	Self confidence	Exudes self confidence and self esteem	28	90
		Helps neighbours	40	90
		Respectful treatment from family members	45	95
		Involve in the social issues actively	43	88
3	Health and hygiene	Family health and hygiene	45	100
		Cleanliness of the surroundings	32	95
		Immunization programme	28	99
		Awareness of epidemic and contagious diseases	30	98
4	Decision making	Household assets and investments	34	86
		Selection of jobs	38	81
		Education and marriage	28	83
5	Behavioural changes	Protest against social evils	36	80
		Domestic violence	29	81
		Wage differentials	40	86
		Adulteration and black marketing	38	78

The communication skill of the respondents increased significantly. They agreed that the cultural activities and personality development classes helped them a lot in this regard. Participants realized the need to help their neighbours and had confidence to do. They experienced better treatment from their family members and their self esteem increased. About 88% of the people are ready to involve in social issues and suggest solutions for these issues. Their involvement in the cultural and other programmes of the mission has provided a better quality of life to them by enhancing their self confidence (Table 4).

Participation of the neo literate in the CEP helped them to improve their awareness about the family health and hygiene. The mission has been conducting classes for the learners on matters of health and hygiene. The preraks organised classes with the help of health department to the learners on health, hygiene and protection of environment.

Different programmes of CEP help the respondents to improve their decision making processes. The women's role in the decision making role on household activities and on social matters like education and marriage of their children has improved considerably. The participation of the literacy programmes contributed to the emergence of positive attitudes and knowledge among the beneficiaries which help them to occupy the public sphere. They showed increased intolerance towards domestic violence and adulteration.

Economic Empowerment of the neo literate

The Continuing education programme did not make a drastic change in the economic aspects of the respondents. Out of 60 interviewed only 12 members were the participants of the income generating programmes of the mission. The beneficiaries of the income generating programme were the employees in need of higher qualification for their career development. Drivers

engaged in this programme increased their communicative skill in English and they could effectively interact with the English speaking tourists and could generate more income.

Political empowerment

There is an assumption that if individuals are more exposed to information about their environment, especially the public institutions and the government they will be more efficient to intervene and thus make such bodies more responsive to their need. If individuals are engaged in political institutions and the decision making process of the polity an intimate connection between democracy and literacy would emerged (table 5).

Table 5: Political Empowerment of the respondents

Sl no	Variables		Pre-CEP (%)	Post CEP (%)
1	Exercising Right to vote	No	40	4
		Yes	60	96
2	Understanding the Political policies of parties	No	81	15
		Yes	19	85
3	Knowledge about the Constitution of India	No	87	23
		Yes	13	77
4	Knowledge about the rights and duties of citizens	No	74	12
		Yes	23	88
5	Knowledge about the political system	No	86	22
		Yes	14	78
6	Participation in Grama sabha	No	76	26
		Yes	24	74
7	Political participation	No	82	13
		Yes	18	87

Source: Primary

Literacy programme helped to develop the citizenship and autonomous attitude of the adult learners. 96% of the respondents exercised their right to vote in the immediate general election after training. 80% of the beneficiaries agreed that the educational process helped them to exercise their voting right properly and consciously. They are exposed of the knowledge about the constitution, the rights and duties of a citizen which led to the higher level of participation in the panchayati raj system especially in Grama sabhas. The literacy programmes supported the individual to build the spirit of questioning the existing obstacles to one's life and acquire a higher level of political participation. Participation in literacy programmes is associated with greater interest in national and community activities.

Table 6: Overall output of the CEP

SI No	Benefits	Very Useful		Useful		Not useful	
		Number	%	Number	%	Number	%
1.	Identify the strength and weakness of the personality	46	77	14	23	-	-
2	Social interaction	22	37	33	55	5	8
3	Skill development	30	50	26	43	4	7
4	Impart knowledge	55	91	5	8	-	-
5	Political awareness	12	20	38	63	10	17
6	Social justice and equality	11	18	38	64	11	18
7	Self confidence	56	93	4	7	-	-
8	Self reliance	42	70	18	30	-	-
9	Self esteem	50	83	10	17	-	-
10	Health and family welfare	51	85	9	15	-	-

Source: Primary

Capacity building refers to the process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive and adapt. It considers the abilities in undertaking

socio cultural and political activities and enhancing self esteem. It is reported that more than 90 percent of the respondents have acquired knowledge about social and political facts which helped them to improve their self confidence and self esteem. There was a significant increase in the awareness with respect to family welfare, health and hygiene. They realized the need for social justice and equality in all spheres of life which will help them to intervene in community matters more democratically. Their interaction with community has also increased which were exposed of them how to control the social and political institutions effectively and to develop their goals and identify the obstacles in their life (table 6).

Conclusion

The aim of the literacy programme in general and continuing programme in particular is to make provisions for continuing education which would put them at par with others and become aware of the causes of deprivation and moving towards amelioration of their condition by participating in the process of development. The involvement of the people in the activities of the continuing education programme(CEP) of the literacy mission have made significant social impact in their lives. CEP enhances their capacity to take decisions, increase communication skills, awareness of their rights and made them efficient to identify the social issues and also increased their self esteem. These entire factors are the indicators of social empowerment and in respect of the above factors a positive change is noticed in the perception of the beneficiaries. Participation in literacy programmes is associated with greater interest in national and community activities. The participants of the programme observed that CEC has helped them to become a good citizen and improve their social interaction. The political emancipation of the adults had also been much better. Evidence from literacy classes showed that learners

acquire information such as voting in an election, seeking information about candidates or issues, participating in discussion of political parties or social movement.

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GREEN BANKING INITIATIVES AND ITS CUSTOMER AWARENESS IN INDIAN PUBLIC SECTOR BANKS

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Abstract

Banking sector plays an important role in the economic growth of a nation. Sustaining development can best be achieved by allowing marketer to work within a framework of cost efficient and appropriate instruments. The problem relating to environment, maintaining the ecological balance and environmental sustainability has become issues for debate around the globe. The concept of green banking is a new concept. It is a paperless banking, which not only reduces the cost of banking activities but also helps in environment sustainability. Green banking promotes environmental friendly practices and reduces carbon foot print arising from banking activities. This study has been made to study the level of customer satisfaction and awareness regarding “green banking services” initiatives taken by various public sector banks in India. The study aims to identify the opinion and awareness of customers regards to green banking concept. It is necessary to identify the various initiatives taken by banks on the concept of green banking in order to influence the customer and make them user friendly.

Keywords: Green Banking, India, Public Sector banks

Introduction

Green banking is a proactive way of energy conservation and environmental protection. The ultimate benefit of green banking approach is the protection of the natural resources and the environment. With the help of green banking, banks can avoids paper work to the optimum level and focuses on electronic transactions like

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ATM, mobile banking etc. In India, Green banking is in its initial phase. Banks can utilize green banking as an opportunity to gain advantage in the market by creating a difference in their strategy making process. Banks need to be more active in communicating the green banking concept and its associated benefit to customers. They must focus on promoting the consciousness benefit of green banking to the employee who is in direct touch with the customers.

Electronic transactions not only aid towards sustainability but also provide convenience to the customers as well as to banks. Banking sector is generally considered as environment friendly in terms of emissions and pollutions. Internal environmental impact of the banking sector such as use of energy, paper and water are relatively low and clean. Environmental impact of banks is not physically related to their banking activities but with customer's activities. More over to estimate environment management in the banking business is like risk management. It increases the enterprise value and lowers loss ratio as higher quality loan portfolio results in higher earnings. Thus encouraging environmentally responsible investment and prudent lending should be one of the responsibilities of the banking sector. Further, those industries which have already become green and those which are making serious attempts to grow green should be accord priority to lending by the banks. This method of finance can be called as green banking and effort by the banks to make the industries grow green and in the process restore the natural environment.

This concept of green banking will be mutually beneficial to the banks, industries and the economy. Not only green banking ensures the greening of industries but it will also facilitate in improving the asset quality of the banks in future. Internationally there is a growing concern about the role of banking and institutional investors for environmentally responsible/ socially responsible investment projects.

Green banking in India

Indian industry faces the challenges of controlling environmental impact of their business that is reducing pollution and emissions of their clients. Though government has been trying to address the issue by framing environmental legislations and encouraging industry to follow environmental technologies and practices, poor track records of enforcement and public awareness act as negative factor.

Green banking initiatives in public sector banks

There are 19 nationalized banks in India. The public sector banks are socially controlled and publically owned. It was done with the objective of giving a professional blend to bank management and provision of adequate credit for agricultural and rural sector, small industries exports and new class of entrepreneurs. When faced with tough competitions from private sectors and foreign banks, the public sector banks have reinvested themselves and have markedly improved their service and operational results. The important public sector banks which took measures to increase the awareness of customers in green banking are State Bank of India (SBI), Punjab National Bank (PNB) and Canara Bank

The green banking Initiatives taken by SBI

- 1) Launched green channel counter facilities in the year 2010 in some of its branches and planning to extend it in more branches. It also initiated an environment friendly approach of paperless banking.
- 2) Collaboration with Suzlon Energy limited to use wind power at the place of thermal power in its business operations and currently using wind power in its most offices located in Gujarat, Tamil Nadu and Maharashtra.
- 3) Initiated the carbon disclosure project in the financial sector of India for the sake of environmental concern and safety.

Green banking Initiatives by PNB

- 1) Internet banking started by PNB in the year 2003-04
- 2) Debit card facilities started in the year 2002-03
- 3) Bank has started using energy efficient appliances and conducting electoral auditing in the offices
- 4) A separate green audit sheet is prepared by the bank to access importance of various green banking Institutions by the bank
- 5) Sanctioned 9 commercial project of green energy in 2010-2011

Green banking Initiatives by Canara Bank

- 1) Green banking initiatives such as international banking, Tele banking, and mobile banking, solar power bio metric ATMs etc. in rural areas
- 2) The bank providing loans for implementing solar lighting systems and till date bank has financed 50000 units, lending 5-8 lakhs to each unit

Significance of the study

As environmental sustainability is an important issue and green banking is a step in this regard. Hence there is need to study the green banking initiatives taken by the banking sectors and also to review the role of green banking in environmental sustainability.

Objectives

- 1) To identify the various initiative taken towards green banking by public sector banks
- 2) To analyse the demographic factors affecting green banking
- 3) To identify the various obstacles faced by the respondents in green banking services

Methodology

Both primary and secondary data were used for this study. Primary data were collected from respondents of selected public sector banks. The sample size was 75. Secondary data were collected from journals, online magazines, and reports of respective banks.

Results

The major users of green banking lie between ages 20-40 (69 %) and 40-60 (16%). Out of 75 respondents 52 % of respondents were male and 45% were female (Table 1).

Table 1: Demographic Profile of Customers

Variables	Respondents	Percentage
Age		
Below 20	8	11
20-40	52	69
40-60	12	16
Above 60	3	4
Sex		
Male	39	52
Female	36	48

Source: Primary Data

77% of customers of SBI are aware of green banking. It is clear that customers of SBI have much awareness about green banking whereas majority of customer's of Canara bank and PNB were not aware of green banking (table 2).

Table 2: Awareness of Customers regarding green banking

Banks	Respondents	Percentage
State Bank of India		
Aware	58	77
Not Aware	17	23
Punjab National Bank		
Aware	17	23
Not Aware	58	77
Canara Bank		
Aware	6	8
Not Aware	69	92

Source: Primary Data

Most of the customers are aware of the important green banking initiatives such as green checking, online bill payment, cash deposit system etc. and most of the customers were not aware of green CD's, measures to reduce wastage of paper and Clean Development Mechanism related services working on mitigating climate change (table 3).

Table 3: Initiatives taken towards green banking and its awareness among respondents

Green initiatives	Aware	Not Aware
Green checking	86 %	14 %
Green Loans	54 %	46%
Green Mortgages	45%	55 %
Green CD's	36%	64%
Green controlled use of energy	66%	34%
Facilitates of establishment of regulations by which donate E-book to needy	64%	36%
Reduced wastage of papers and energy through net banking approach	34%	33%
Use of solar powered ATM s	68%	66%
Energy –Efficient branches and loans	46%	32%
High efficiency lighting	55%	54%
Using recycle paper or recycle waste	46 %	56%
Bonds and mutual funds meant for environmental investments.	44 %	55%
Clean Development Mechanism related services working on climate change.	25%	75%
50 % waiver in processing fee of cars that use alternate e-mode of energy	50%	50%
Conducting workshops and seminar for green banking	35%	64%
Bank environmental policy	81%	19%
Online bill payment	83%	17%
Cash Deposit System	76%	24%
E- investment services	31%	69%
Communication through press	35%	64%

Source: Primary Data

Most of the customers agree that they feel that technical issue (38%) is the major reason that pulls them away from using green banking initiatives. Lack of education and concerns about data security and privacy are the important obstacles of green banking (table 4).

