

Shri Baneshwar Shikshan Sansthas

**Arts, Science and Commerce College,
Burhannagar, Ahmednagar 414002**



3.3. Research Publication and Awards

3.3.1. Number of research papers published per teacher in the Journals notified on UGC care list during the last five years.



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Index of Research Paper Published in Journals

| 3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the last five years | | | | | | | | | |
|--|--|----------------------|---------------------------|--|---------------------|-------------------------------------|---|---|-------------------------------|
| Sr.No. | Title of paper | Name of the author/s | Department of the teacher | Name of journal | Year of publication | ISSN number | Link to the recognition in UGC enlistment of the Journal/ Digital | Link to article / paper / abstract of the article | Is it listed in UGC Care list |
| 1 | Cyanobacterial Diversity And Abundance In Mitze Field of Ahmednagar District(M.S.Jindia) | Dr. Wagh S.G. | Botany | International journal of Researches In Bioscience& Agricultural Technology | 2021 | 2347-517X | Yes | https://jurnal.inserchpubhouse | Yes |
| 2 | Novel Studies on Anti Apoptosis inhibitors as a Preventive Measure for Cancer | Dr. Wagh S.G. | Botany | International journal of Research and Analytical Reviews | 2020 | E- ISSN 2348-1269, P-ISSN 2349-5138 | Yes | http://ijrar.org/view/full.php?exp_id=1&BAR=185P035 | Yes |
| 3 | Alge Flora of Maize Field Soil in Ahmednagar District of Maharashtra | Dr. Wagh S.G. | Botany | Think India Journal | 2019 | 0971-1260-Vol-22 | Yes | https://thinkindiaquarterly.org/index.php/thinkindia/article/view/17529 | Yes |
| 4 | Diversity of Cyanobacteria in the cultivated fields of Ahmednagar District(M.S.Jindia) | Dr. Wagh S.G. | Botany | Bioscience Discovery Journal | 2019 | E- ISSN 2348-1269, P-ISSN 2349-5138 | Yes | http://biosciencediscovery.com | Yes |
| 5 | Diversity of Soil Algae In Wheat Field of Ahmednagar District(M.S.) | Dr. Wagh S.G. | Botany | An International Journal of Indian Journal of Applied Research | 2017 | 2249-555X | Yes | https://www.worldwidejournals.com/indian-journal-of-applied-research-IJAR/article/diversity-of-soil-algae-in-wheat-field-of-ahmednagar-distric-of-ahmednagar-maharashtra-1861-256&w=7 | Yes |
| 6 | Soil Algaeof Onion Field of Ahmednagar District | Dr. Wagh S.G. | Botany | National conference on Advances in Life Science and Human Welfare | 2017 | 978-93-58426-28-5 | Yes | | Yes |
| 7 | Role of Psychology In Sports, Anxiety,Stress and Intelligence | Dr.M.N.Punde | Physical Education | Global Online Electronic International Interdisciplinary Research Journal | 2017 | 2278-5639 | Yes | www.goeitj.com | Yes |
| 8 | Sports and Science | Dr.M.N.Punde | Physical Education | International Journal of Multidisciplinary Research(IJMR) | 2017 | 2277-9302 | Yes | | Yes |
| 9 | Violation of Women Human Rights in Maharashtra | Dr.V.M.Jadhav | Sociology | International Research Journal Of Humanities And Environmental Issues | 2017 | 2277-9329 | Yes | | Yes |
| 10 | Role of the Maharashtra state in the culture | Dr.V.M.Jadhav | Sociology | International Journal of Multidisciplinary Research(IJMR) | 2017 | 2277-9302 | Yes | | Yes |
| 11 | Green Computing | Asst.Prof.V.A.Kale | Computer Science | International Research Journal Of Humanities And Environmental Issues | 2017 | 2277-9329 | Yes | | Yes |
| 12 | Soil Algaeof Sugar Cane Field in Ahmednagar District | Dr. Wagh S.G. | Botany | National Journal of Flora and Fauna | 2017 | 0971-6920 | Yes | | Yes |
| 13 | Ahilyabai Holkarni bhilani Advaiti jumarisathu kelele prashastiy kary | Dr. Sonwane S.R. | History | Power of knowledge | 2017 | ISSN 2320-4494 | Yes | www.powerofknowledge.org.in | Yes |

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CYNOBACTERIAL DIVERSITY AND ABUNDANCE IN MAIZE FIELD OF AHMEDNAGAR DISTRICT (M.S.) INDIA

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ABSTRACT:
Cyanobacteria is a diverse group of plant kingdom. They found in variety of terrestrial habitat. Cyanobacteria is one of the significant components of soil microflora. They fixes atmospheric nitrogen and increases fertility of soil. Majority of the species of cyanobacteria helps in retention of soil moisture and provides germination ground for the seeds of flowering plants. The cultivated field ecosystem provides favourable ground for the growth and development of Cyanobacteria. Present paper deals with the cyanobacterial flora of Maize (*Zea mays* L.) field, located in Shrirampur tahsil area of Ahmednagar district of Maharashtra. Cyanobacterial samples were collected at weekly intervals from moist soil surface of selected field. The work was carried out from July 2017 to October 2017. Bold's basal medium was also to culture cyanobacteria from soil of Maize field. Collected and cultured cyanobacterial forms were observed and identified. A total of 32 species under 15 genera were identified and recorded. Cyanobacterial taxa such as *Aphanotheca nidulans*, *Myxosarcina burmensis*, *Oscillatoria obscura*, *Oscillatoria subbrevis*, *Microcoleus acutissimus* and *Nostoc punctiformae* were found dominant. Selected physico-chemical parameters shows positive correlation with diversity and abundance of cyanobacterial flora.

Keywords: Cyanobacteria, Maize field, Physico-chemical parameters.

INTRODUCTION:
Cyanobacteria is a large and diverse group of plant Kingdom, resembling gram negative bacteria in cellular organization and green plants in oxygenic photosynthesis. They found in almost every terrestrial and aquatic habitats. They occupy a variety of terrestrial habitats including soil, rocks, sand, walls and caves. Soil habitats are the most important ecosystems for Cyanobacteria. Soil Cyanobacteria performs important functions for agro-ecosystems. They contribute in formation of soil and stabilization of mature soil (Meeting, 1981). They promote aggregation of soil particles and increases water retention capacity of soil. The most important effect of cyanobacteria in soil on agriculture are the input of carbon and nitrogen (Shields and Durrell, 1964). Cyanobacteria fixes atmospheric nitrogen and increases fertility of soil (Singh, 1961; Santra 1993; Goyal, 1997). The agronomic importance of cyanobacteria was recognized in 1938 by De while studying nitrogen fixation in rice field.

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The cultivated field ecosystem is the favourable environment for the growth and development of cyanobacteria with respect to their requirements of light, water, temperature and nutrient availability. In India, diversity and distribution of cyanobacteria in different crop fields have been studied in detail by Bongale and Bharti (1980), Prasad and Mehrotra (1980), Sirdeshpande and Goyal (1981), Chatterjee and Chatterjee (1983), Chaporkar and Gangawane (1984), Kolte and Goyal (1985), Patil and Chaugule (2004), Auti and Pingle (2007), Jadhav (2010), Jadhav and Nimbhore (2015), and Wagh and Jadhav (2019). Present paper deals with the studies on diversity and abundance of cyanobacteria in soil of Maize (*Zea mays L.*) field in relation to physico-chemical analysis of soil.

MATERIALS AND METHODS:

A Maize field located in Shirampur tehsil area of Ahmednagar district of Maharashtra has been selected for collection of cyanobacterial samples. Cyanobacterial samples which are grown on moist soil surface of Maize field were collected at weekly intervals from July 2017 to October 2017. These samples were collected in sterilized collection bottles. Collected samples were brought to the laboratory for observation and identification. Sun dried soil samples were examined for their cyanobacterial components by petriplates culture method. 1 gm of pulverized soil poured and spread uniformly into the petriplates containing agarized Bold's basal medium (Bold, 1942). Liquid nutrient medium was poured into the plates at the time of keeping those for incubation and frequently supplemented with the same. The petriplates

were incubated under tubelights having 1000 to 1500 lux capacity in the algal culture chamber. Petriplates were checked for the growth of cyanobacterial colonies. After sufficient growth, colonies were picked up for identification. Collected and cultured cyanobacterial samples were observed under research microscope and identified with the help of standard literature.

In order to know the fertility status of selected maize field, physico-chemical analysis of soil was performed by selecting certain physico-chemical parameters such as soil texture, water holding capacity, electrical conductivity, pH, organic carbon, available nitrogen, available phosphorus, available potassium, total magnesium, total calcium, total sodium, copper, iron, zinc and manganese (Trivedi and Goel, 1986).