Table 4: Obstacles experienced by respondents regarding green banking

Obstacles	Difficult to operate	Not difficult to operate
Data security and privacy	21 %	79 %
Lack of education	26%	74%
Technical issue	38%	62%
Traditional approach	13%	87%
Lack of infrastructure	14%	86%

Source: Primary Data

Conclusion

With go green mantra the banking sector too has adopted sustainable practices in all spheres of life. Green banking is an endeavor where banks have to work closely with government, NGO's, IFIS/IGOS, central bank and business community to reach the goal. Adoption of green banking approach is more than just becoming environment-friendly as it associated with lots of benefits like reduction the risks as well as cost of the bank, enhancement of banks reputation, and contribution to the common good of environmental besides . In a broad sense, green banking serves the common commercial objective of the bank as well as the corporate responsibility. Thus it is important that Indian banks should realize their responsibilities towards the environment as well as the society, in order to compete and survive in the global market.

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COMPARISON OF ANT DIVERSITY IN PADDY AGROECOSYSTEMS OF KUTTIPUZHA AND THOTTAKKATTUKARA OF ERNAKULAM DISTRICT

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Abstract

An attempt has been made to study the species composition of ants to assess ant diversity of paddy ecosystems, which is one of the major agroecosystem of Kerala. This study was carried out in two different paddy fields, paddy field (1) at Thottakattukara and paddy field (2) at Kuttipuzha for a period of three months from January to March 2016. Specimen collection was carried out by random quadrat sampling method. Brush method and hand picking method was adopted for collection of ants. A total of 16 species of ants belonging to 4 subfamilies were recorded from both the study areas. Paddy field 1 recorded 11 species belonging to 3 subfamilies. Paddy field 2 recorded 15 species belonging to 4 subfamilies. Nine species were found common in both study areas. In paddy field-1 ant species belonging to subfamily Formicinae was found to be dominant whereas in Paddy field-2 recorded ant species belonging to subfamily Myrmicinae was found to be dominant. Alpha diversity calculated by Shannon Wiener index (H') revealed that field 2 ($H'=2.65$) showed a higher diversity index than the field 1 ($H'=2.35$). In paddy field 1 *Camponotus parius* was the most abundant ant species followed by *Pheidole* species and paddy field 2 has *Camponotus parius* as the most abundant ant species followed by *Pheidole affinis*. T test revealed that the composition of ants was significantly different in the two paddy ecosystems ($t=2.7212$, $df=24$, $P<0.05$). A significant observation was that the colony density of ants was more along the field margin than the interior parts of the fields. Another remarkable observation was of *Oecophylla smaragdina*, an arboreal species generally associated with the mango trees and other citrus trees. It is the need of the hour, to explore the diversity of managed ecosystems such as paddy fields to throw light on better management practices of such agroecosystems to conserve the existing biodiversity.

Keywords: Ant, Agroecosystems, Alpha diversity, Rank abundance plot

Introduction

Ants could dominate ecosystems in a way unparalleled by any other organism. (La Salle and Gauld 1993). Their varied roles in ecosystems make them relevant in agroecosystems. Their species composition can be used as indicator of ecosystem health and functioning (Thiwari 2002). Ants occupy a variety of habitats including leaf litter, soil, trees, dead logs etc. Tramp species are even found in human modified habitats (Bharati 2008). Ants are also referred to as biological indicators. Species such as *Solenopsis geminate* is found in disturbed ecosystems (Savitha *et al.*, 2013). Hence the presence of such indicator species would reveal the condition of a given ecosystem. Efforts to preserve biodiversity have been focused primarily on remaining areas of natural ecosystems, but only 5% of the terrestrial environment is unmanaged and uninhabited (Western and Pearl 1989), and only 3.2% is protected in national parks (Reid and Miller 1989). Of the 95% of the world's land devoted to managed ecosystems, approximately 50% is in agriculture (Western and Pearl 1989). These data suggest that more attention should be paid to understanding patterns of biodiversity in managed ecosystems and how species richness influences the functioning of these systems (Alison and Alexanders 1996). Three main habitat components, namely vegetation, litter and soil, can directly and indirectly shape the overall habitat complexity as perceived by invertebrates living in the soil, litter interface (Rios-Casanova *et al.*, 2006; Gibb and Parr 2013). The structural complexity of vegetation has been found to generally increase ant abundance and species richness (Langellotto and Denna 2004; De la Mora *et al.*, 2013).

Patterns of abundance and site selection of granivorous ant nests were investigated in extensive cereal crop lands of central Spain by Diaz (1991). Study conducted by Campbell (1998) on ant species assemblages were found to

differ significantly between the fields and the field margin. Ants species assemblages were correlated with soil variables, tillage practices, and insecticide use, suggesting that ants have potential as a biological indicator of agroecosystem condition. It was also found that the most common species in the cropped part of the field was *Pheidole bicarinata*, *Solenopsis sp*, an important species of fire ant was found more frequently in the field than in field margin.

Ants exhibit a greater resistance to pollutants in comparison to other invertebrates, especially to radioactivity (Torossian and Causse, 1968; Le Manse, and Bonavita-Cougourdam 1972). Ants are also resistant to industrial pollutants (Petal *et al.*, 1975). However, the density of ant colonies and their sizes decrease with increasing levels of pollution (Petal 1978a). An attempt has been made to study the species composition of ants to assess ant diversity of paddy ecosystems, which is a major agroecosystem of Kerala.

Materials and methods

The study on ant diversity in paddy fields of Thottakkattukara and Kuttipuzha in the Ernakulam district of Kerala was carried out for a period of three months from January to March, 2016. Sites were visited twice a month. Specimen collection was carried out early in the morning. Quadrant sampling method was adopted for the study. Quadrates of size 5x5 m were selected.

Brush method and hand picking methods were employed for collecting ants. The unmounted materials were stored in 70% alcohol in small bottles. The card mounted materials were preserved in insect boxes. Ant species were identified based on Bolten (1994) and Fauna of British India Bingham (1903).

Results

A total of 16 species of ants belonging to 4 subfamilies were recorded from both the study areas at Thottakattukara (Paddy field1) and at Kuttipuzha (Paddy field 2). Paddy field 1 recorded 11 species belonging to 3 subfamilies. The recorded species were *Paratrechina longicornis*, *Camponotus parius*, *camponotus sericeus*, *Anoplolepis gracilipes*, *Oecophylla smaragdina*, *Diacamma rugosum*, *Pachycondyla melanaria*, *Meranoplus bicolor*, *Myrmicaria brunnea*, *Pheidole sykesii*, and *Tetramorium sp.*

Paddy field 2 recorded 15 species belonging to 4 subfamilies. The recorded species were *Camponotus mitis*, *Polyrhachis clypeata*, *Paratrechina longicornis*, *Camponotus parius*, *Anoplolepis gracilipes*, *Odontomachus haematodes*, *Diacamma rugosum*, *Pachycondyla melanaris*, *Meranoplus bicolor*, *Myrmicaria brunnea*, *Pheidole sp*, *Tetramorium sp*, *Solenopsis geminate*, *Pheidologeton affinis*, and *Tapinoma indicum*.

Nine species were found common in both study areas. The common species recorded were *Paratrechina longicornis*, *Camponotus parius*, *Anoplolepis gracilipes*, *Diacamma rugosum*, *Pachycondyla melanaris*, *Meranoplus bicolor*, *Myrmicaria brunnea*, *Pheidole sp*, *Tetramorium sp* (Table 1).

Rank abundance plot of paddy field 1 shows that *Camponotus parius* is the most abundant ant species followed by *Camponotus sericeus* and *Pheidole* species, whereas *Tetramorium sp* is the least abundant species. Rank abundance plot of paddy field 2 shows that *Camponotus parius* is the most abundant ant species followed by *Pheidole affinis*. *Myrmicaria brunnea* is the least abundant ant species of this field (figure 1a and b).

T test revealed that the composition of ants was significantly different in the two paddy ecosystems ($t=2.7212$, $df=24$, $P<0.05$).

Sub families of ant species recorded

Paddy field-1 at Thottakattukara recorded ant species belonging to 3 subfamilies. Subfamily Formicinae was found dominant with a species richness of 46%, followed by subfamily Myrmicinae (36%) and subfamily Ponerinae (18%).

Paddy field-2 at Kuttipuzha recorded ant species belonging to 4 subfamilies. Subfamily Myrmicinae was found dominant with a species richness of 40%, followed by subfamily Formicinae (33%), Ponerinae (20%) and Dolichoderinae (7%) (Figure 2a and b).

Species richness and diversity of ants in the study habitat

Paddy field-1 at Thottakattukara recorded 11 ant species and paddy field-2 at Kuttipuzha recorded 15 ant species. Alpha diversity calculated by Shannon Wiener index (H) revealed that field at Kuttipuzha ($H'=2.5986$) showed a higher diversity index than the field at Thottakattukara which had an index of ($H'=2.35906$). Species richness calculated by Simpson index again revealed that field at Kuttipuzha ($D =0.080121$) showed higher species richness than the field at Thottakattukara which had an index of ($D =0.096428$).

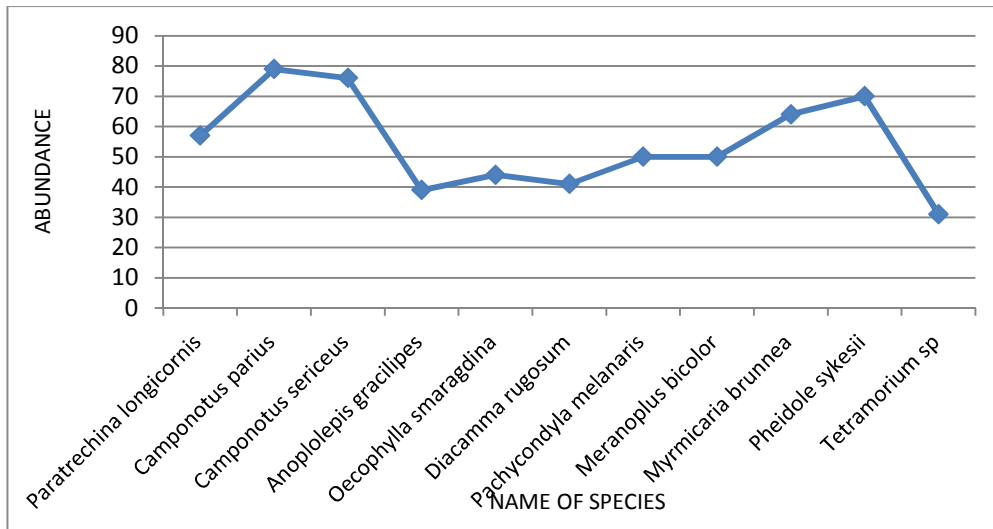
A significant observation in the current study was that the colony density of ants was more along the field margin than the interior parts of the fields. Another remarkable observation was of *Oecophylla smaragdina*, which is an arboreal species. This observation was due to the presence of many mango trees aside field 1. Most of the identified species are ground foragers. Ant nests were

found mainly along the earthen bunds. Though field 2 uses harmful pesticides and weedicides, it harbours more number of species than field 1, which uses least chemicals.

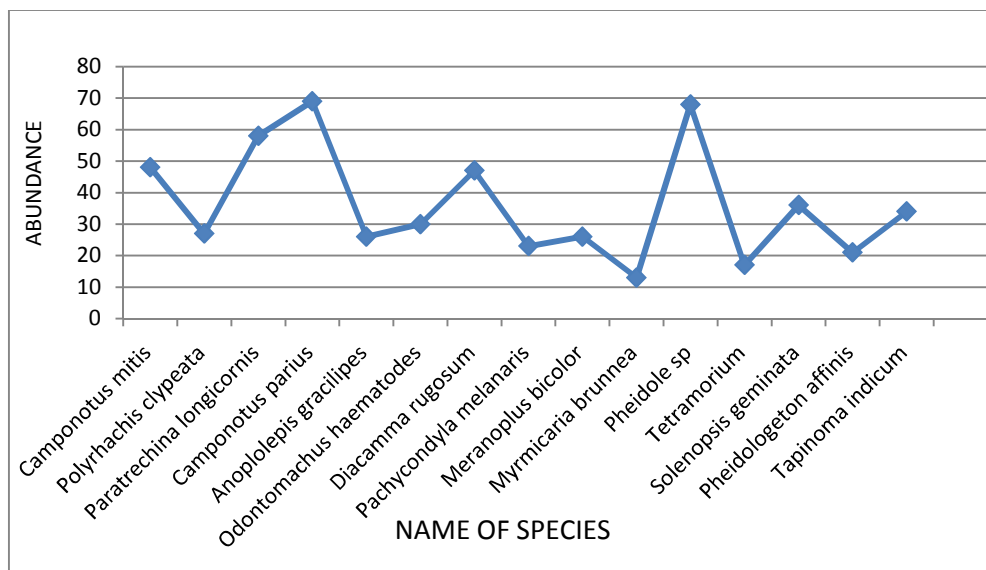
Table 1. Occurrence of ant species in the two study habitats