RESULTS AND DISCUSSION:

A total of 32 species under 15 genera of cyanobacteria were identified and recorded (Table 1). Bongale and Barati (1980), Sirdeshpande and Goyal (1981), Chatterjee and Chatterjee (1983), Chaporkar and Gangawane (1984), Auti and Pingle (2007), Jadhav (2010), and Jadhav and Nimbhore (2015) and Wagh and Jadhav (2019) extensively studied diversity and abundance of cyanobacteria from rice, wheat, sorghum, bajra, gram, sugarcane, cotton, fenugreek and onion fields. During present study Cyanobacterial taxa such as *Aphanothece nidulans*, *Myxosarcina burmensis*, *Oscillatoria obscura*, *Oscillatoria subbrevis*, *Microcoleus acutissimus* and *Nostoc punctiformae* were found dominant. Wagh and Jadhav (2019) recorded similar kind of

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observations from sugarcane and onion fields. Prasad (2005) observed dominance of *Chlorococcus*, *Gloeothece*, *Phormidium*, *Oscillatoria* and *Nostoc* from wheat field of Nepal. During present study *Gloeothece palea*, *Microcoleus lacustris*, *Nostoc muscorum*, *Plectonema gracillimum* and *Scytonema bohneri* were also found in maximum frequency. Heterocystous as well as non heterocystous cyanobacterial forms such as *Nostoc commune*, *Nostoc punctiformae*, *Nostoc muscorum*, *Scytonema bohneri* and *Scytonema schmidtii* were recorded. Unicellular, colonial and filamentous cyanobacterial forms were recorded during present study.

Data pertaining to physico-chemical analysis of maize field soil is given in Table 2. The soil is clay with medium water holding capacity which is suitable for colonization of cyanobacteria. Electrical conductivity is moderate which is good for growth of cyanobacteria. pH of soil is moderate alkaline which favours growth of cyanobacteria. Organic carbon content of soil was recorded very low. Available nitrogen was found low whereas phosphorus and potassium were high and very high respectively. Nitrogen, phosphorus and potassium plays key role in abundance of cyanobacteria. Magnesium and calcium was found high. Amount of sodium was moderate whereas copper was found in sufficient amount. Iron was low were as zinc and manganese were found sufficient in maize field soil. Overall fertility status of maize field soil reveals that soil is fertile and supports growth of cyanobacteria which are found abundant and in diverse form.

CONCLUSION:

Hence, it is concluded that Maize field ecosystem provides a favorable environment for growth and development of cyanobacteria. Cyanobacterial flora of maize field is rich and it is found in diverse form. Overall fertility status of maize field is fertile which supports luxuriant growth of cyanobacteria. A positive correlation among cyanobacterial flora and physico-chemical parameters of soil was observed. Cyanobacteria plays a significant and sustainable role in agroecosystem by increasing fertility of soil. They also contribute in soil formation and stabilization of mature soil. Cyanobacteria help in retention of soil moisture. Cyanobacteria are one of the important components of soil microflora and plays a crucial role in sustainable environment by enriching the soil.

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Table 1: Cyanobacterial taxa recorded from soil of Maize field.

| Sr. No. | Name of Cyanobacteria | Frequency of Occurrence |
|---------|-----------------------------------|-------------------------|
| 1 | <i>Chroococcus minutus</i> | ++ |
| 2 | <i>Chroococcus turgidus</i> | + |
| 3 | <i>Gloeocapsa rupestris</i> | + |
| 4 | <i>Gloeothece palea</i> | +++ |
| 5 | <i>Aphanothece nidulans</i> | ++++ |
| 6 | <i>Aphanothece saxicola</i> | ++ |
| 7 | <i>Chlorogloea microcestoides</i> | ++ |
| 8 | <i>Myxoxarcina burmensis</i> | +++ |
| 9 | <i>Arthrospira plantensis</i> | + |
| 10 | <i>Spinulina subtilissima</i> | ++ |
| 11 | <i>Oscillatoria acuta</i> | ++ |
| 12 | <i>Oscillatoria obscura</i> | ++++ |
| 13 | <i>Oscillatoria subbrevis</i> | ++++ |
| 14 | <i>Phormidium abronema</i> | + |
| 15 | <i>Phormidium angustissium</i> | + |
| 16 | <i>Phormidium bohneri</i> | + |
| 17 | <i>Phormidium corium</i> | + |
| 18 | <i>Phormidium jenkelianum</i> | ++ |
| 19 | <i>Phormidium molle</i> | ++ |
| 20 | <i>Phormidium usteri</i> | + |
| 21 | <i>Lyngbya hieronymusii</i> | + |
| 22 | <i>Microcoleus acutissimus</i> | ++++ |
| 23 | <i>Microcoleus lacustris</i> | +++ |
| 24 | <i>Microcoleus sociatus</i> | ++ |
| 25 | <i>Nostoc commune</i> | ++ |
| 26 | <i>Nostoc punctiforme</i> | ++++ |
| 27 | <i>Nostoc muscorum</i> | +++ |
| 28 | <i>Plectonema gracillimum</i> | +++ |
| 29 | <i>Plectonema putale</i> | + |
| 30 | <i>Plectonema radiosum</i> | + |
| 31 | <i>Scytonema bohneri</i> | +++ |
| 32 | <i>Scytonema schmidtii</i> | ++ |

++ Minimum, +++ Moderate, ++++ Maximum, +++++ Dominant.

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Table 2: Physico-chemical analysis of Maize field Soil.

| Sr. No. | Physicochemical parameter | Observation | Fertility Status |
|---------|-----------------------------------|-------------|------------------|
| 1. | Soil Texture | 1.00 | Clay |
| 2. | Water Holding Capacity (%) | 54.83 % | Medium |
| 3. | Conductivity (M mhos/cm) | 0.68 | Moderate |
| 4. | pH | 7.93 | Moderate Alkali |
| 5. | Organic Carbon (%) | 0.18 % | Very Low |
| 6. | Available Nitrogen (Kg / hect.) | 162.22 | Low |
| 7. | Available Phosphorus (Kg / hect.) | 32.99 | High |
| 8. | Available Potassium (Kg / hect.) | 311.09 | Very High |
| 9. | Total Magnesium (%) | 14.35 % | High |
| 10. | Total Calcium (%) | 24.94 % | High |
| 11. | Total Sodium (ppm) | 6.02 | Moderate |
| 12. | Copper (ppm) | 3.86 | Sufficient |
| 13. | Iron (ppm) | 0.42 | Low |
| 14. | Zinc (%) | 1.42 % | Sufficient |
| 15. | Manganese (%) | 9.75 % | Sufficient |

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Wagh Jyoti Gorakh, **Wagh Swati G.**, Agale Krushna B.

Keywords

c-FLIP, Amygdaline, homology modeling, Cassava root.

Abstract

Cancer is one of the leading diseases that is affecting large number of population in the world. Apoptosis represents a major causative factor in the development and progression of cancer. The challenge currently facing is to translate information gained about mechanisms of aberrant cell death control in tumors into new therapeutic opportunities. The path for accomplishing this has been illuminated by basic research. Damage in the Apoptotic pathway may leads to cause of cancer. Apoptotic signaling pathway which acts a novel drug target for cancer. Cellular FLICE-like inhibitory protein(c-FLIP) is a catalytically inactive Caspase-8 homologue. Laetrile, commonly known as Vitamin B-17 or Amygdaline, is a natural chemotherapeutic agent found in over 1,200 plants. According to Dr. Krebs, we need a minimum of 100 mg/day of vitamin B-17 too nearly guarantee a cancer free life. Foods that contain vitamin B-17 are apricots seeds, Cassava root, Sorghum etc. In the present study we have considered c-Flip protein for homology modeling and further ligand based studies to find out best c-flip inhibitors. This protein is not yet studied because its structure is for not available in PDB so we modeled it and then docked it for finding the compound. Further we searched it in a natural source. After finding the compound same feature like Amygdaline we selected its natural source Cassava and Sorghum then processed it for extracting the same.

Cite this article

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Novel studies on Anti Apoptosis inhibitors as a Preventive Measure for Cancer.

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Abstract:

Cancer is one of the leading diseases that is affecting large number of population in the world. Apoptosis represents a major causative factor in the development and progression of cancer. The challenge currently facing is to translate information gained about mechanisms of aberrant cell death control in tumors into new therapeutic opportunities. The path for accomplishing this has been illuminated by basic research. Damage in the Apoptotic pathway may leads to cause of cancer. Apoptotic signaling pathway which acts a novel drug target for cancer. Cellular FLICE-like inhibitory protein(c-FLIP) is a catalytically inactive Caspase-8 homologue. Laetrile, commonly known as Vitamin B-17 or Amygdaline, is a natural chemotherapeutic agent found in over 1,200 plants. According to Dr. Krebs, we need a minimum of 100 mg/day of vitamin B-17 too nearly guarantee a cancer free life. Foods that contain vitamin B-17 are apricots seeds, Cassava root, Sorghum etc. In the present study we have considered c-Flip protein for homology modeling and further ligand based studies to find out best c-flip inhibitors. This protein is not yet studied because its structure is for not available in PDB so we modeled it and then docked it for finding the compound. Further we searched it in a natural source. After finding the compound same feature like Amygdaline we selected its natural source Cassava and Sorghum then processed it for extracting the same.

Key words: c-FLIP, Amygdaline, homology modeling, Cassava root.