Subfamily	Species	Presence of ant species	
		Field 1	Field 2
Formicinae	<i>Paratrechina longicornis</i>	*	*
Formicinae	<i>Camponotus parius</i>	*	*
Formicinae	<i>Camponotus sericeus</i>	*	
Formicinae	<i>Anoplolepis gracilipes</i>	*	*
Formicinae	<i>Oecophylla smaragdina</i>	*	
Formicinae	<i>Camponotus mitis</i>		*
Formicinae	<i>Polyrhachis clypeata</i>		*
Ponerinae	<i>Diacamma rugosum</i>	*	*
Ponerinae	<i>Pachycondyla melanaris</i>	*	*
Ponerinae	<i>Odontomachus haematodes</i>		*
Myrmicinae	<i>Meranoplus bicolor</i>	*	*
Myrmicinae	<i>Myrmicaria brunnea</i>	*	*
Myrmicinae	<i>Pheidole sykesii</i>	*	
Myrmicinae	<i>Tetramorium sp</i>	*	*
Myrmicinae	<i>Pheidole sp</i>		*
Myrmicinae	<i>Solenopsis geminata</i>		*
Myrmicinae	<i>Pheidologeton affinis</i>		*
Dolichoderinae	<i>Tapinoma indicum</i>		*

* Indicates presence of ant species



(a)



(b)

Figure 2. Rank abundance plot showing the abundance of ant species (a) field 1 (b) field 2

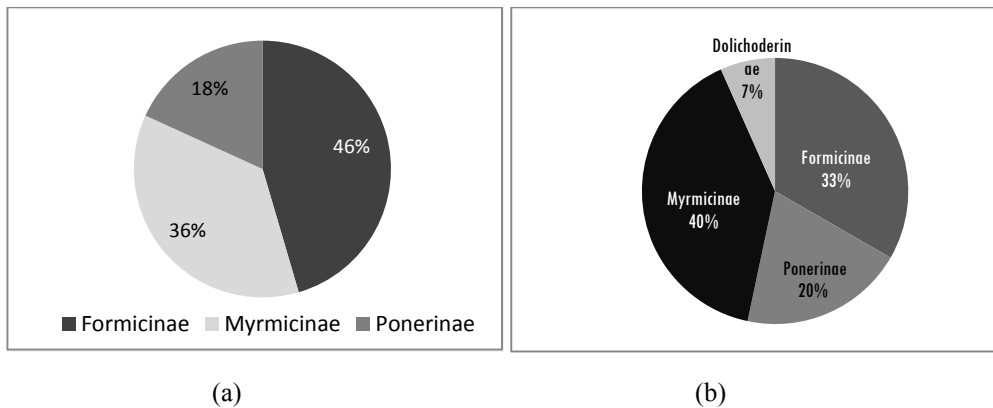


Figure 3: Distribution of ant families in (a) field 1 (b) field 2

Discussion

The current study revealed the diversity and ecology of ants in paddy agro ecosystems at Thottakattukara and Kuttipuzha. Keeping in view the large number of ant species identified (828 valid species) and described in India (Bharti and Alpert 2007), the number of ant species recorded in this study is considerably low. The two paddy agroecosystems in the present study adopted monoculture systems and this might have contributed to the decreased ant species diversity recorded in the study areas.

On comparing the species richness of ants in the two study areas, field 2 (paddy field at Kuttipuzha) recorded 15 species when compared to paddy field 1 at Thottakattukara, which recorded 11 species of ants. The higher species richness of field 2 may be attributed to the complexity of flora in the adjacent landscapes especially the outskirts of the paddy field, the earthen bund area. Many studies have reported that the structural complexity of vegetation would contribute to the increase in the species richness of ants (Langellotto and Denno 2004). The presence of complex vegetation cover surrounding the study area 2 attribute to the notably high species richness of ants recorded along the margins of field 2.

T test revealed that the composition of ants was significantly different in the two paddy ecosystems. This significant difference in diversity of ants was attributed to the varied influence of adjacent landscapes. Adjacent landscapes might play a role in shaping the structure of ant assemblages in the paddy ecosystems (Gibb and Holchuli 2002). Field 2 being a village area had highly diverse vegetation surrounding it, while field 1 being much closer to the National High Way-47 with adjoining residential areas had comparatively low vegetation cover surrounding it. The substantial differences in vegetation cover and urban influence near the two study areas indicated the significant variations of ant species richness in the above. When comparing the different subfamilies, subfamily Formicinae reported high species richness values. A similar study on ant diversity conducted in agricultural ecosystem in Vadodara district of Gujarat by Kumar and Misra (2008), also reported similar findings. Out of 5 subfamilies reported in their study, the most speciose was Formicinae in their agricultural ecosystem. This is in confirmation with our observation of more number of species of subfamily Formicinae than any other families. Subfamily Formicinae was thus found speciose in both the paddy fields under the current study.

Rank abundance plot reveals that *Camponotus parius* is the most abundant ant species in both the study areas followed by *Pheidole* species. *Camponotus* and *Pheidole* species were equally speciose in the agricultural ecosystem of Vadodara district (Kumar and Misra 2008). Both *Camponotus* and *Pheidole* species are categorised as generalists and solitary foragers (Hunt 1974). This could probably be the reason for their abundance in both the present study areas.

Personal interviews with farmers revealed the use of harmful chemicals such as pesticides and weedicides. Paddy field 2 uses NPK and bone meal as

fertilizers and Fame (Flubendimide 39.35 %m/m SC) 20 ml/acre was used as a pesticide. Adora (Bisphyrbac Na 10% SC) 120ml/acre was also used as a weedicide. This may be one of the major contributing factors to low ant diversity in paddy agroecosystem when compared to the total identified ant species of India. Though field 2 uses harmful pesticides and insecticides, more number of ant species were recorded from it. These findings may indicate the greater resistance of ants to pollutants (Torossian and Causse 1968). They are also resistant to industrial pollutants probably due to the fact that only approximately 10 % of ants are outside the nest exposed to these negative effects (Petal, 1978a). The high species richness of ants in field 2 may be attributed to its greater resistance to harmful chemicals and also their safe abode in nests.

Presence of arboreal species indicates availability of suitable trees providing microhabitats for the specific species (Kashmira *et. al.*, 2013). *Oecophylla smaragdina* is an arboreal species found associated with mango trees. The presence of *Oecophylla* sp. and mango trees as their suitable microhabitat elucidate their association in the current study in field 1.

In the current study, it was found that the colony density of ants was more along the margin than the interior parts of the fields. The structural complexity of vegetation (Langellatto and Denno 2004, De la Mora *et al.*; 2013) along field margins could be the reason for such variation in colony density observation in the interior of the field and that in the margins. According to Wagner *et.al.*, (1997) ant nest soil contain much higher abundance of biomass. Ant nests found in the paddy agroecosystems under study can be assumed to improve the soil quality of the area.

It has been shown that agricultural practices such as heavy grazing, irrigation, drainage, fertilization, mowing, conventional tillage, ploughing and reseeded, reduce ant biodiversity and /or biomass and colony densities

(Kanowski 1956, Pisarski 1978; Diaz 1991; Perfecto and Snelling 1995; Radford *et.al.*, 1995). Daily personal observations were made of the various activities in the study areas and it was found that various practices of irrigation, drainage, fertilization, mowing, ploughing etc were taking place in field 1 and field 2. These activities may have contributed to the low species richness of ants in the paddy fields under study. Nine species namely, *Camponotus sp.*, *Pheidole sp.*, *Myrmicaria bruneae*, *Diacamma rugosum*, *Anoplolepis gracilipes*, *Tetramorium sp.* were commonly found in field 1 and field 2. Among these ant species *Pheidole sp.* and *Camponotus sp.* are categorized as generalists (Hunt 1974) and *Anoplolepis gracilipes* an invasive species (Bruhl *et. al.*, 2003). The remaining species of ants can be assumed as common species of paddy ecosystems or ecosystems with low canopy cover.

Conclusion

A total of 16 species of ants belonging to 4 subfamilies were recorded from both the study areas at Thottakattukara (Paddy field 1) and at Kuttipuzha (Paddy field 2). A significant observation in the current study was that the colony density of ants was more along the field margin than the interior parts of the fields. Present study revealed the ant diversity of the two paddy fields and compared its species composition. Ecological remarks of ants in paddy agroecosystems were also drawn.

It is the need of the hour, to explore the diversity of managed ecosystems such as paddy fields to throw light on better management practices of such agroecosystems to conserve the existing biodiversity. Ant diversity studies could unravel several important species of ants that can be used as bioindicators and biocontrol agents. Hence more systematic studies in this direction are required.

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A COMPARATIVE STUDY ON THE WETLAND AVIFAUNAL DIVERSITY OF SALIM ALI BIRD SANCTUARY, THATTEKKAD, KERALA

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Abstract

The wetland habitat of the Salim Ali Bird Sanctuary, Thattekkad is constituted by the catchment of Bhoothathankettu Dam which is an irrigation project. The annual drainage of water from the dam during monsoon months adversely affects the avifaunal population. Abundance and diversity of wetland avifauna of Salim Ali Bird Sanctuary was studied from 2000-2002 and from 2007-2009. Regular bird census were done by line transect method. The first study period recorded 25 species of wetland avifauna belonging to 12 families while the second study period reported 32 species belonging to 10 families. An increasing trend in the population of wetland birds were observed during the study. Family Ardeidae represented maximum wetland bird species which included 4 species of egrets, 3 species of herons and 3 species of bittern. Most of the wetland birds were residents or only local migrants. International migrants like Spotted Sandpiper, Common Snipe and Whiskered Tern and internal migrants like Large Egret were recorded during the study.

Key words: Wetland avifauna, Salim Ali Bird Sanctuary, International migrants

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Introduction

Salim Ali Bird Sanctuary described as the “richest bird habitat in Peninsular India” by Ali (1935) harbours both land birds and aquatic birds. The sanctuary is located in Kothamangalam taluk of Ernakulam district in Kerala and is bordered by Periyar and Kuttampuzha rivers on two sides and Kolombathode and Orulamthanni on the other two sides. Ali (1935) recorded 162 species of birds from the area and according to him, “No water birds were seen except Kingfishers, *Ardeola grayii*, *Anhinga melanogaster* and *Motacilla maderaspatensis* which were usually present in small numbers”. At that time there were no wetland habitats in the sanctuary except the riverine ecosystem. Later Sugathan and Aby (1996) reported 270 species of birds from the sanctuary and Sugathan (1999) recorded thirty species of water birds.

The catchment of Bhoothathankettu Dam, an irrigation project across river Periyar constitutes the wetland habitat of the sanctuary. The depth of water in the area varies widely from place to place and this water habitat is also not stable. Annual drainage of water is done in the dam for maintenance work and desilting during heavy monsoon months when irrigation water is not required for cash crops. This process makes the environment dry within a short period of one or two days resulting in severe habitat changes. In order to overcome the ecological problems due to water drainage, the sanctuary management constructed few ecofriendly check dams to retain water in certain areas. This became a part of the wetland habitat of the sanctuary. The idea for such a system was evolved from the one existing at Keoladeo National Park, Bharatpur. Several earthen bunds and sluice gates were constructed to maintain and regulate the water level in Keoladeo National Park (Vijayan 1991). This study gives a comparative account on the population fluctuations and diversity of wetland birds of the sanctuary during 2000-02 and 2007- 09.

Methodology

Regular bird census were carried out fortnightly by line transect method. Counts were made in the morning hours and average population estimated. Identification of birds were done as per Ali and Ripely (1969) and classification based on Ripley (1982). Diversity analysis was done using Primer 7, version 7.0.8 by Clarke and Gorley (2015). Margalef richness, Pielou's evenness and Shannon index were the indices used for analysis.

Study Area: About 5 km² area of the sanctuary is with water front constituted by the catchment of Bhoothathankettu Dam. Many inland water bodies are also part of it. For the present study 2 km² area of this aquatic habitat was selected.

Study Period: The study was carried out in two phases. The first study period included two years of study from July 2000 to June 2002 and the second study period commenced from July 2007 to June 2009.

Results and Discussion

During the first study period (2000-02) 25 species of wetland birds belonging to 12 families (table 1) were recorded, while the second study period (2007-09) recorded 32 species belong to 10 families (table 2). An increasing trend in the population of wetland birds were observed during the study. Family Ardeidae represented maximum wetland bird species which included 4 species of egrets, 3 species of herons and 3 species of bitterns. Family Jacanidae and Glareolidae were recorded only during the first study period. *Metopidius indicus* was recorded breeding in the area.

The wetland avifauna included waders, divers and swimmers and water edge birds. Darter and cormorants were the common divers of the area while herons and egrets represented the waders. Bitterns, snipes and sandpipers moved along water edge for food. The habitat also provided suitable hiding places for them.