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NOVEL STUDIES ON ANTI APOPYOSIS INHIBITORS AS A PREVENTIVE MEASURE FOR CANCER

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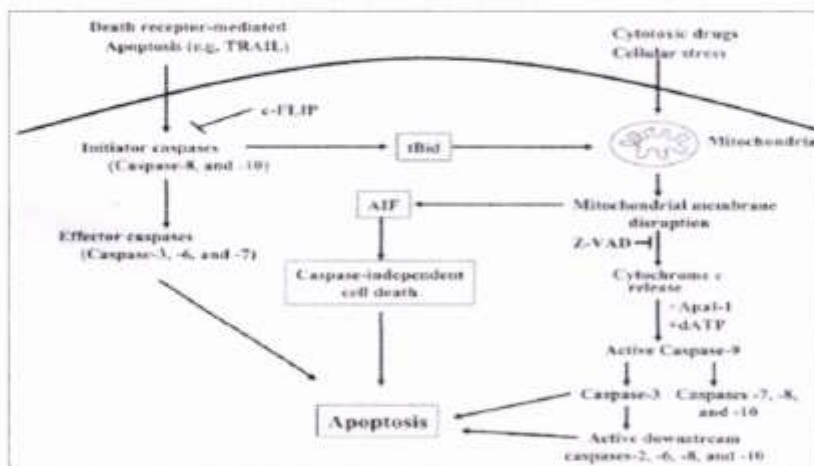
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Introduction:

Cancer is one of the leading diseases that is affecting large number of population in the world. Damage in the Apoptotic pathway may leads to the continuous growth of the cells which in turn leads to cause of cancer. Now-a-days various studies have been done on the apoptotic signaling pathway which acts a novel drug target for breast cancer. Apoptosis of the cells is mainly caused in two different pathways: death receptor-

induced pathway and mitochondria- mediated pathway [1].

In the Death receptor induced pathway death ligand binds to the death receptor, this helps in the formation of death inducing signaling complex followed by cleavage of Caspase-8 activation. Tumor necrosis factor –related apoptosis-inducing ligand (TRAIL) is attaining a high attention due to its activity in apoptosis pathway, Present mutated TRAIL's are being used as the anti- apoptotic agents which are in their phase trails[2,3].



Mitochondrial Death Pathway



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Cellular FLICE-like inhibitory protein(c-FLIP) is a catalytically inactive Caspase-8 homologue, Death receptor – mediated apoptosis is mainly inhibited by c- FLIP by preventing the Caspase-8 binding with death inducing signaling complex [4,5].c-FLIP contains various variants

among all the variants c-FLIP_L and c-FLIP_S which are well characterized. These 2 variants contain two death effectors domains (DED) [6-9].Due to the increase in resistance to apoptosis which is mediated by TRAIL and FAS leads to the over expression of c-FLIP [10]. In c-FLIP two proteins short form and long form (FLIP_L and c-FLIP_S) plays a key role in the death receptor mediated apoptosis by binding with the DISC and inhibiting the Caspase-8, Caspase-10 activation [11]. Several studies have proved that TRAIL and FAS mediated apoptosis can be sensitized by down- regulating the c-FLIP activity [10].Various studies have been showed that down- regulation of c-FLIP can be done by various chemical and natural compounds which can inhibit or regulate the activity of the protein molecule.

It has been studied that various synthetic and natural compounds are showing activity

against the c-FLIP protein which is one of the most studied drug target in the death receptor mediated -apoptosis pathway. It has also been studied that some of the natural available plant extracts not only inhibit the c-FLIP function but they in turn can inhibit the growth of certain type of cancer cells .

The Aim of this research work is to study the natural cflip inhibitors and its processing method for extracting the required entity. In this study we have considered c-Flip protein for homology modeling and further ligand based studies to find out best c-flip inhibitors. Further we searched it in a natural source. After finding the compound same feature like Amygdalin we selected its natural source Cassava and Sorghum then processed it for extracting the same.



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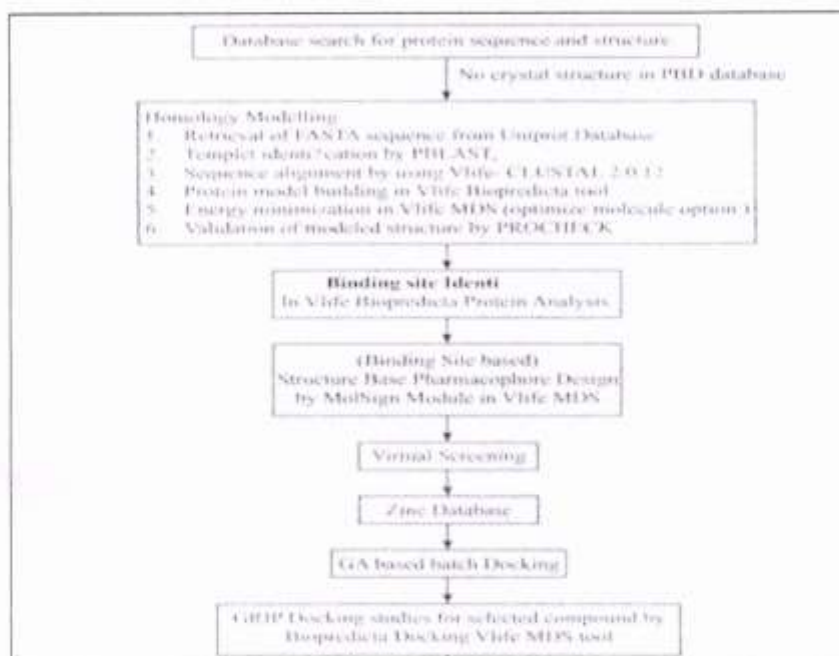
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Methodology:

1. Flow Chart of Protocol Followed for Cflip Protein Insilico Study



2. Selection of Natural Plant product from structural output.
3. Extraction of desired anti apoptosis chemical entities from natural sources.
4. Formation of nutritional food products from selected natural sources.



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1. Cflip Protein Insilico Study

Protein molecule selection is done using the swissprot database. In the swissprot database availability of 3D structure is verified using the Swissprot database. **Template selection and Sequence alignment:** Structure similar to the protein is selected using the NCBI Blast algorithm. In which highest similarity structure is selected. The 3D structure of the protein and the fasta format were collected. **Homology modeling and model verification of protein:** Using the template selected and the alignment file structure of the protein molecule is modeled in the Discovery studio software using Build Homology model protocol in the parameters file. once the structure is modeled the structure of the protein is verified using the various model verification servers like Procheck, prosa,

RMSD. Protein preparation and energy minimization: Modeled protein molecule is then prepared by cleaning and applying the CHARMM forcefields to the protein molecule. The energy of the prepared protein molecule is minimized using various algorithms like steepest descent and conjugate gradient methods in which the potential energy of the protein molecule is decreased [25-26]. **Ligand sketching and preparation:** All the ligand molecules were

sketched using the chemsketch software and then the preparation of ligand molecules is done by prepare ligands protocol in discovery studio.

Results and discussion:

Selection of protein molecule:

Protein molecule is selected from Swissprot database with Accession number: O15519. The FASTA format of the protein sequence is taken from 1-376 amino acids which contain DED1 and DED2 functional domains and the FASTA format is submitted for protein blast to obtain the structure which is similar to the protein sequence.

Selection of template:

Selection of template is done using PBlast search 3H11 is obtained as the template sequence with an identity of 99%. 3H11 is a Zymogenic Caspase-8: c-Flip protease domain complex. The structure of the template is downloaded from the PDB database and loaded into Discovery studio.

Sequence Alignment:

The protein sequence and the template sequences were aligned in the Discovery Studio software and the alignment is done with an sequence identity of 33.9%

Modeling: Homology modeling of the protein molecule is done using Discovery studio software using build homology models in the protocols



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| Accession | Max Score | Total Score | Query Coverd | E Value | Ident | Accession |
|-----------|-----------|-------------|--------------|---------|-------|-----------|
| Q959-9 | 363 | 363 | 44% | 3e-120 | 99% | Q959-9 |
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| Q959-9 | 251 | 251 | 36% | 3e-10 | 33% | Q959-9 |
| Q959-9 | 241 | 241 | 30% | 4e-10 | 15% | Q959-9 |

Fig1: Showing the BLAST results in NCBI server where 3H11 protein molecules 'A' chain is showing the highest identity with the modeled protein structure.



Fig2: Showing the sequence alignment of C-FLIP and 3H11 in Discovery studio software where the shaded regions in figure represent the similar amino acids in the two sequences

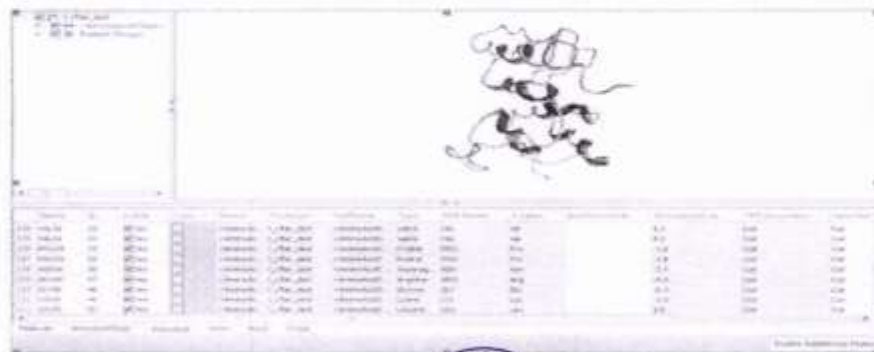


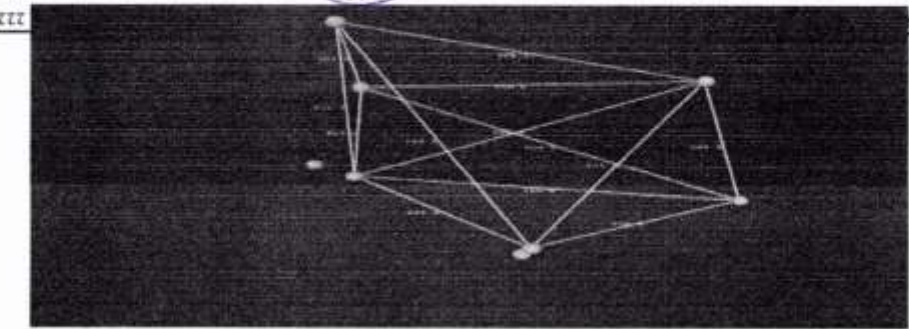
Fig3: Showing the modeled structure of the protein in solid ribbon format in discovery studio.



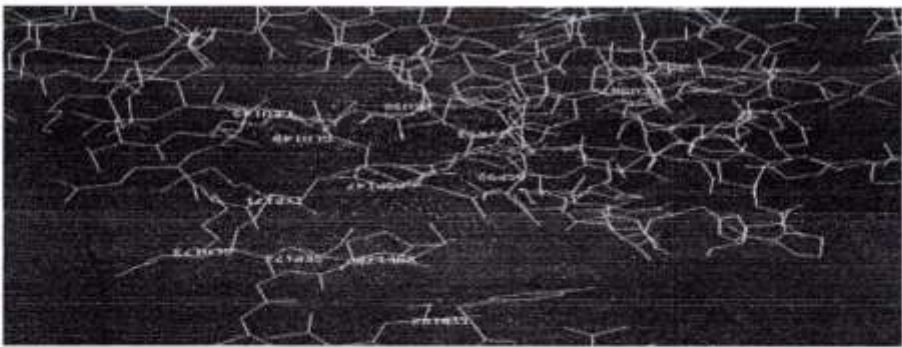
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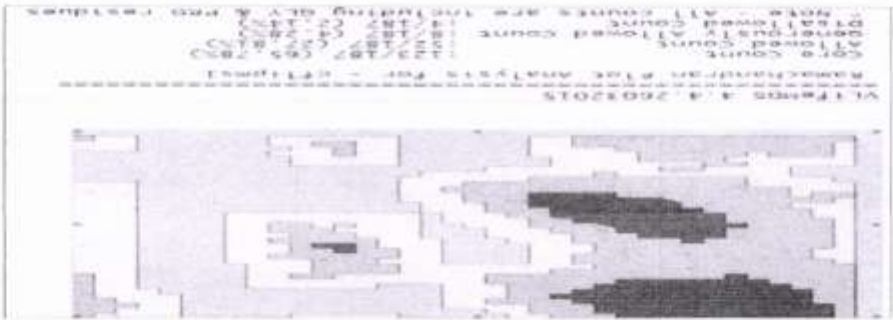
Model Verification:
Model verification of the protein molecule is done using the various servers to check the quality of the modeled protein molecule.



Pharmacophore Identification



Identification of binding site



Model verification of the protein molecule is done using the various servers to check the quality of the modeled protein molecule.

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ID No. AN-4507/174-2004

Mode of action of Amygdalin

Docking of c-Tip with amygdalin

Structure of Laetrile (Amygdalin)

After docking studies we got core structure having the structural similarities as that of the Laetrile.

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2. Selection of Natural Plant product from structural output.



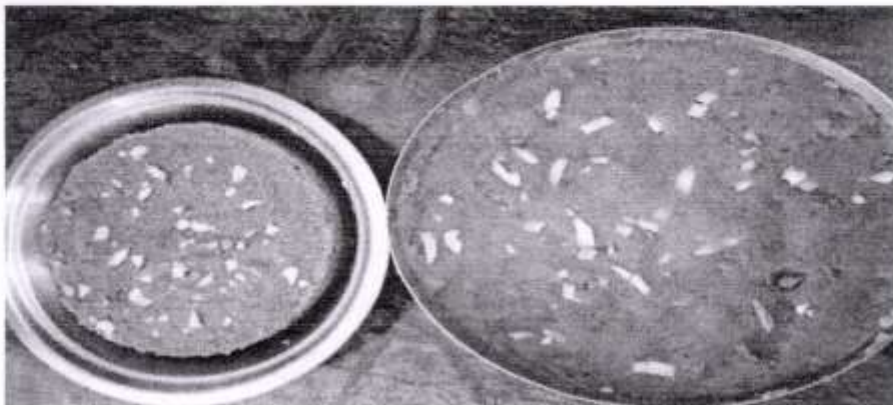
Cassava Root



Sorghum

Selected Natural Sources of Laetrile/Amygdalin 3.Extraction of desired anti
apoptosis chemical entities from natural sources

4.Formation of nutritional food products from selected natural sources.



Prepared Food Product from Sorghum and Cassava Root



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Conclusion:

Anti-apoptotic protein c-FLIP is one of the important drug target in case of TRAIL and Drug/chemotherapy resistant cell lines. C-FLIP attained a much importance in cancer treatment; inhibition of c-FLIP could help in increasing the apoptosis of cancer cells. In our present study, we studied the interaction of the c-FLIP with the natural and synthetic inhibitors that stop the activity of c-FLIP. C-FLIP contains two death effector regions (DED1,DED2) which have their activity inactivating c-FLIP, here we have taken the protein containing the two death receptor and modeled the protein molecule by taking 3H11 as the template structure in Discovery studio. Modged protein structure is the validated to predict the quality of the structure using Ramachandran plot analysis. After finding the compound same feature like Amygdaline we selected its natural source Cassava and Sorghum then processed it for extracting the same. C-flip protein modelling and its inhibitor study is new pathway for various anticancer studies. Natural c-flip inhibitors like Cassava and Sorghum are having dual advantage as a nutrients and as a anticancer agent or useful for cancer prevention. Prevention is better than cure, the reported sources of Amygdalin/ Vit. B 17 is an ideal food for cancer prevention.

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Algal Flora of Maize Field Soil in Ahmednagar District of Maharashtra

The screenshot shows the Think India Quarterly journal website. At the top, there is a navigation bar with the URL <https://thinkindiaquarterly.org/index.php/think-india/search/search>. Below the navigation bar, there is a section titled "About Journal" which states: "Think India Journal is a multidisciplinary journal for research publication. Journal is published monthly papers on various fields of study." Below this, there is a "Search" section with a search bar containing the text "Algal flora of maize field soil in Ahmednagar district" and a "Search" button. Underneath the search bar, there are "Advanced filters" for "Published After", "Published Before", and "By Author", each with three dropdown menus. Below the filters, there is a "Search Results" section. The first result is the article "Algal Flora of Maize Field Soil in Ahmednagar District of Maharashtra" with the URL <https://thinkindiaquarterly.org/index.php/think-india/article/view/17529>. The article is dated 18-22 and authored by Milind J. Jadhav and Swati G. Wagh. Below the search results, there is a link to "Publishing Ethics" (<https://journals.eduindex.org/index.php/think-india/publishing-ethics>) and a link to "Peer Review" (<https://journals.eduindex.org/index.php/think-india/peer-review>). At the bottom of the page, there is a circular stamp from "Arts, Science and Commerce College, Burhannagar, Ahmednagar" with the ID No. AN/ASC/074/2004. The page number "1 - 1 of 1 items" is also visible.

Algal Flora of Maize Field Soil in Ahmednagar District of Maharashtra



Think India Journal

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National Conference ETDAB-2019
Held on 23th & 24th December 2019

Organized by: Deptt. of Botany, Deogiri College, Aurangabad, M.S



Algal Flora of Maize Field Soil in Ahmednagar District of Maharashtra.

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ABSTRACT

Soil algae are one of the significant components of soil microflora. They play an important role in fertility of soil. Blue green algae fixes atmospheric nitrogen and increases the fertility of soil. The cultivated field ecosystem provides a favourable environment for the growth and development of algae. Present research work deals with the study of algal flora of Maize (*Zea mays* L.) field, located in Shirampur tehsil area of Ahmednagar district of Maharashtra. In order to study algal flora of maize field, algal samples from moist places of field were collected at regular intervals from July 2017 to October 2017. Bold's basal medium was also used to culture algae from soil of maize field. Collected and cultured algal samples were observed with the help of standard literature on algae. A total of 47 species under 29 genera belonged to Chlorophyceae, Bacillariophyceae and Cyanophyceae were recorded. Cyanophycean algal taxa were found dominant in the soil of maize field. *Gloeocystisgigas*, *Gloeocystis major*, *Chlorococcumhumicola*, *Chlorella vulgaris*, *Nitzschiapalea*, *Aphanothecnidulans*, *Aphanothecesaxicola*, *Oscillatoriaobscura*, *Phormidiumjenkelianum*, *Phormidiummolle*, *Phormidiumusterii*, *Microcoleusacutissimus*, *Microcoleuslacustris* and *Plectonemagracillimum* were found abundant. Algal flora of maize field is rich and it is in diverse form.