Table 1: Wetland bird census 2000-2002

Sl no.	2000-2001												2001-2002													
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J		
	F: PODICIPITIDAE																									
1	5	5	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0		
	F: PHALACROCORACIDAE																									
2	7	7	3	7	17	21	24	19	21	16	21	9	13	10	6	5	8	15	21	25	20	17	12	7		
3	1	0	0	0	3	0	4	3	4	5	5	1	1	1	0	0	0	5	2	3	2	4	5	1		
	F: ARDEIDAE																									
4	0	0	0	0	0	1	0	1	2	2	3	0	0	0	0	0	0	1	2	3	3	4	2	2		
5	16	13	10	1	12	19	18	20	2	0	15	12	8	8	14	6	18	14	18	14	12	10	8			
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	1	1	0	0	1	2	0		
7	0	0	0	0	0	3	2	2	0	1	0	0	0	0	0	0	1	1	2	4	4	5	1	0		
8	0	0	0	3	7	6	11	7	6	1	0	0	0	0	0	0	3	7	6	11	7	7	6	1	0	
9	1	1	2	0	1	3	2	2	1	1	0	8	4	1	1	3	2	3	2	0	0	1	1	6		
10	0	0	0	0	1	0	0	0	0	1	2	1	0	0	0	0	0	2	1	1	2	1	0	1		
11	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0		
	F: CICONIIDAE																									
12	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	5	15	3	2		
	F: ANATIDAE																									
13	3	1	0	0	0	0	0	44	160	5	13	3	2	2	2	0	0	0	0	19	326	105	51	40		
	F: RALLIDAE																									
14	1	1	0	0	0	0	0	0	2	2	0	1	0	1	0	1	1	0	0	2	0	1	2	2		
	F: JACANIDAE																									
15	5	3	0	1	1	0	2	2	2	1	2	2	0	0	0	0	0	1	7	14	7	8	10	8		
	F: CHARADRIIDAE																									
16	7	3	4	0	6	1	11	8	8	7	7	5	7	3	4	4	3	5	6	5	6	8	4	6		
17	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		
18	0	0	0	0	0	2	0	2	1	0	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0	
	F: GLAREOLIDAE																									
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0		
	F: LARIDAE																									
20	0	0	4	1	11	18	18	10	3	9	1	3	0	0	0	0	2	8	13	12	8	3	4	3	0	
	F: ALCEDINIDAE																									
21	0	1	1	0	1	0	1	1	3	2	3	2	2	1	0	0	0	0	0	0	0	0	1	1	2	
22	0	2	1	3	2	1	1	2	2	0	0	0	0	2	3	1	0	1	2	1	0	2	1	0	2	
23	0	0	1	2	0	1	0	0	0	1	0	2	3	1	1	0	0	0	1	0	0	1	0	2	1	0
24	3	5	4	5	5	4	3	3	4	4	6	3	3	5	4	5	4	5	4	3	3	4	4	6	3	
	F: MOTACILLIDAE																									
25	2	0	1	0	1	1	2	4	2	1	3	0	1	2	1	2	2	2	2	3	0	1	1	3	2	

F - Family *Resident **Migrant *** Local Migrant

The study results reveal that the pattern of fluctuations in the abundance of individuals and species showed an increasing trend. The highest number was noticed during December, January, February or March and the lowest number during August or September (figure 1). Maximum number of species was observed during December and January (figure 2).

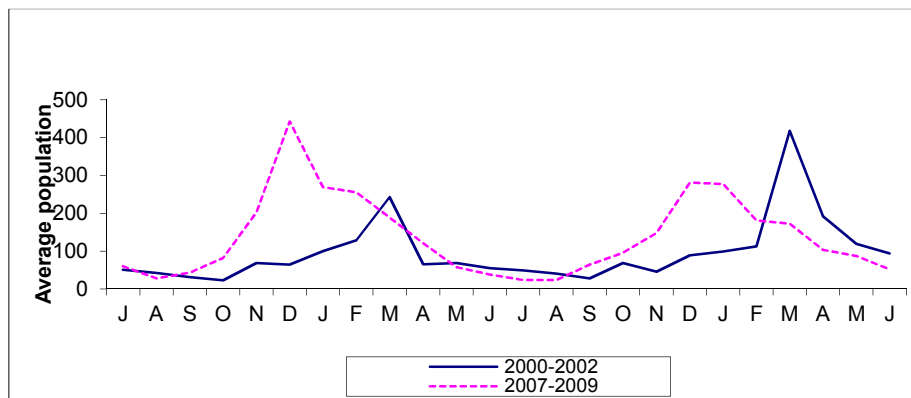


Figure 1. Population fluctuation of wetland avifauna during the two study phases

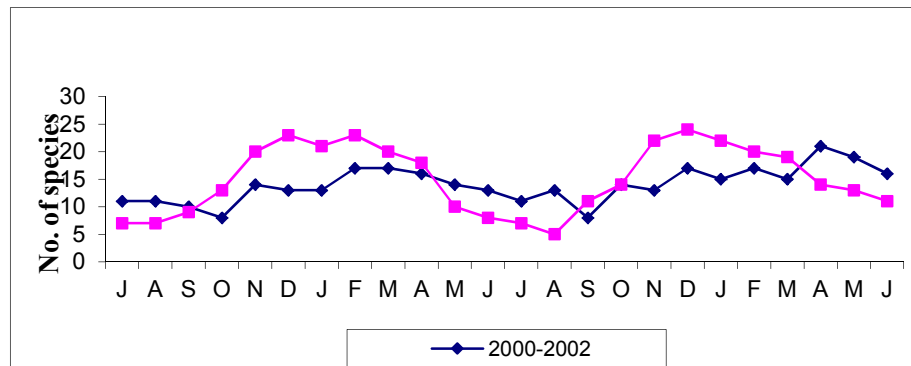
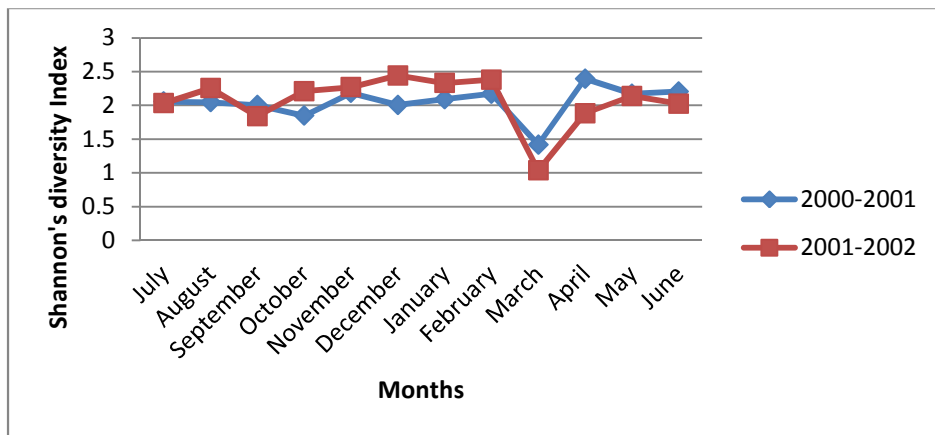


Figure 2. Number of wetland bird species recorded during the two study phases

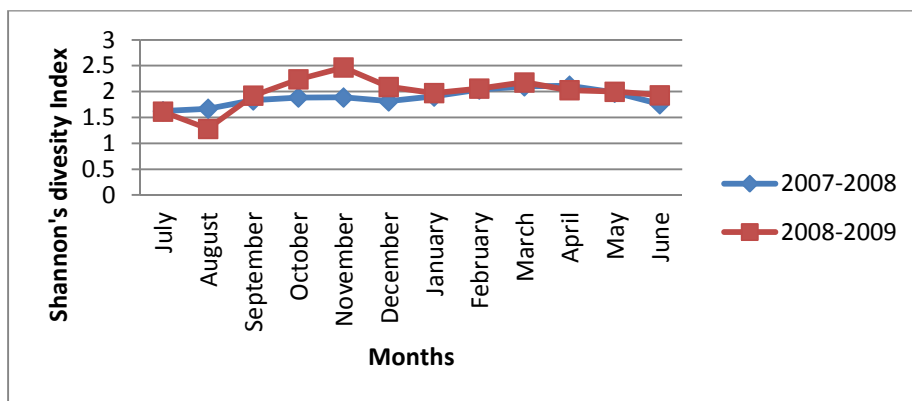
An increase in population was observed from October to March during the study. This can be considered as a regular phenomenon as the wetland habitat has got established providing ample food and shelter to the birds. Some birds visit the area due to the disturbances in their regular feeding habitats like paddy fields and agricultural lands which undergo crop rotation works. Influx

of migratory birds was also recorded during this period. They included long distance international migrants like *Tringa glareola* and *Capella gallinago* and internal migrants like *Egretta alba* and *sterna aurantia*. Most of the wetland birds were resident or local migrant.

A pronounced increase was observed in the population of *Dendrocygna javanica*. Cormorants and herons were common in the area. *Anas poecilorhyncha* represents a rare visitor of the area. *Glareola lactea* was also sighted once during the study.



(a)



(b)

Figure 3. Species diversity (Shannon H') index of wetland birds of the study area (a) study phase 1 (b) study phase 2

The study clearly reveals that the study area provides suitable habitat for wetland avifauna to survive. Availability of food, vegetation type, water depth, suitable hiding and breeding sites attracted avifauna to this area. Slight variations were observed in the diversity indices during the two study phases.

During 2000-2001 Shannon's diversity (H') was maximum in April (2.394) (figure 3a). Sixteen different species were recorded during this month. High species richness (3.593) and evenness (0.8636) contributed to higher diversity index. H' was minimum in March (1.416) due to low species evenness (0.4998). In the consecutive year maximum diversity was in December (2.441) marked by the influx of migratory species and high species richness (3.565) and evenness (0.8616). A low diversity index was observed in March (1.035). Large groups of teals (*Dendrocygna javanica*) reached the study area during March both the years and moved along the floating vegetation of the area. Hence species evenness was very low in March (0.3822).

In the second study phase from 2007 July - 2009 June, high richness (3.545) and evenness (0.7310) in April resulted in maximum species diversity (2.113) during 2007-2008 and the incoming migratory population during November, added maximum diversity during 2008-2009 study period. July recorded minimum diversity during 2007-2008 and August during 2008-2009 (figure 1b) as evenness was low.

July, August and September months in general showed a decline in the population of wetland avifauna which coincides with the drainage of water from Bhoothathankettu dam. This seriously affects the avifauna due to habitat loss. Only the eco friendly checkdams constructed could maintain water level and support avifauna during this period. As the study indicates an increasing trend in wetland avifaunal population, it is necessary that more and more habitats

should be provided to support the avifaunal population especially during the monsoon months when water is drained out from the dam.

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ASSESSMENT OF THE EFFECTIVENESS OF THREE DIFFERENT PROTOCOLS FOR THE ISOLATION OF METAGENOMIC DNA FROM MANGROVE SEDIMENTS

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Abstract

Microbial diversity represents our planet's greatest, but least utilized resource for biotechnologically important products and processes. In the milieu of traditional approaches failing to represent the scope of our microbial diversity, culture independent approaches like metagenomics gain importance. The present study focused on evaluating the efficiency of three different methods for the isolation of metagenomic DNA from mangrove soil samples.

Key words: Metagenomics, DNA isolation, mangroves, culture-independent

Introduction

The standard culturing techniques account for 1% or less of the bacterial diversity in most environmental samples and therefore 99% microorganisms in nature typically remain uncultivated and consequently unexploited for their ecological functions (Amann *et al.*, 1995). Metagenomics is a culture independent method which involves directly accessing the genomes of microorganisms in an environment that cannot be, or have not been cultured, by isolating their DNA, cloning it into culturable organisms and screening the resultant clones for the production of new chemicals.

The first step in any metagenomic study is the isolation of community DNA. This is a critical step as it carries all the information for further studies. The isolated DNA should be representative of all cells present in the sample and

should be ideal for generation of genomic libraries (Neelakanta and Sultana 2013). A major difficulty associated with the metagenome approach is the contamination of isolated DNA with polyphenolic compounds, which are copurified with the DNA. These compounds are difficult to remove, as the polyphenols also interfere with enzymatic modifications of the isolated DNA (Tsai and Olson 1992). Four key parameters that define the suitability of the DNA extracted by each method for subsequent metagenomics analysis have been identified as yield, purity, fragment size, and representativeness (Ekkers *et al.*, 2012). The present study compares three different methods of isolating metagenomic DNA from mangrove sediments.

Materials and methods

Collection of mangrove sediment sample

Sediment samples were collected from mangrove and mangrove associated aquafarms, situated in different locations as per the details given in Table 1, in sterile polythene bags, tied well and brought to the laboratory in an icebox for further processing.

Table 1. Sampling stations

Sl. No.	Code	Sampling location	Sampling site	GPS coordinates
1	MGK	Kannamaly	Mangrove	09°52'43.3"N 76°15'50.6"E
2	AQK	Kannamaly	Mangrove associated aquafarm	09°52'48.3"N 76°15'42.4"E
3	MGM	Mangalavanam	Mangrove	09°59'26.4"N 76°16'27.2"E

Extraction of metagenomic DNA using three different protocols

Total or metagenomic DNA was extracted from the mangrove sediment samples following three different protocols that are frequently used. The yield and purity of DNA obtained by each protocol was compared.