Key words: Algal flora, maize field, soil.

Introduction

Soil algae is one of the important component of soil microflora. They occur on or in soil, grow luxuriantly and found in diverse form. Soil algae are ecologically important as it protects soil from wind erosion and also act as an absorptive organ for water. Cyanophycean algae fixes atmospheric nitrogen and enhances the fertility of soil. Almost all species of soil algae helps in retention of soil moisture. Cultivated field ecosystem provides a favourable environment for the

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growth and development of soil algae with respect to their requirement of light, water, temperature and nutrient availability. Soil algae have attracted the attention of phycologists since last few decades (Meeting 1981, Bongale 1985, Prasad 2005, Auti and Pingle 2007, Jadhav 2010 and Nimbhore and Jadhav 2014). Soil algal flora of paddy, banana, wheat, sugarcane have been studies extensively by earlier research workers (Bongale and Bharati 1980, Kolte and Goyal 1985, Kottawar and Pachpande 1986, Nayak et. al. 2001, Patil and Chaugule 2004, Prasad 2005, Auti and Pingle 2006, Nimbhore and Jadhav 2014). Maize (*Zea mays* L.) is one of the cereal crop of India. It is also cultivated on large scale in Maharashtra. Review of literature reveals that, very rare attention has been paid towards algal flora of maize field. Therefore, it has been decided to work systematically on algal flora of maize field soil.

Material and Methods

A maize field located in Shirampur tehsil area of Ahmednagar district of Maharashtra has been selected for collection of algal samples. Algal samples which are grown on moist soil surface of maize field were collected at regular intervals from July 2017 to October 2017. Algal samples were collected in sterilized collection bottles. Collected algal samples were brought to the laboratory for observation and identification. Sun dried soil samples collected from same maize field were examined for their algal components by petriplate culture method. 1 gm of pulverized soil poured and spread uniformly into petriplates containing agarized Bold's basal medium (Bold 1942). Liquid nutrient medium was poured into the plates at the time of keeping those for incubation and frequently supplemented with the same. Petriplates were incubated under tubelights having 1000 to 1500 lux capacity in algal culture chamber. Petriplates were checked for the growth of algal colonies. After sufficient growth, algal colonies were picked up for identification. Collected and cultured algal samples were observed under microscope.

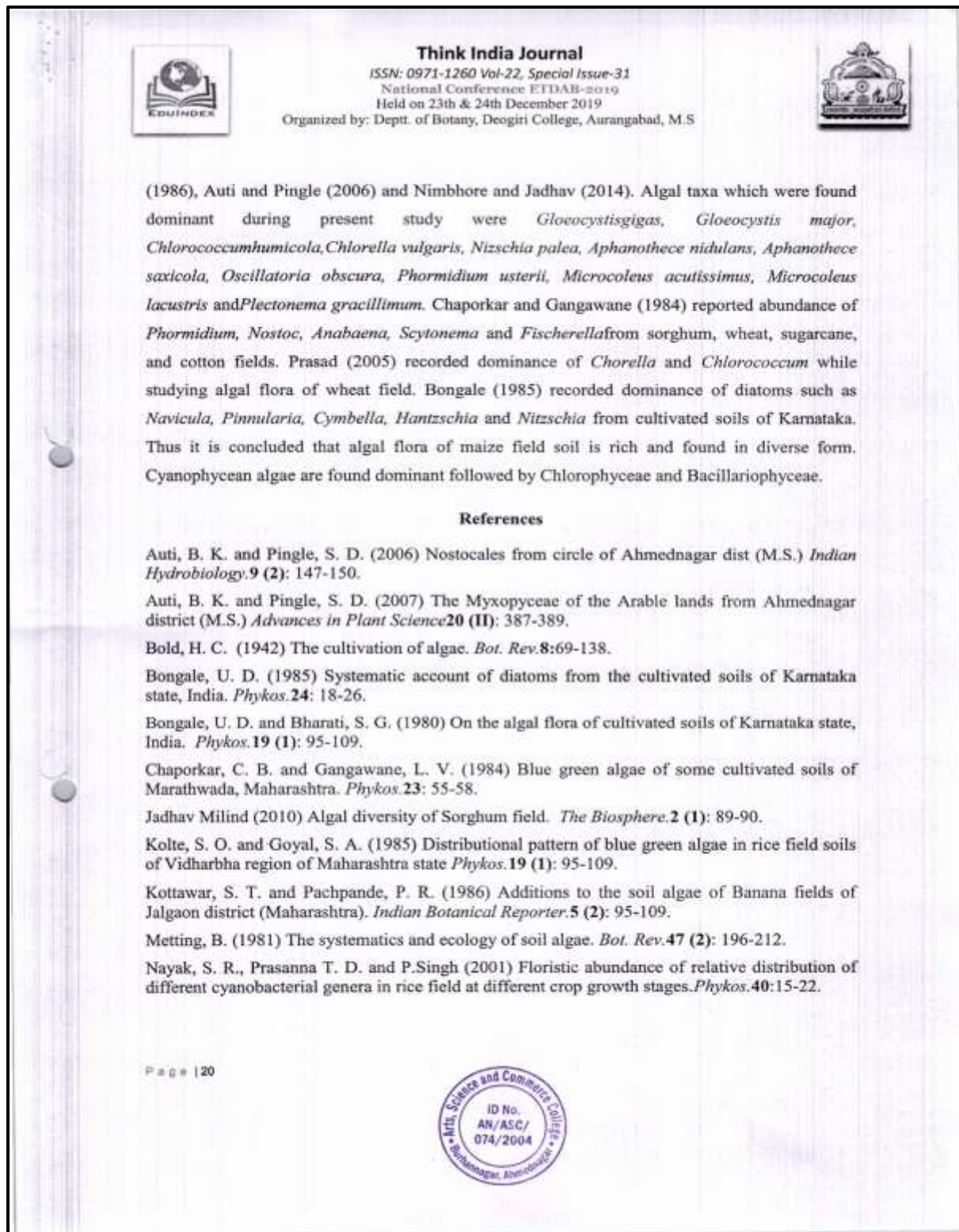
Results and Discussion

A total of 47 species under 29 genera were identified of these 8 species under 7 genera belonged to Chlorophyceae, 7species under 7 genera to Bacillariophyceae and 32 species under 15 genera to Cyanophyceae (Table 1). Cyanophycean algae dominated algal flora of maize field soil. Similar observations were made by Bongale and Bharati (1985), Kottawar and Pachpande


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Table 1: Algal flora of maize field soil.

| Chlorophyceae |
|---|
| <i>Gloeocystis gigas</i> , <i>Gloeocystis major</i> , <i>Tetraspora lamellosa</i> , <i>Chlorococum humicola</i> , <i>Trebouxia humicola</i> , <i>Chlorella vulgaris</i> , <i>Scenedesmus caudricauda</i> , <i>Spirogyra subsalsa</i> |
| Bacillariophyceae |
| <i>Fragilaria brevistriata</i> , <i>Navicula cupsidata</i> , <i>Pinnularia</i> sp., <i>Cymbella aspera</i> , <i>Nitzschia palea</i> , <i>Gomphonemasp.</i> , <i>Suriella ovata</i> . |
| Cyanophyceae |
| <i>Chroococcus minutus</i> , <i>Chroococcus turgidus</i> , <i>Gloeocapsa rupestris</i> , <i>Gloeotheca palea</i> , <i>Aphanothece nidulans</i> , <i>Aphanothece saxicola</i> , <i>Chlorogloea microcestoides</i> , <i>Myxosarcina burmensis</i> , <i>Arthrospira platensis</i> , <i>Spirulina subtilissima</i> , <i>Oscillatoria acuta</i> , <i>Oscillatoria obscura</i> , <i>Oscillatoria subbrevis</i> , <i>Phormidium abronema</i> , <i>Phormidium angustissium</i> , <i>Phormidium bohneri</i> , <i>Phormidium corium</i> , <i>Phormidium jenkelianum</i> , <i>Phormidium molle</i> , <i>Phormidium usterii</i> , <i>Lyngbya hieronmusii</i> , <i>Microcoleus acutissimus</i> , <i>microcoleus lacustris</i> , <i>Microcoleus sociatus</i> , <i>Nostoc commune</i> , <i>Nostoc punctiformae</i> , <i>Nostoc muscorum</i> , <i>Plectonema gracillimum</i> , <i>Plectonema puteale</i> , <i>Plectonema radiosum</i> , <i>Scytonema bohneri</i> , <i>Scytonema schmidtii</i> . |

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DIVERSITY IN CYNOBACTERIA IN THE CULTIVATED FIELDS OF AHMEDNAGAR DISTRICT INDIA

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Research Article



Diversity of cyanobacteria in the cultivated fields of Ahmednagar districts (M.S.) India

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Abstract

Cyanobacteria is an important group of soil. Ecologically they are significant and plays a crucial role in fertility of soil. Cyanobacteria fixes atmospheric nitrogen and increases fertility of soil. Majority of the species of cyanobacteria helps in retention of soil moisture and provides germination ground for seeds of flowering plants. The cultivated field ecosystem provides a favourable environment for the growth and development of cyanobacteria. In order to study diversity of cyanobacteria of cultivated fields, sugarcane and onion fields from Ahmednagar district of Maharashtra were selected. The work was carried out from October 2015 to September 2016. Cyanobacterial samples were collected at regular intervals from moist soil surface of selected cultivated fields. A total of 29 species under 12 genera were identified and recorded. Maximum number of cyanobacterial forms were recorded from sugarcane field. Taxa of *Aphanothece*, *Oscillatoria*, *Phormidium*, *Microcoleus* and *Plectonema* were found dominant. *Aphanothece nidulans*, *Oscillatoria acuminata*, *Phormidium jenkelianum*, *Phormidium molle*, *Phormidium asterii*, *Lyngbya hieronymusii*, *Microcoleus acutissimus*, *Microcoleus lacustris*, and *Microcoleus subtorulosus* were recorded in both the fields. Physicochemical analysis of soil of selected cultivated fields was also performed by selecting certain physicochemical parameters such as pH, electrical conductivity, organic carbon, available nitrogen, available phosphorus and available potassium. A positive correlation among composition of cyanobacterial flora and physicochemical analysis of soil were observed.

INTRODUCTION

Cyanobacteria is a large and diverse group of plant kingdom, resembling gram negative bacteria in cellular organization and green plants in oxygenic photosynthesis. They occupy a variety of terrestrial habitats including soil, rocks, walls and caves. Soil habitats are the most important ecosystems for cyanobacteria. Soil cyanobacteria performs important functions for agro-ecosystems. They contribute in soil formation and stabilization of mature soil (Metting, 1981). They promote the

aggregation of soil particles and enhance water retention capacity of soil through the production of extracellular polysaccharide. The most important effect of cyanobacteria in soil on agriculture is the input of carbon and nitrogen (Shields and Durrell, 1964). Cyanobacteria fixes atmospheric nitrogen and increase fertility of soil (Singh, 1961; Santra 1993; Goyal, 1997). The agronomic potential of cyanobacteria was recognized in 1938 by De, who attributed the natural fertility of tropical rice fields to nitrogen fixing cyanobacteria.

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The cultivated field ecosystem provides a favourable environment for the growth of cyanobacteria with respect to their requirements of light, water, temperature and nutrient availability. In India, diversity and distribution of cyanobacteria in different crop fields have been studied by Bongale and Bharati (1980), Prasad and Mehrotra (1980), Sirdeshpande and Goyal (1981), Chatterjee and Chatterjee (1983), Chaporkar and Gangawane (1984), Kolte and Goyal (1985), Patil and Chaugule (2004), Auti and Pingle (2007), Jadhav (2010), and Jadhav and Nimbhore (2015). Present paper deals with the studies on diversity of cyanobacteria from soils of sugarcane (*Saccharum officinarum* L.) and onion (*Allium cepa* L.) fields in relation to physicochemical analysis of soil.

MATERIALS AND METHODS

In order to study the diversity of cyanobacteria from cultivated fields, sugarcane field located in Newasa thesil area and onion field located in Nagar thesil area have been selected. Cyanobacterial samples which are grown on moist soil surface of sugarcane and onion fields were collected at regular intervals from October 2015 to September 2016 and October 2015 to January 2016 respectively. These samples were collected in sterilized collection bottles. Collected samples were brought to the laboratory for observation and identification.

The sun dried soil samples collected from same sugarcane and onion fields were examined for their cyanobacterial components by petriplate culture method. 1gm of pulverized soil poured and spread uniformly into the petriplates containing agarized Bold's basal medium (Bold 1942). Liquid nutrient medium was poured into the plates at the time of keeping those for incubation and frequently supplemented with the same. The petriplates were incubated under tubelights having 1000 to 1500 lux capacity in the algal culture chamber. Petriplates were checked for the growth of algal colonies. After sufficient growth, colonies were picked up for identification.

Cyanobacterial samples were observed under research microscope and identified with the help of standard literature. In order to know the fertility status of selected sugarcane and onion fields, physicochemical analysis of soil was performed by selecting certain physicochemical parameters such as pH, electrical conductivity, organic carbon, available nitrogen, available

phosphorus and available potassium (Trivedi *et al.*, 1998).

RESULTS AND DISCUSSION

In order to study cyanobacterial diversity of cultivated soil, sugarcane and onion fields were selected from Ahmednagar district of Maharashtra. A total of 29 species under 12 genera were recorded during present study. 21 species under 9 genera of cyanobacteria from sugarcane field and 17 species under 9 genera from onion field were identified and recorded (Table 1). Maximum number of cyanobacterial forms were recorded from sugarcane field. Bongale and Bharati (1980), Sirdeshpande and Goyal (1981), Chatterjee and Chatterjee (1983), Chaporkar and Gangawane (1984), Auti and Pingle (2007), Jadhav (2010), and Jadhav and Nimbhore (2015) extensively studied diversity and distribution of cyanobacteria from rice, wheat, sorghum, bajra, gram, sugarcane, cotton and fenugreek. During present study taxa of *Aphanothece*, *Oscillatoria*, *Phormidium*, *Microcoleus* and *Plectonema* were found dominant. Prasad (2005) observed dominance of *Chroococcus*, *Gloeotheca*, *Phormidium*, *Oscillatoria* and *Nostoc* from wheat field of Nepal. Jadhav and Nimbhore (2015) reported dominance of *Aphanothece*, *Oscillatoria*, *Microcoleus*, *Phormidium*, *Plectonema*, *Chroococcus*, *Lyngbya* and *Myxosarcina* from Wheat and Fenugreek fields.

Aphanothece nidulans, *Oscillatoria acuminata*, *Phormidium jenkellanum*, *Phormidium molle*, *Phormidium usterii*, *Lyngbya hieronymusii*, *Microcoleus acutissimus*, *Microcoleus lacustris*, *Microcoleus subtorulosus*, were recorded from both the fields. Heterocystous as well as non heterocystous cyanobacterial forms were recorded. Heterocystous forms such as *Cylindrospermum michailovskaense*, *Nostoc linckia* and *Nostoc muscorum* were recorded. Unicellular, Colonial and filamentous forms of cyanobacteria were recorded during present study. The overall fertility status of sugarcane and onion fields is moderate alkali with moderate electrical conductivity. Organic carbon was high in sugarcane field where as it is low in onion field. Available nitrogen was found very low in sugarcane field and low in onion field. Phosphorus was found high in sugarcane field where as it was very low in onion field. Potassium was low in sugarcane field and it was found very low in onion field (Table 2 and 3) Soil pH is the most important factor determining cyanobacterial flora composition.

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Table 1: Cyanobacterial taxa recorded from Sugarcane and onion field.

| Sr. No. | Name of Cyanobacteria | Sugarcane field | Onion field |
|---------|---|-----------------|-------------|
| 1 | <i>Gloeothece palea</i> | + | - |
| 2 | <i>Aphanothece nidulans</i> | + | + |
| 3 | <i>Aphanothece saxicola</i> | - | + |
| 4 | <i>Merismopedia tenuissima</i> | - | + |
| 5 | <i>Myxosarcina burmensis</i> | - | + |
| 6 | <i>Spirulina major</i> | + | - |
| 7 | <i>Oscillatoria acuminata</i> | + | + |
| 8 | <i>Oscillatoria acuta</i> | + | - |
| 9 | <i>Oscillatoria animalis</i> | + | - |
| 10 | <i>Oscillatoria obscura</i> | + | - |
| 11 | <i>Oscillatoria princeps</i> | + | - |
| 12 | <i>Oscillatoria subbrevis</i> | - | + |
| 13 | <i>Oscillatoria quadri-punctulata</i> | + | - |
| 14 | <i>Phormidium abronema</i> | - | + |
| 15 | <i>Phormidium corium</i> | + | - |
| 16 | <i>Phormidium jenkelianum</i> | + | + |
| 17 | <i>Phormidium molle</i> | + | + |
| 18 | <i>Phormidium usterii</i> | + | + |
| 19 | <i>Lyngbya hieronymusii</i> | + | + |
| 20 | <i>Lyngbya major</i> | - | + |
| 21 | <i>Lyngbya martensina</i> | + | - |
| 22 | <i>Microcoleus acutissimus</i> | + | + |
| 23 | <i>Microcoleus lacustris</i> | + | + |
| 24 | <i>Microcoleus subrotulosus</i> | + | + |
| 25 | <i>Cylindrospermum michallouskaense</i> | - | + |
| 26 | <i>Nostoc linckia</i> | + | - |
| 27 | <i>Nostoc muscorum</i> | - | + |
| 28 | <i>Plectonema gracillimum</i> | + | - |
| 29 | <i>Plectonema nostocorum</i> | + | - |