Protocol I (Zhou *et al.*, 1996)

Weighed 5 g of mangrove sediment sample, mixed with 13.5 mL of DNA extraction buffer, and 100 μ L of proteinase K (10 mg/mL) (GeNei, Bengaluru, India) in Oakridge tubes by horizontal shaking (Scigenics Biotech, Chennai, India) at 225 rpm for 30 min at 37°C. After the shaking treatment, 1.5 mL of 20% SDS (SRL, Mumbai, India) was added, and the samples were incubated in a 65°C water bath (MRC, Holon, Israel) for 2 h with gentle end-over-end inversions every 15 to 20 min.

The supernatants were collected after centrifugation at 6,000 x g (Sigma 3K30, Osterode, Germany) for 10 min at room temperature and transferred into 50 mL centrifuge tubes. The soil pellets were extracted two more times by adding 4.5 mL of the DNA extraction buffer and 0.5 mL of 20% SDS, vortexed (Remi Cyclomixer, Mumbai, India) for 10 s, incubated at 65°C for 10 min, and centrifuged as before.

Supernatants from the three cycles of extractions were combined and mixed with an equal volume of chloroform: isoamyl alcohol (24:1 vol/vol). The aqueous phase was recovered by centrifugation and extraction was repeated two more times. DNA was precipitated with 0.6 volume of isopropanol (SRL) at room temperature for 1 h. The pellet of crude nucleic acids was obtained by centrifugation at 16,000 rpm for 20 min at room temperature, washed with cold 70% ethanol, and resuspended in sterile deionized water, to give a final volume of 200 μ L.

Protocol II (Dong *et al.*, 2006)

About 1 g of sediment sample, 0.35 g of glass beads (diameter 2.0 mm), and 300 μ L of 0.1 M phosphate buffer (pH 8.0) were added to a microcentrifuge tube and mixed well by vortex (Remi). About 250 μ L of SDS

lysis buffer was added and vortexed horizontally for 10 min at maximum speed using a Vortex Adapter. After centrifuging (Sigma) at 10,000rpm for 30 s, the supernatant was transferred into another microcentrifuge tube.

Protein was removed by adding 250 μ L of chloroform : isoamyl alcohol (24:1 v/v), vortexed for 5 s, incubated at 48°C for 5 min, and centrifuged at 10,000rpm for 1 min. DNA was precipitated by adding 0.5 vol of 7.5 M ammonium acetate (SRL) and 1.0 vol of isopropanol to the supernatant. After incubation at -20°C for 15 min, DNA was pelleted at 12,000 rpm for 10 min and washed three times with 70% ethanol. After being air-dried, pellets were dissolved in 50 μ L of 10 mM Tris (SRL), pH 8.0 and flocculated with 10 mM aluminium sulfate (SRL). The brownish precipitate of humic substances was removed by centrifuging at 10,000 rpm for 5 min.

Protocol III (Tsai and Olson 1991)

Sediment samples (1 g) were mixed with 2 mL of 120 mM sodium phosphate buffer (pH 8.0) by shaking at 150 rpm for 15 min. The slurry was pelleted by centrifugation at 6,000 rpm (Sigma) for 10 min. The pellet was washed again with phosphate buffer, resuspended in 2 mL of lysis solution, and incubated in a 37°C water bath (MRC) for 2 h with agitation at 20 to 30 min intervals, and then 2 mL of 0.1 M NaCl/0.5 M Tris-HCl (pH 8.0)/10% SDS was added.

Three cycles of freezing in liquid nitrogen and thawing in a 65°C water bath were conducted to release DNA from the microbial cells in the soil or sediments. 2 mL of tris saturated phenol (SRL) was added after the freeze-thaw cycles, and the sample was briefly vortexed to obtain an emulsion. The mixture was centrifuged at 6,000 rpm for 10 min. A 3 mL sample of the top aqueous layer was collected and mixed with equal volume of phenol: chloroform: isoamyl alcohol mixture (25:24:1) (HiMedia, Mumbai, India). A 2.5 mL portion of the resulting extract was

further extracted with an equal volume of chloroform mixture. Finally, nucleic acids in the extracted aqueous phase (2 mL) were precipitated with 2 mL of cold isopropanol at -20°C for 1 h. The pellet of crude nucleic acids was obtained by centrifugation at 10,000 rpm for 10 min and then air dried. The nucleic acid pellet was resuspended in 50 μL of TE buffer (pH 8.0).

DNA isolation using kit

UltraCleanTM Soil DNA isolation kit (MoBio, CA, USA) was also used for the extraction and purification of DNA from the sediment sample following the manufacturer's instructions. All steps, except beat beating, were performed for the purification of crude DNA extracts.

Agarose gel electrophoresis (Sambrook et al., 2000)

1% agarose (SRL) gel containing ethidium bromide (SRL) (0.5 $\mu\text{g}/\text{mL}$) was prepared in 1X TAE buffer. The DNA sample was mixed with 6X gel loading dye and loaded into the wells of the agarose gel along with the DNA marker Lambda DNA EcoR I/ Hind III double digest (GeNei). Electrophoresis was carried out at 80 V for 1 h (GeNei Mini Electrophoresis system, Bengaluru, India). The gel was visualized under ultraviolet illumination and gel pictures were captured using Gel documentation system (Syngene, CA, USA).

DNA quantification (Sambrook *et al.*, 2000)

The DNA was quantified using a UV-Visible spectrophotometer (Shimadzu, Kyoto, Japan). The spectrophotometric readings were taken at wavelengths of 260 nm, 280 nm and 230 nm. The absorbance at 260 nm allows calculation of the concentration of nucleic acid in the sample. An absorbance value of 1 at 260 nm corresponds to approximately 50 $\mu\text{g}/\text{mL}$ for double stranded DNA.

The ratio between the readings at 260 nm and 280 nm (OD_{260}/OD_{280}) and 260 nm and 230 nm (OD_{260}/OD_{230}) indicates the purity of the DNA. Pure preparation of DNA has OD_{260}/OD_{280} ratio in the range of 1.8-2.0, or else it indicates protein contamination. OD_{260}/OD_{230} ratio indicates humic acid contamination, for pure samples the ratio is the range of 1.2-2.0.

Results

Metagenomic DNA was isolated from sediments collected from Kannamaly mangrove (MGK), Kannamaly mangrove associated aquafarm (AQK) and Mangalavanam mangrove (MGM).

Agarose gel electrophoresis of metagenomic DNA

DNA isolated using three different protocols (Protocol I, Protocol II and Protocol III) were visualized on agarose gel along with the DNA marker Lambda DNA EcoR I/ Hind III double digest (GeNei, Bengaluru, India) (Figure 1).

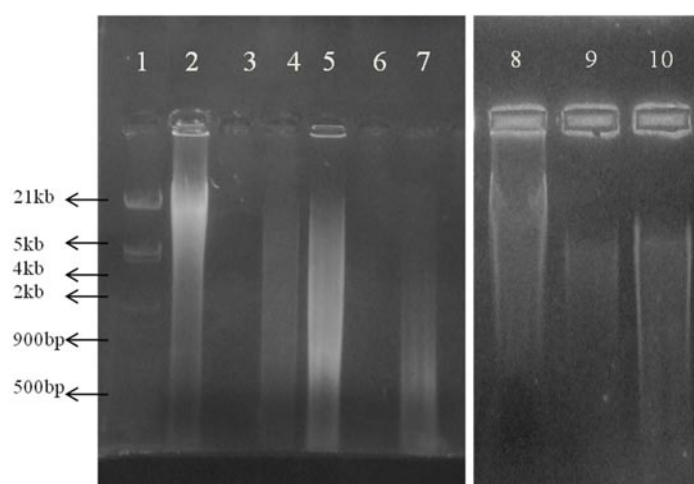


Figure 1: Agarose gel (1%) electrophoresis of metagenomic DNA isolated from three samples using three different protocols.

Lane 1 - DNA marker; Lane 2 - MGK - Protocol I; Lane 3 - MGK - Protocol II; Lane 4 - MGK - Protocol III; Lane 5 - AQK - Protocol I; Lane 6 - AQK - Protocol II; Lane 7 - AQK - Protocol III; Lane 8 - MGM - Protocol I; Lane 9 - MGM - Protocol II; Lane 10 - MGM - Protocol III.

The DNA isolated from the three different samples using Protocol I appeared brightly on the gel (Lanes 2, 5 & 8) indicating good DNA yield. Among the three samples, DNA isolated from AQC seemed to be sheared which is observed as a long smear on the gel (Lane 5). The DNA isolated using protocol II appeared as a very faint band on the gel (Lanes 3, 6 & 9) representing poor DNA yield. Aluminium sulphate used in this protocol for the removal of humic contaminants may have degraded DNA and resulted in poor DNA yield. The DNA isolated using protocol III also appeared as a smear on the agarose gel (4, 7 & 10) for all samples analysed, which may be due to repeated freezing and thawing of the sample. Only Protocol I produced significant DNA yield with comparatively less shearing.

Quantification of metagenomic DNA

The concentration of DNA obtained from three samples (sediments collected from Kannamaly mangrove (MGK), Kannamaly mangrove associated aquafarm (AQC) and Mangalavanam mangrove (MGM) using the three different protocols was determined spectrophotometrically and is as represented in Figure 2.

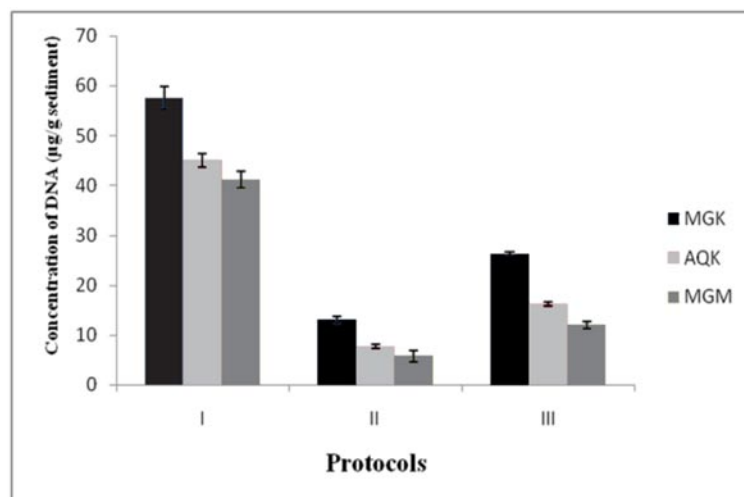


Figure 2: DNA yield from three different samples using three protocols

It is evident that protocol I yielded more DNA than the other two methods irrespective of the sample type analysed. However, the DNA yield from Kannamaly mangrove (MGK) sediment was more ($57.6 \pm 2.26 \mu\text{g/g}$ sediment) than the other two samples, Kannamaly mangrove associated aquafarm (AQK) and Mangalavanam mangrove (MGM) yielding $45 \pm 1.41 \mu\text{g/g}$ and $41.2 \pm 1.7 \mu\text{g/g}$ DNA respectively. Protocol II gave poor DNA yield, with less than $13 \mu\text{g/g}$ for all samples, which is also apparent from the agarose gel. The DNA yield for protocol III was more than that for protocol II, in the range of $12 \pm 0.7 \mu\text{g/g}$ to $26.25 \pm 0.35 \mu\text{g/g}$ sediment, but less when compared to protocol I.

Purity of metagenomic DNA

The purity of DNA isolated from three different sediment samples using three different protocols was determined by estimating the ratio between the spectrophotometric readings at 260nm and 280nm ($\text{OD}_{260}/\text{OD}_{280}$) as well as between 260nm and 230nm ($\text{OD}_{260}/\text{OD}_{230}$).

The $\text{OD}_{260}/\text{OD}_{280}$ ratio of DNA isolated from three different sediment samples using the three different protocols are depicted in figure 3. The $\text{OD}_{260}/\text{OD}_{280}$ ratio gives an indication of protein contamination, with the ratio being in the range of 1.8-2.0 for pure samples. The $\text{OD}_{260}/\text{OD}_{280}$ ratio of DNA samples isolated utilizing Protocol II was in/near the range 1.8-2.0, indicating that it is more pure compared to the DNA obtained using other two methods. For DNA isolated using protocols I and III the $\text{OD}_{260}/\text{OD}_{280}$ ratio was above 2.25, indicating protein contamination in both these samples.