+ = Present, - = Absent

Table 2: Physicochemical analysis of Sugarcane field Soil

| Sr. No. | Parameter | Observation | Fertility Status |
|---------|---|-------------|------------------|
| 1 | pH | 7.98 | Moderate alkali |
| 2 | Electrical Conductivity (Milli mohs / Centimeter) | 0.16 | Moderate |
| 3 | Organic Carbon (%) | 1.51 | High |
| 4 | Available Nitrogen (Kg / hectare) | 125.00 | Very Low |
| 5 | Available Phosphorous (Kg / hectare) | 57.66 | High |
| 6 | Available Potassium (Kg / hectare) | 47.04 | Very Low |

Table 3: Physicochemical analysis of onion field Soil.

| Sr. No. | Parameter | Observation | Fertility Status |
|---------|---|-------------|------------------|
| 1 | pH | 8.15 | Moderate alkali |
| 2 | Electrical Conductivity (Milli mohs / Centimeter) | 0.38 | Moderate |
| 3 | Organic Carbon (%) | 0.39 | Low |
| 4 | Available Nitrogen (Kg / hectare) | 159.93 | Low |
| 5 | Available Phosphorous (Kg / hectare) | 10.97 | Low |
| 6 | Available Potassium (Kg / hectare) | 392 | Very High |

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Under natural conditions cyanobacteria grow preferentially in environments that are neutral to alkaline. Moderate electrical conductivity of soil favours the growth of cyanobacteria. In the present study, it is noticed that there is a significant positive correlation between organic carbon and abundance of cyanobacteria. High organic carbon in sugarcane field favours growth of cyanobacteria whereas it was low in onion field affected diversity of cyanobacteria. Soil rich in nitrogen phosphorus and potassium supports growth of cyanobacteria.

Hence it is concluded that, the cultivated field ecosystem provides a favourable environment for the growth and development of cyanobacteria. Maximum numbers of cyanobacterial forms were found in sugarcane field than onion field. Cyanobacterial flora of sugarcane is rich and it is found in diverse form. A Positive correlation among cyanobacterial flora and physicochemical parameters of soil was observed.

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bohemii, Phormidium curvum, Phormidium fenestratum, Phormidium malle, Lyngbya heteromastix, Microcoleus acutilimbus, Microcoleus subterrestris, Nostoc mucorum and Plectonema gracillimum.

Analysis of Physicochemical parameters of soil reveals fertility status of soil. The overall fertility status of selected wheat field soil was moderate alkali (pH 7.79) normal electrical conductivity (0.29 mhos/cm), moderately high organic content (0.61%), and moderate available nitrogen (306.00 kg/hectare), low available phosphorous (23.06 kg/hectare) and very low available potassium (84.67 kg/hectare). Moderate alkaline soil favours growth of algae. Normal electrical conductivity supports growth of algae. Soil rich in nitrogen, phosphorous and potassium harbours algal flora. In wheat field available nitrogen is moderate; available phosphorous low and available potassium is very low.

CONCLUSION
A total of 77 species under 32 genera of algae were recorded from soil of wheat field. Cyanophyceae algae were found dominant than Bacillariophyceae and Chlorophyceae. Unicellular, Colonial and filamentous algae were recorded. Filamentous algal forms were found abundant. Algal flora of wheat field is rich and it is found in diverse form. Soil is moderate alkali with normal electrical conductivity. Organic carbon is moderately high. Nitrogen is moderate whereas phosphorous is low and potassium is very low. Moderate alkaline soil favours growth of Cyanophyceae algae. Present research work will increase the knowledge of soil algae of western region of Maharashtra.

Table 2: Physicochemical analysis of Wheat field Soil.

| Sr. No. | Parameter | Observation | Fertility Status |
|---------|---|-------------|------------------|
| 1 | pH | 7.79 | Moderate alkali |
| 2 | Electrical Conductivity (Milli mhos / Centimeter) | 0.29 | Normal |
| 3 | Organic Carbon (%) | 0.61 | Moderately High |
| 4 | Available Nitrogen (Kg / hectare) | 306.00 | Moderate |
| 5 | Available Phosphorous (Kg / hectare) | 23.06 | Low |
| 6 | Available Potassium (Kg / hectare) | 84.67 | Very Low |

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Table 1: Diversity of soil algae from Wheat field.

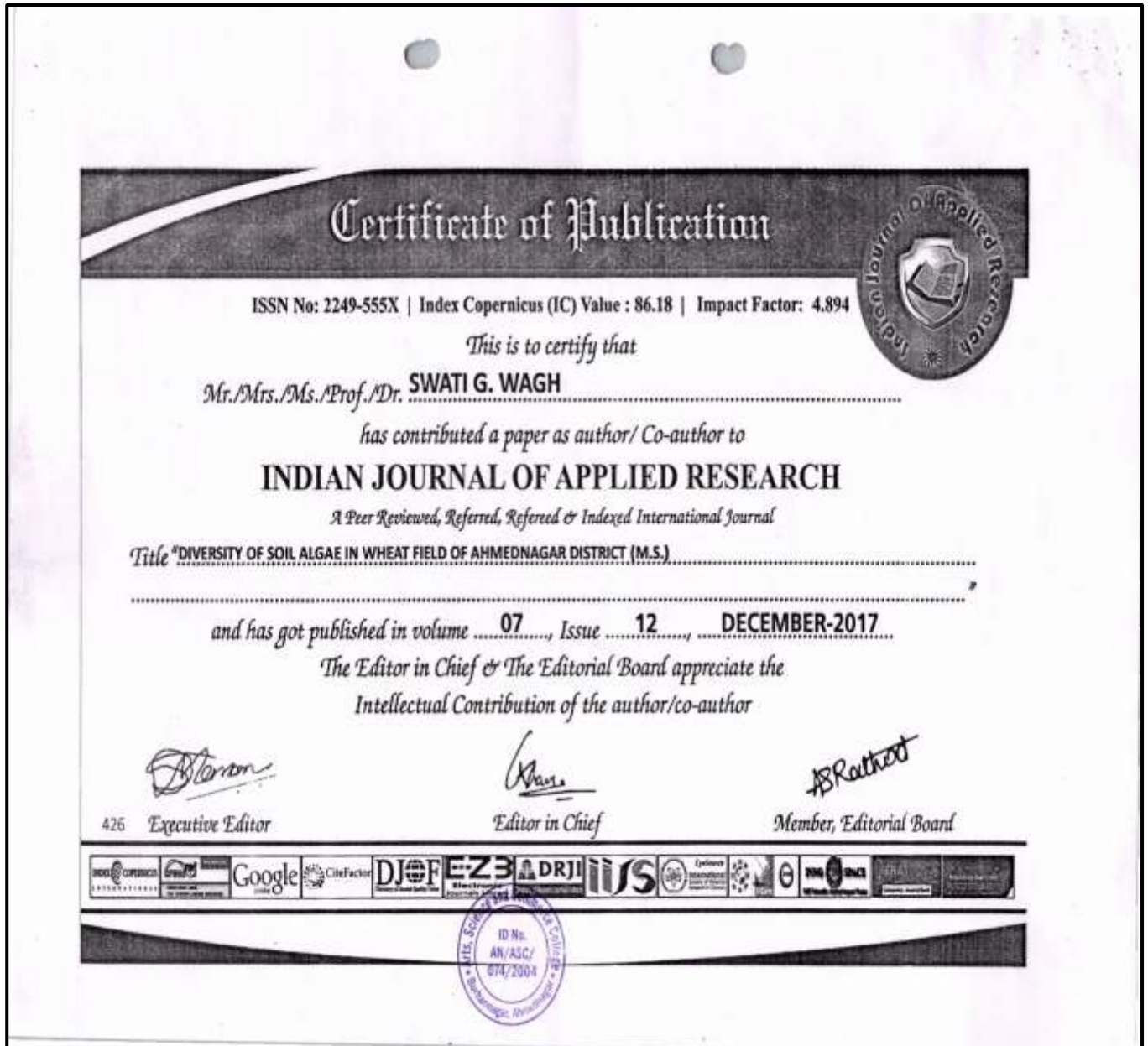
Chlorophyceae
Gloeoecystis gigas, Gloeoecystis major, Stichococcus subtilis, Chlorococcum humicola, Chlorella vulgaris, Ankistrodesmus varians, Spirogyra asquiosociata, Cosmarium subminidum.

Bacillariophyceae
Agallaria constrictus, Fragilaria brevistriata, Navicula cuspidata, Navicula luteodoti, Pinnularia sp., Cymbella aspera, Gomphonema usque, Gomphonema monutum, Gomphonema sp., Nitzschia obtusa, Nitzschia obtusa var. scalpelliformis, Nitzschia palea, Nitzschia wardensis, Surirella ovata.