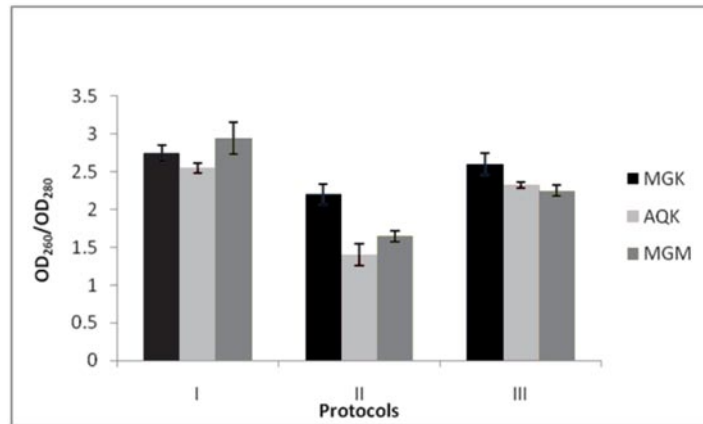


Figure 3: Quality of DNA based on OD₂₆₀/OD₂₈₀ ratio of different samples

The OD₂₆₀/OD₂₃₀ ratio gives an indication of the associated humic acid contamination, with the ratio being in the range of 1.2-2.0 for pure samples. The OD₂₆₀/OD₂₃₀ ratio of DNA sample isolated according to Protocol II was in the range 1.33-1.52, indicating that the sample was devoid of humic contaminants (Figure 4). However for DNA isolated using protocols I and III, the OD₂₆₀/OD₂₃₀ ratio was below 1.1, indicating humic contamination. Aluminium sulphate used in the protocol II for removal of humic contaminants from the samples is absent in protocol I and protocol III.

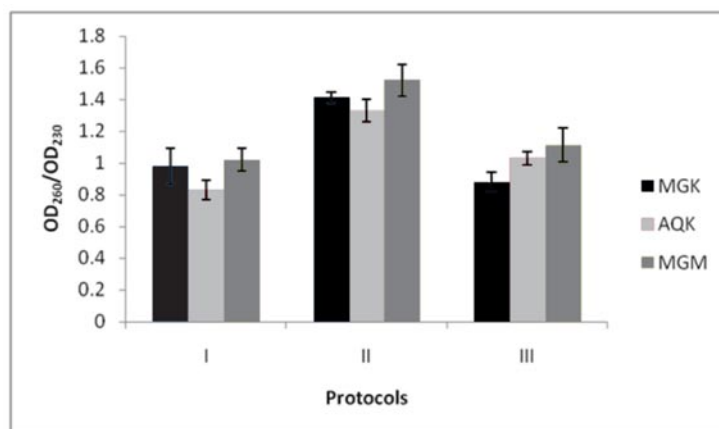


Figure 4: Quality of DNA based on OD₂₆₀/OD₂₃₀ ratio of different DNA samples

Metagenomic DNA isolation using kit

The DNA yield and purity obtained by the three different methods varied, with protocol I yielding more DNA, albeit with less purity. The DNA isolated by Protocol II was more pure, but yield was less than that obtained by Protocol I. Since the yield and purity of DNA isolated by three different methods was not satisfactory for downstream processes, DNA isolation of Kannamaly mangrove (MGK) sediment sample was also done using the commercially available kit (MoBio UltraClean™ soil DNA isolation kit, CA, USA) and was analysed on agarose gel (Figure 5).

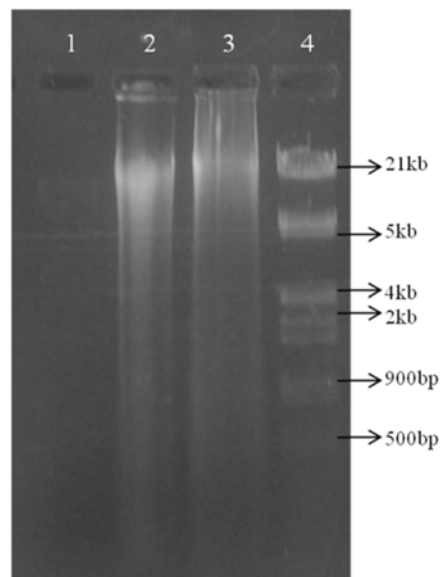


Figure 5: Agarose gel electrophoresis of DNA isolated using kit.

Lane 1 – MGK DNA isolated by kit, Lane 2 – MGK DNA isolated by Protocol I, Lane 3 – MGK DNA isolated by Protocol I and purified using kit, Lane 4 – Lambda DNA *EcoR* I/ *Hind* III double digest ladder (GeNei)

It was observed that the DNA yield was very low with the kit, which is seen very faintly on the gel (Lane 1). Consequently, the DNA isolated using Protocol I (Lane 2) was purified using the kit and seemed, brightly on the gel

(Lane 3) indicating good yield. The yield and purity of DNA obtained was determined spectrophotometrically and is depicted in Figure 6.

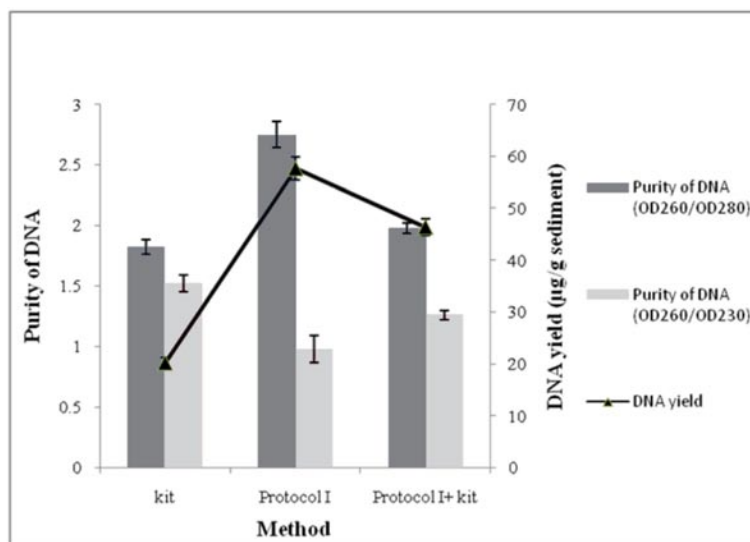


Figure 6: Yield and Purity of DNA isolated by kit

The concentration of DNA obtained using kit was 20.12 ± 1.16 µg/g sediment as compared to that obtained by protocol I (57.6 ± 2.26 µg/g sediment). But the DNA sample was of good quality, as the OD₂₆₀/OD₂₈₀ and OD₂₆₀/OD₂₃₀ (1.82 and 1.52 respectively) ratios were within the limits, indicating no protein or humic acid contamination. When DNA isolated using protocol I was purified using the kit, there was significant DNA yield (46.34 ± 1.62 µg/g sediment). Also, the OD₂₆₀/OD₂₈₀ and OD₂₆₀/OD₂₃₀ ratios (1.98 and 1.26 respectively) indicated purity of the isolated DNA.

Discussion

The metagenomic DNA was isolated from three different mangrove sediments collected from three different locales-Kannamaly mangrove (MGK), Kannamaly mangrove associated aquafarm (AQK) and Mangalavanam mangrove

(MGM), using three different protocols. The DNA yielded by Protocol I was more than that from the other two methods. Samplewise, more DNA was obtained from the Kannamaly mangrove (MGK) sediment ($57.6 \pm 2.26 \mu\text{g/g}$ sediment) than from the other two samples, with Kannamaly mangrove associated aquafarm (AQK) yielding $45 \pm 1.41 \mu\text{g/g}$, while $41.2 \pm 1.7 \mu\text{g/g}$ was obtained from Mangalavanam mangrove (MGM). The variation in the yield may not only be due to the differences in the sample types, but also due to the differences in the physical and chemical processes employed in various stages in the extraction protocols.

These three protocols are extensively used for the isolation of DNA from soils that have very complex nature. All three methods are based on direct extraction methods, wherein the microbial cells are lysed in situ and this method is known to yield maximum DNA. In addition, the DNA isolation is completed within 6-7 hours. In each case, the yield and purity of the isolated DNA depends on various factors like the nature of soil sample, agents used for cell lysis, DNA precipitation method, and so on.

The purity of DNA isolated from the different sediment samples by these three protocols was also compared. The DNA isolated according to only Protocol II was more pure compared to that obtained by protocols I and III, wherein protein contamination was indicated by a higher $\text{OD}_{260}/\text{OD}_{280}$ ratio.

Protocol I was also used previously to isolate DNA from soil samples collected from hot springs in Himachal Pradesh, India, with a DNA yield of $1.94 \mu\text{g}/\mu\text{L}$ (Sharma et al., 2007). However the purity of the isolated DNA was poor and it was therefore further purified using Q-Sepharose. DNA isolated from soil samples collected from the Agharwat Mountain in the northwestern

Himalayas by the same method yielded 100 ng/g of soil (Sudan and Vakhlu, 2012) and since the purity was low, it was not used for cloning purpose.

The OD₂₆₀/OD₂₃₀ ratio of DNA sample isolated from mangrove sediment according to Protocol II was in the range 1.33-1.52, indicating that the sample was devoid of humic contaminants compared to the DNA obtained using the other two methods in this study. For DNA isolated using protocols I and III the OD₂₆₀/OD₂₃₀ ratio was below 1.1, indicating humic contamination. Protocol II uses aluminium sulphate and this may be responsible for removing the humic contaminants from the samples, a plausible reason for the reasonable purity of the DNA isolated by this method.

Isolation of DNA from compost soil of the rhizosphere of *Clivia miniata* using protocol II resulted in removal of humic substances to a greater extent as aluminium sulphate complexed with them and aided in its removal (Dong et al., 2006). But the disadvantage of the method was low DNA yield which might be due to the coprecipitation of DNA along with humic acids, as DNA and humic acid has similar physical and chemical characteristics.

Protocol III was developed for DNA isolation of subsurface soil samples from a gas manufacture site in Southern California (SC, USA) and sediment samples from a settling pond in Oak Ridge, Tenn. (ORT). DNA yielded by this method was of good quantity and with less shearing (Tsai and Olson, 1991). In this method lysozyme was used for cell wall lysis in combination with gentle freezing and thawing, hence consequentially DNA obtained was less sheared when compared to other methods.

The commercial kits essentially rely on silica gel spin columns for purification of the DNA. The MoBio™ kit yielded a suitable DNA extract from

a peat sample (Schneegurt et al., 2003) and the procedure only took less than 2 hours.

The yield and purity of DNA from Kannamaly mangrove (MGK) obtained by the three different methods used was different. It was amply clear that comparatively more quantity of DNA but with less purity was obtained by Protocol I. The DNA isolated by Protocol II was more pure, even though the DNA yield was much less than that obtained by Protocol I, besides not being enough for downstream processes. Since the yield and purity of DNA isolated by the three different methods followed in this study was not satisfactorily good, DNA isolation of Kannamaly mangrove sediment (MGK) was also tried with the commercially available kit (MoBio™ kit). But, the DNA yield with the kit was very low. However the quality of the DNA obtained was far superior to that obtained by the three protocols. Since the yield of DNA by protocol I was highest, DNA isolated using protocol I was purified using the kit, resulting in significant DNA yield ($46.34 \pm 1.62 \mu\text{g/g}$ sediment). Also, the $\text{OD}_{260} / \text{OD}_{280}$ and $\text{OD}_{260} / \text{OD}_{230}$ ratios (1.98 and 1.26 respectively) of the DNA isolated and purified by this combination method indicated the DNA purity. Since purity of DNA is an important criteria for PCRability and for library construction, this method can be suitably used for metagenomic DNA.

Each protocol used for DNA isolation has its advantages as well as disadvantages. The protocol with high yield may not give highly pure DNA. The highly pure DNA obtained by a certain protocol may be extremely fragmented. Hence the choice of DNA isolation protocol has to be based on the goals of the study. The protocol giving highly pure DNA may be used for cloning purpose; the protocol with fragmented DNA may be used for hybridization studies and so on.

Conclusion

The metagenomic DNA was isolated from three different mangrove sediments using three commonly used protocols with minor modifications. The highest DNA yield was obtained with protocol I whereas DNA of maximum purity was obtained by protocol II, irrespective of the sample type. Among the three mangrove sediment samples, DNA isolated from Kannamaly mangrove (MGK) was of higher concentration than the other two samples.

Since the concentration and purity of DNA obtained by the three methods was not satisfactory or good enough for downstream processing, metagenomic DNA isolation from the Kannamaly mangrove sediment was also attempted using MoBio Ultraclean™ soil DNA isolation kit. The metagenomic DNA isolated using protocol I, but purified by the MoBio kit was satisfactorily good with respect to quantity and quality.

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EDUCATION AS RESISTANCE: ON LAUGHTER, SOME QUESTIONS AND MAHASWETA THE 'DIDI'

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“I have written about so many children. And I write because I love children” (Mahasweta Devi). When she wrote, Mahasweta Devi used all her readings, memories, and direct experiences and acquired information, and always raised issues of politics, gender and class. For her, there was nothing to hide in her activism, politics and writings and left no gaps while doing so. This paper is an attempt to trace another side of Mahasweta Devi, a face which is less explored and appreciated for its worth. Her writings have received enthusiastic critical responses and have been seen from a number of different perspectives such as feminist, subaltern, peripheral, radical, Marxist and so on. However, a part of her oeuvre is often left over looked- Children’s Fiction.

An avatar of Mahasweta in her dark and unforgiving writing, fire-spitting and volatile with a cutting edge to her words, making human violence visible to the unseeing adult world is a familiar one. But there has always been another side to this non-conformist woman- one which was light and playful, lit up with fun and fantasy to catch the imagination of children. The Mahasweta that the world has come to know is a fierce warrior, a serious woman, an activist who accuses, condemns and rips open the hypocrisy of social system we live in. This Mahasweta has won the Jnanpith and Magsaysay awards and is the mother of the dispossessed. But the Mahasweta that we see in her children’s fiction is the ‘Khuku’, the eldest of the nine brothers and sisters in a close-knit family, reliving

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her childhood days, or the 'Didi', an elder sister to the adivasi children whom she taught in the tribal schools, or an "old woman" to her one time roommate Moyna! In these stories we see a Mahasweta who has taken a break from her awareness raising programmes to play with children, to swing with their fantasies, to give their imagination a nudge. Mahasweta started writing for children from 1965, in *Mouchak*, a well-established children's literary magazine that she herself had read in her younger days. From 1975, her stories began to appear in *Sandesh*, another children's magazine while Satyajit Ray was one of its editors (Sen 5).

Three of Mahasweta's children's short fictions are studied here. The first one is titled *Etoa Munda Won the Battle: A Story about Tribal Life* which is translated to English by the critic Meenakshi Mukherjee. It tells the story of Etoa Munda, a seven year old tribal boy who fights against heavy odds in his quest for acquiring education. The story vividly describes the customs and way of life of the Munda tribals with black and white photographs which aid. The story is set in the village called 'Hathighar' in West Bengal which was once named 'Salgerya' when it belonged to the tribals. Now the landlords- the Babus own the village and have taken everything from the tribals by making use of their illiteracy and lack of knowledge about the law and governmental system.

Etoa is a curious boy. He is enthusiastic to know the history of his ancestors, the story of his village and is fascinated about the fierce battle the school teacher talks about. He pauses on his way to the Babu's house to listen to the school teacher describing about a battle every day. Etoa is a labourer at the Babu's and dreams of joining the school. "Then the arrows darted through the air. The sky became dark with them. How can I describe that fierce battle!" Which is this battle the school-master talks about? Etoa doesn't know. Is it the battle of the Mahabharata? Or the Ramayana?" (Devi 5).

Etoa too has to battle everyday to fill his gunny-sack; he is a scavenger. But it is a life battle he is unaware of. The story is about how Etoa wins his battle to get education despite all the hurdles that come on his way- the battle for the subaltern is the battle for education. And it is not just the tribal boy's first steps towards learning the lessons of resistance through education, the story traces adivasi resistance in history also, on how the Santals fought against the British under the leadership of Sindhu and Kanhu, leading to the dispersal of the Santals all over the land upon losing the fight. Mangal, Etoa's grandfather gives an account of how Birsa Munda, the Santal leader led his people against the British. Mahasweta writes:

After some years Birsa Munda was able to organize the Mundas to rebel against the British. That was another fierce battle. Arrows flew from our side; they shot with bullets. Finally we had to accept defeat, too. Like leaves before the wind, we scattered to different places in Orissa, Bihar, Bengal and Assam. We cleared forests to make new settlements. Today Mundas and Santals can be seen everywhere. (4)

It is such battles of the tribals that the school teacher is describing to his students to boost their confidence and mark their place in history. It is an act of remembering and reminding the past. On the otherhand, the landlord Moti Babu says it was a "big mistake" (20) for Mangal to send his son and now his grandson to school. However, the adivasis realize that "without proper education, there is little hope for the adivasis" (25). They have learned from the betrayal of the Babus that they are being exploited because of their illiteracy and lack of understanding about the law system. The teacher says "In the old days it was enough to have your bow and arrow. These days education is your weapon for survival" (38) and that education is the "first priority" (47).

Tragedy strikes in the life of Etoa when he is forced to abandon his schooling to find food when Mangal breaks his leg in an accident. However, when Mangal returns from hospital, he slaps Etoa hard and fires:

It would have been better if I'd died. So you've become a cowheard again! I so wanted to save you from being an illiterate farmhand, a slave of the Babus. Why didn't you sell the jack fruit tree? Why didn't you sell the goats? Why didn't you go hungry till I returned? Why did you have to do this, Etoa? (55)

What overlaps the story is the image of Eklavya- for Etoa also, along with his ancestors like Birsa Munda, Kanhu and Sidhu is waging a battle from nothingness. What they truly possess is sheer determination not to give up. That determination is what separates children from adults. Further, if one searches for the ethnicity of Eklavya, the mythic character, he too would come out as a dispossessed adivasi boy only to be failed by his upper caste master. Etoa, the unprivileged boy too is weighed down by his landlord. Nonetheless he fights. His fight is akin to the fight of his people. Perhaps it remains unmarked in the official history that the first environmental, anti-colonial war against the British was fought by the Santals in India¹. Anti-colonial tribal insurgencies have occasionally been recorded and remembered. But ironically Birsa Munda's statues throughout different states of India depicted him in shackles for nearly 116 years until recent times.

¹ The Indian caste system has been influenced by several different outside influences and historical events throughout centuries, but British colonialism was the most pivotal occurrence that shaped and perpetuated the caste system. It placed the untouchables and the tribals on the lowest strata of societal divisions and branded them as criminals.



Figure 1. Birsa Munda's statue with chained hands at Birsa Munda Chowk in Ranchi

Etoa's battle is waged against such shackles the civilized society's hierarchies have laid on him. The subalterns are cut off from upward social mobility because they are denied education. Mahasweta's story delineates the real problems faced by the tribal children in getting education despite the availability of bare minimum infrastructural facilities provided by the government. Mahasweta Devi writes that in tribals belts of Bihar, Jharkhand and Gujarat where she had worked very close to the tribals, the landscapes are generally hilly and schools are far away. High schools are even harder to reach. Therefore it is difficult for the teachers to reach pupils and for pupils to reach teachers. And for children like Etoa Munda who are real life figures without the protecting shadow of forefathers, education is a fierce battle to be fought against starvation.

However, such battles are fought with laughter on their face. A smile or laughter becomes a powerful weapon for the dispossessed against the authorities. Mahasweta was one of the rare souls who could say with a smile that their life was fulfilled. Against the ideologies of hatred she smiled, even in her roars of agitation there was laughter and as she turned tears into rebellions, laughter was there. The Mahasweta who is deemed to write complex ideas in

complex language wrote for children and about laughter too². We see Etoa laughing when Mangal says that he counts years by moon. All the tribals laugh when they recall how Gura sing, one among them, regained his land from the landlord who tricked him into putting his thumbprints on papers by giving him alcohol. Gura Sing's testimony brings laughter of success and justice. There is an arc of smile when Mangal proclaims that the barbarians have united (63) and there is a smile of pride in Etoa as he hails the name of Birsa Munda- his battle has been won. The whole nature joins the tribals in their laughter- "The Dulang and Subararekha smiled and flowed... (11), the river, the sky, the grass all sparkled and laughed in the sun" (64). Thus, reading, education, knowledge and history emerge as tools of resistance.

In the beginning of the story we see Mangal exhausted with Etoa's questions. He says: "You ask too much Etoa. Your father won't have dared to ask so many questions" (2). This exploratory thirst, characteristic of children, gets magnified as we meet the protagonist of the next story- *The Why-Why Girl*. Mahasweta Devi writes, "All over India there are children, tribal and non-tribal, who always ask the question 'why?'" and she chooses to tell one such girl's story- a Shabar girl named Moyna. *The Why-Why Girl* is Mahasweta Devi's first picture book and was first published in 2003. The story is autobiographical and Mahasweta Devi tells us how she meets Moyna, a ten year old and her pet mongoose. The little girl is so obsessed with finding answers to her unstoppable train of doubts and always asks "why?" The postmaster thus names her "why-why girl" (3).

² The smile we see in Etoa Munda's story is similar to the smile one sees in Apu from *Pather Panjali* as he battles out with fate, poverty and his sister's death and decides to live on with determination. It is likable to Bruno's faint smile as he holds his father's hand to lead him home as *Bicycle Thieves* ends. It also reminds one of little Salvatore's innocent smile from *Cinema Paradiso* or that of Totto Chan's. Those are the smiles against oppression, Fascism and power structures- smiles with politics and children with politics.

One fine morning Moyna declares that she would move in with Mahasweta. When her mother objects she says “Why not? It’s a big hut. How much space does one old woman need”, referring to Mahasweta (5). Moyna is neither humble to grateful towards her landlord. “Does he ever thank me? Why should I”, Moyna challenges (3). She did her work of tending the goats and came home in the evening. She hears from Mahasweta that all the answers to her whys are in the books and decides to learn to read and write. She tells other children what she had learned from the books. The story ends with Moyna, now an eighteen year old primary school teacher at Shabar Samiti, urging her students to ask questions. Moyna’s questions urges in breaking the unquestioning silence from the side of adults for resistance begins with questions of whys.

Education for the children in both the stories is a road to emancipation from bondages and feudal structures. Education for the subaltern, like Spivak observes, must be the effort to teach them democratic policies from below. “Upward social mobility is hard for the subaltern because of the long standing prejudices”; even the intelligent children are not given real education, thus closing the possibilities for a future leader or a future electorate (334). The positive signs of resistance learned through education attested by these stories are sowed as seeds to the child hearts who are the posterity to keep the flames alight.

It is this journey towards political correctness that Mahasweta dictates to her young readers in the third short story *Nyadosh, the Incredible Cow*. The story is autobiographical but is centred on a fish-eating, bone-licking, staircase-mounting, non-conformist, anti-establishment cow. The cow is named Nydosh (clumsy) and it belongs to Mahasweta Devi’s mother. It possesses all characteristics that a normal cow would lack- it eats up all the school textbooks of Mahasweta’s siblings, from grammar to English letter writing guides- “the

quickest way to study” (11)- like Mahasweta’s father observes. She says that Nydosh could have written her own autobiography if she had only eaten up a pen! Nyadosh later starts a diet of fish and meat and develops a craving for onions and garlic, acquiring “legs as strong as a tiger’s” in the mean time (12). Mahasweta writes that Nyadosh would possibly be the “only cow in British ruled India to have police cases lodged against her (13) for she had the habit of pushing the Bihari Constables who climbed out after their dip in Ganga back into the river. Nyadosh wanders around, refusing to be a domestic cow and lives in the court grounds where she delivers her calf. But no one gets to milk Nyadosh. Later, the cow even gives a go at drinking palm wine and climbs to the terrace to watch the moon. She even chases away the Vet when she falls sick.

The story could be easily connected to the present beef politics and cow worshiping and where Dalits and Muslims are killed and arrested for storing or eating beef or for skinning a dead cow. At a time when the life of a cow becomes more precious than the life of a human being, Nyadosh the Incredible Cow roams incredible indeed for its cow-less-ness. There is no Brahminism in Nyadosh, she lives a life of a non-Hindu and of a scavenger.

All the three stories discussed are connected because its protagonists are scavengers. They clean-up the mess left behind by the privileged classes. They are non-conformists who refuse to be domesticated and controlled. When the Dalits refuse to do the scavenging jobs, the corpses of the holy cows begins to rot and smell. The story of Nyadosh reads differently from the Hindu nationalist politics that polarize communities along religious lines and that which promote the image of ‘cow as mother’. In *Etoa Munda won the Battle*, the cow is presented as a friend of the adivasis, not their life denier. The politics of cow is reaching children.

When writing for grownups, Mahasweta is serious. But her stories for children are full of funny incidents and unforgettable characters. They show a bit of her childhood also. Fiction of this sort relies for its effect on its effect of the real. The plausibility of an Etoa Munda, or a Why-Why Girl is that they have existed as subalterns in a specific historical moment. Like Mahasweta, lately, many public figures have made an impression on Indian public life by engaging with their own community or ones they aligned with. Buffeted Tamil writer Perumal Murugan, the assassinated public intellectuals like Narendra Dabholkar, Govind Pansare and Malleshappa Madivalappa Kalburgi, all have intervened politically in the public discourse of their place foregrounding their communities and attempting to push the social envelope. What makes Mahasweta stand out is her refusal to be tied down- just like a child.

The world Mahasweta conjures up in these stories is inhabited by tender, real people and animals that are free-spirited and enthusiastic. They appear more civilized than anyone of us. They live one with nature and learn from nature. For Mahasweta, the first and fundamental right is the right to dream. And children are the category who is most denied of their dreams. Education provides the first step for the child to dream with open eyes, to laugh with full heart, and to question without fear. And Mahasweta never stopped dreaming. May be that is why Spivak in her obituary for Mahasweta wrote: “She seemed immortal. Yes, headstrong and childlike”.

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ISSUES IN REVENUE GENERATION OF KERALA GOVERNMENT

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Abstract

The peculiar development experience of the Indian state of Kerala had attracted worldwide attention. Interventions made by government in social sector played an important role in realizing Kerala's achievements in social development. But the present fiscal crisis faced by Kerala state government can potentially endanger the sustainability of these achievements. Additional revenue generation by Kerala state government is the solution to solve these problems. In this context, this paper tries to analyse the trends and patterns in revenue generation of Kerala government, identify some potentials for additional revenue generation and highlights some worrisome trends in composition of revenue of Kerala state government.

Keywords: Kerala government, Revenue, Tax Revenue, Non Tax Revenue.

Introduction

Inadequate revenue mobilization is one of the major factors responsible for Kerala's fiscal crisis (George (1993, 1999), Sen (2012), George and Krishnakumar (2014)). This crisis can potentially threaten the sustainability of the world renowned Kerala experience of development. In this context, this paper tries to a) Understand the recent trends in revenue mobilization of Kerala

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state government b) Present some possibilities of additional revenue generation and c) Expose some disquieting trends in this regard.

Materials and Methods

The materials used in this paper are official secondary data sources pertaining to the study area. The main data sources used were reports of Kerala Public Expenditure Review Committee (various years) and Finance accounts, Government of Kerala (various years). Simple statistical tools like percentages and growth rates were the methods of analysis.

Result

Result of the study consists of growth/composition of various sources of revenue of Kerala state government. This study highlights the potential areas of additional revenue mobilization and also points out some worrisome trends in this regard. Studies conducted reveal that the growth rate of Total Revenue receipts (TRR) of Kerala government is declining (table 1). Tax is biggest component of TRR, followed by central transfers to Kerala and Non tax revenue. The share of Non tax revenue in TRR is increasing consistently, whereas the share of other 2 components shows a fluctuating trend (table 2).

Table 1. Total Revenue Receipts (TRR) of Kerala government (Rs. in Crore)

	2009-10	2010-11	2011-12	2012-13	2013-14
Total Revenue Receipts (TRR) (Rs. in Crore)	26109	30991	38010	44137	49177
Growth rate (%)	6.52	18.70	22.65	16.12	11.42

Source: KPERC reports, Finance accounts (GoK)

Table 2. Composition of Total Revenue Receipts (TRR) (Rs. in Crore)

	2009-10	2010-11	2011-12	2012-13	2013-14
States own Tax as a percent of TRR	67.51	70.09	67.66	68.14	65.06
Non Tax Revenue as a percent of TRR	7.09	6.23	6.82	9.51	11.34
Central Transfers as a percent of TRR	25.40	23.68	25.52	22.34	23.60

Source: KPERC reports, Finance accounts (GoK)

Table 3. Composition of Tax Revenue of Kerala government (Rs. in Crore)

	2009-10	2010-11	2011-12	2012-13	2013-14
Sales Tax	73.65	73.86	74.52	75.77	78.69
Excise Duty	8.74	7.92	7.41	7.78	6.14
Motor Vehicle Tax	6.53	6.21	6.24	6.48	6.83
Stamp Duty & Registration	10.94	11.91	11.75	9.89	8.20
Electricity Duty	0.14	0.10	0.08	0.08	0.13

Source: KPERC reports, Finance accounts (GoK)

Sales tax remains as the single largest source of tax revenue in Kerala and its share in total tax revenue is increasing. Sales tax is not a progressive tax and it affects all sections of society equally. Hence heavy reliance on sales tax may contribute to price hike and will adversely affect on common man. Despite high liquor consumption in Kerala, the share of excise duty in total tax revenue remains low and shows a fluctuating trend. There is potential for additional revenue generation in this segment. There are no additional ethical issues here because government is already relying on high liquor consumption in Kerala to bolster its commodity tax collection.

Share of motor vehicle tax in total tax revenue is increasing but remains low. Government must try to increase the revenue from it. Such an effort will

also act as a deterrent to rapid growth of vehicle population in Kerala and will bring substantial ecological benefits. Share of stamp duty and registration in total tax revenue remains low and declining. This is an area that requires a clear policy and strategy. Either the government can cash on real estate deals or curb the same using a comprehensive stamp duty and registration policy. Share of electricity duty in total tax revenue is increasing. This is not desirable as it may have adverse impacts on both domestic and industrial users of electricity (table 3).

Commodity Tax Collection in Kerala

In the last 4 years, Commodity tax collected from sale of Indian Made Foreign Liquor (IMFL) occupies 1st position in the ranks (table 4). It seems the government is taking advantage of higher liquor consumption (IMFL) in Kerala. This can be viewed from two perspectives. Either we can consider the high alcohol consumption in Kerala as given and say that it is prudent to make maximum revenue from it. Or we can say that it is unethical to rely on IMFL to bolster commodity tax revenue.

Commodity tax collected from sale of petroleum products occupies 2nd position in the ranks mentioned in table 4. This again can be viewed from two perspectives. Either we can consider opine that higher tax revenue from petroleum products will contribute to overall price hike and adversely affect on common man. Alternatively, one can argue that a lower tax on petroleum products will lead to lower prices of petroleum products and this will deter the efforts to conserve these non renewable energy sources.

Commodity tax revenue from motor vehicles and jewelry figure prominently (table 4). This is a welcome trend as government is either trying to cash from some types of conspicuous consumption or trying to curb the same.

But at the same time many other non essential and luxury items are not taxed properly. This is clear from low rank of luxury tax. Government must try to augment the tax collection from non essential and luxury items.

Commodity tax collected from medicines occupies seventh rank in table 4. Relying on essential items like medicines to augment tax revenue is not desirable for the welfare of citizens. But higher revenue from sale of medicines can be either due to higher morbidity rate in Kerala or due to higher tax rate. To ascertain this, further enquiry is needed.

Table 4. Sources of commodity Tax Collection In Kerala

Rank	Year				
	2008-09	2009-10	2010-11	2011-12	2012-13
1	Petroleum Products	IMFL	IMFL	IMFL	IMFL
2	IMFL	Petroleum Products	Petroleum Products	Petroleum Products	Petroleum Products
3	Motor vehicles	Motor vehicles	Motor vehicles	Motor vehicles	Motor vehicles
4	Cement	Cement	Cement	Cement	Cement
5	Rubber	Rubber	Rubber	Rubber	Rubber
6	Jewelry	Jewelry	Jewelry	Jewelry	Jewelry
7	Medicines	Iron and Steel	Medicines	Medicines	Medicines
12	Luxury Tax	Electrical Goods	Chicken	Luxury Tax	Timber
13	Electrical Goods	Luxury Tax	Luxury Tax	Timber	Luxury Tax
14	Cardamom	Areca nut	Bakery Products	Bakery Products	Bakery Products
15	Machinery	Machinery	Machinery	Sanitary ware	Tea
16	Bakery Products	Bakery Products	Sanitary ware	Machinery	Areca nut

Source: KPERC reports, Finance accounts (GoK)

Non Tax Revenue (NTR) of Kerala Government

The revenue from general services is the largest component of non tax revenue, followed by economic services and social services (table 5). Share of general services and social services in NTR is increasing, even though the increase is small. At the same time the share of economic services in NTR is declining consistently and sharply.

Table 5 Percentage share of different components of Non Tax Revenue (NTR)

Share in NTR	2009-10	2010-11	2011-12	2012-13	2013-14
General services	54.20	49.32	62.67	73.98	75.85
Social service	10.12	11.98	10.48	6.93	7.57
Economic services	25.97	25.91	18.99	13.84	12.09
Interest receipts	8.21	8.86	5.25	4.10	2.67
Dividend and profit	1.46	3.88	2.59	1.14	1.81

Source: KPERC reports, Finance accounts (GoK)

Growth of NTR from different sources

There is a decline in growth of total NTR and NTR from General services after consistently increasing for 3 years (table 6). There is a sharp increase in revenue from social services in 2013-14 and the growth of revenue from social services was never negative. Whereas the growth of revenue from general and economic services do turned negative in various years.

Table 6. Percentage of growth of NTR from different sources

	2010-10	2011-12	2012-13	2013-14
Non tax revenue (Total NTR)	4.24	34.25	61.97	32.79
General services	-5.14	70.58	91.19	36.15
Social service	23.34	17.44	7.19	45.08
Economic services	3.99	-1.63	18.03	16.01
Interest receipts	12.50	-20.47	26.47	-13.37
Dividend and profit	177.77	-10.67	-28.36	110.42

Source: KPERC reports, Finance accounts (GoK)

Non Tax Revenue (NTR) from Social vs. Economic Services

There is a peculiar trend in growth of NTR from different sources. The growth of revenue from general and economic services turned negative in various years but the growth of revenue from social services was never negative. Social services are not originally meant to operate with revenue – profit goals. But the revenue from the same never declined in recent years. A disaggregated analysis of this trend could be obtained by looking at the growth of revenue from different components of social services (table 7).

Table 7. Percentage of growth of NTR from different components of social services

	2010-11	2011-11	2012-13	2013-14
Social service (Total)	23.34	17.44226	7.188363	45.07692
Education, sports and culture	15.48	9.368163	10.79656	68.58702
Medical and public health	84.29	2.742317	33.28731	5.606629
Labour and employment	-18.63	297.33	-66.53	37.76
Others	-30.17	-28.97	67.38	-37.53

Source: KPERC reports, Finance accounts (GoK)

The growth of NTR from social services (total) is positive for all years. Growth of NTR from social services was more than 7% for all years. Growth of NTR from education/sports/culture is more than 9% for all years. NTR from health services is more than 2% for all years. But growth of NTR from labour, employment and other services do turned negative in some years.

NTR from sectors like health and education are showing consistent growth in recent years. This means that the money collected from people in Kerala to avail these services is increasing. Does it mean that people have to pay more education/health and other social services offered by government? If yes, then this is a trend that adversely affects the disadvantaged sections of

Kerala society. But to answer this question a detailed empirical investigation is required and that is beyond the scope of this paper.

Table 8. Percentage growth of NTR from Different Components of Economic Services

	2010-11	2011-12	2012-13	2013-14
Economic services (Total)	9.50	3.99	-1.63	18.03
Co operation	17.54	19.68	15.60	46.34
Non-ferrous mining	-2.63	16.63	4.61	12.46
Roads and Bridges	39.04	-0.26	-35.41	53.05
Others	-26.59	2.45	66.92	14.74
Forestry and wild life	21.94	0.48	-19.55	7.62

Source: KPERC reports, Finance accounts (GoK)

The growth of NTR from various types of economic services shows wide fluctuations over years (table 8). Two areas that require special mention are the revenue from co operative sector and non ferrous mining like quarry – sand mining. Revenue from co operative sector is increasing and its growth never turned negative in recent times. This is good for financial stability of co operative sector. But profit/financial stability is not the only goal of this sector. Co operative sector is supposed to act as an alternative to profiteering private enterprise by focusing on affordability of services it offer. So more enquiries are needed to know if the growth of revenue from co operative sector is achieved by compromising on the aims and objectives of co operative sector. Another area that bestows considerable potential for revenue generation; given the boom in Kerala's construction - realty sector is mining. But unfortunately the revenue from mining shows no steady growth in recent times. There are wide fluctuations in growth rate with instances of very high growth in one year followed by lower growth or negative growth in the next year. Clearly this sector offers a considerable scope for additional revenue generation to Kerala state.

Discussion and conclusion

This paper has tried to identify the areas that we need to focus to achieve the objective of additional revenue mobilization to Kerala government and also highlighted some trends in Kerala government's revenue mobilization that are harmful to public welfare. Growth of TRR of Kerala govt. is declining. Tax is biggest component of TRR, followed by central transfers to Kerala and Nontax revenue, Growth of Tax revenue is increasing in Kerala and the growth of NTR is declining in Kerala. Revenue from general services is the largest component of non tax revenue, followed by economic services and social services

There is potential for additional tax revenue generation from excise duty, motor vehicle tax, stamp duty and commodity taxation of jewelry and other non essential items. Regarding non tax revenue the potential areas include areas like mining/quarrying.

It is noted that some of the trends in Kerala government's revenue mobilization are harmful to public welfare. Reliance on non progressive taxes like sale tax for revenue mobilization is not desirable as it adversely affect rich and poor alike. Revenue from Electricity duty and commodity tax revenue from sale of petroleum products and medicines figure prominently in tax revenue of Kerala government. Relying on these essential goods/services to boost tax revenue may prove harmful to welfare of weaker sections of society. Regarding non tax revenue the biggest concern is the lower growth of NTR from economic services and higher growth of NTR from social services. It needs to be checked if this will result in a higher expenditure for public to use the social services like health and education that are provided by government.

Needless to say, increasing revenue of Kerala state government is important for sustaining the gains of Kerala experience of development. But

revenue generation is only a means to achieve the ultimate end of sustaining gains of Kerala experience of development. One of the important features of Kerala experience of development is the affordable social services provided by government. But recent trends in Kerala's revenue generation reveal that the revenue from these services is consistently increasing in recent years. It needs to be checked if government views this services as a means to increase revenue. If yes, it will adversely affect the welfare of poor. Reducing the affordability of publicly provided social services is detrimental to the very basic features of Kerala's development experience. Instead, augmentation of revenue of Kerala state government may be achieved by focusing on other aspects that are emphasized by this study.

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