Cyanophyceae
Chroococcus minor, Chroococcus nitens, Chroococcus torquatus, Gloeotheca palea, Aphan otheca nidulans, Aphanotheca azicola, Synchococcus asquiosociatus, Synchocystis aquatilis, Merismopedia tenuistria, Aphanocapsa barnardii, Spirulina gigantea, Spirulina labyrinthiformis, Spirulina laxistria, Spirulina subtilissima, Oscillatoria acuta, Oscillatoria acuminata, Oscillatoria angusta, Oscillatoria animalis, Oscillatoria chorata, Oscillatoria obscura, Oscillatoria princeps, Oscillatoria quadricapsulata, Oscillatoria schultzei, Oscillatoria subbrevis, Phormidium abranema, Phormidium bohemii, Phormidium jadhavianum, Phormidium fenestratum, Phormidium malle, Phormidium subterrestratum, Phormidium usurei, Lyngbya austerii, Lyngbya bicycl, Lyngbya heteromastix, Lyngbya magnifica, Lyngbya maritima, Lyngbya major, Lyngbya majuscula, Microcoleus acutilimbus, Microcoleus lacustris, Microcoleus paludosus, Microcoleus tenuis, Microcoleus subterrestris, Cylindrocapsa sp., Nostoc commune, Nostoc linkia, Nostoc mucorum, Plectonema gracillimum, Plectonema putabile, Plectonema radiatum, Scytonema bohemii, Calothrix marchia, Stigonema hormotales.

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SOIL ALGAE OF ONION FIELD OF AHMEDNAGAR DISTRICT



**Dr. Rajiq Zakaria
College
for Women**

Soil Algae Of Onion Field Of Ahmednagar District (M.S.)

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ABSTRACT Soil algae are significant component of soil microflora. They play a significant role in soil fertility. Present Research work deals with the study of Algal flora of Onion (*Allium cepa* L.) field soil. Algal samples from moist places of onion field were collected at regular intervals from October 2015 to January 2016. Bold's basal medium was also used to culture algae from soil of onion field. Collected algal samples were observed thoroughly under research microscope and identified with help of standard literature on algae. Total of 28 species under 20 genera belonging to Chlorophyceae, Bacillariophyceae and Cyanophyceae were identified and recorded. Algal forms *Gleocystis*, *Chlorococcium*, *Nitzschia*, *Aphanothece*, *Oscillatoria*, *Phormidium*, *Lyngbya* and *Microcoleus* were found dominant in order of their abundance. Physicochemical analysis of onion field soil was also performed by selecting certain physicochemical parameters such as pH, Electrical conductivity, and Organic carbon, available Nitrogen, available Phosphorus and available Potassium to understand fertility status of soil. Algal flora of onion field is rich and it is in diverse form.

KEY WORDS: - Algal Flora, Soil and Onion field.

INTRODUCTION

Soil algae are those algae which are found on or in the soil. They play an important role in the fertility of soil. Cyanophycean algae fix atmospheric nitrogen. Soil algae have attracted the attention of Phycologists since past few decades. (Meeting 1981, Bongale 1985, Prasad 2004, Auti and Pingle 2007, Jadhav 2010, Nimbhore and Jadhav 2014.) Soil algal diversity study on paddy, banana, wheat, sugarcane and brinjal fields has been well documented. (Bongale and Bharati 1980, Kolte and Goyal 1985, Kottawar and Pachpande 1986, Nayak et. al, 2001, Pillai and Chaugule 2004, Prasad 2005, Auti and Pingle 2006, Nimbhore and Jadhav 2014.) Onion (*Allium cepa* L.) is one of the important vegetable crops of India. Extensive review of literature reveals that very rare attention has been paid towards algal flora of onion field. Therefore to fulfill this lacuna it has been decided to work on algal flora of onion field.


MATERIAL AND METHODS

An Onion field from Ahmednagar tehsil area has been selected for soil algal samples collections. Algal patches were collected from moist places of selected onion fields at regular interval from October 2015 to January 2016. Algal samples were collected in sterilized collection bottles. Collected algal samples were brought to the laboratory and observed thoroughly under research microscope and identified with the help of standard literature of algae.

RESULTS AND DISCUSSION

Total of 28 species under 20 genera of algae belonged to Chlorophyceae, Bacillariophyceae and Cyanophyceae were identified and recorded from onion field of Ahmednagar tehsil area. Of these 6 species under 6 genera belonged to Chlorophyceae, 3 species under 5 genera belonged to Bacillariophyceae and 17 species under 9 genera belonged to Cyanophyceae (Table 1). Cyanophycean algal taxa dominated algal flora. Similar kinds of observation were made by earlier researchers (Bongale and Bharati 1984, Chapekar and Gangawane 1984, Kottawar and Pachpande 1986, Auti and Pingle 2006, Jadhav 2010, Nimbhore and Jadhav 2014).

Classwise percentage contribution study of algal flora of onion field reveals that highest contribution was of Cyanophyceae (60.75%), followed by Chlorophyceae (21.40%) and Bacillariophyceae (17.85%). Algal taxa *Gleocystis*, *Chlorococcium*, *Nitzschia*, *Aphanothece*.



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Oscillatoria, *Phormidium*, *Lyngbya* and *Microcoleus* were found dominant in order of their abundance. *Chlorococcum humicola* was abundant in onion field. It is important constituent of soil algal flora of various parts of world. Unicellular, colonial and filamentous algal forms were recorded present research work. Filamentous algal forms were found in maximum number.

Physicochemical analysis of onion field soil reveals fertility status of soil. The overall fertility status of selected onion field was moderate alkali (pH 8.15), Electrical conductivity is normal (0.38 millimhos/centimeter). Organic carbon low (0.38%), low available nitrogen (159.93 Kg/hectare), low available Phosphorous (10.97 Kg/hectare), where as available Potassium (392 Kg/hectare). Cyanophycean algae are found dominant in alkaline soil. Normal electrical conductivity supports growth of algae.

CONCLUSION

A total of 28 species under 20 genera of algae were recorded from the soil of onion field. Cyanophycean algae were found dominant than Chlorophyceae and Bacillariophyceae. Unicellular, colonial and filamentous algal forms were recorded present research work. Filamentous algal forms were found in maximum number. Algal flora of onion field is rich and it is found in diverse form. Moderate alkaline nature and normal electrical conductivity of soil supports growth of algae especially Cyanophycean algae.

Table 1: Diversity of Soil Algae from Onion field

| |
|--|
| Chlorophyceae |
| <i>Gloeo-cystis major</i> , <i>Oedogonium sp.</i> , <i>Chlorococcum humicola</i> , <i>Trochisci aspera</i> , <i>Spirogyra sp.</i> , <i>Cosmarium subumidium</i> . |
| Bacillariophyceae |
| <i>Pinnularia sp.</i> , <i>Gomphonema</i> , <i>Cymbella aspera</i> , <i>Nitzschia palea</i> , <i>Suirella ovata</i> . |
| Cyanophyceae |
| <i>Aphanothece nidulans</i> , <i>Aphanothece saxicola</i> , <i>Merismopedia tenuissima</i> , <i>Myxosarcina burmensis</i> , <i>Oscillatoria acuminata</i> , <i>Oscillatoria subbrevis</i> , <i>Phormidium abronema</i> , <i>Phormidium jentilissimum</i> , <i>Phormidium molle</i> , <i>Phormidium usterii</i> , <i>Lyngbya hieronymusii</i> , <i>Lyngbya major</i> , <i>Microcoleus acutissimus</i> , <i>Microcoleus lacustris</i> , <i>Microcoleus subtorulosus</i> , <i>Cylindrospermum michailovskaense</i> , <i>Nostoc muscorum</i> . |

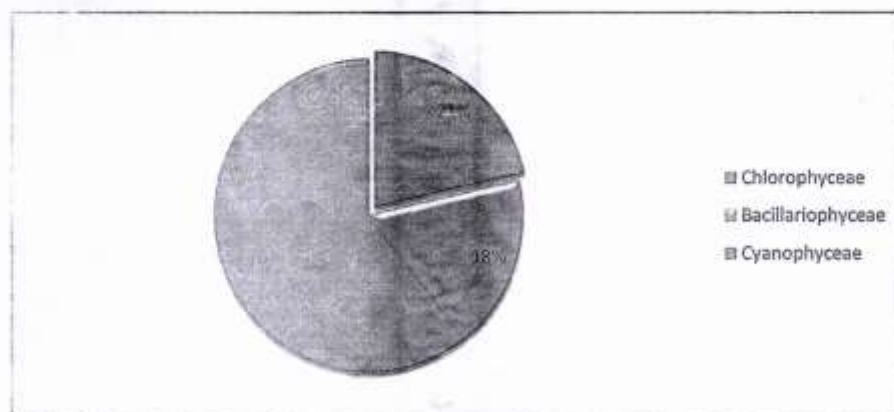


Fig.1: Classwise Percentage Contribution of algal flora of Onion Field Soil

Table 2: Physicochemical analysis of onion field soil

| Sr. No. | Parameter | Observation | Fertility Status |
|---------|--|-------------|------------------|
| 1 | pH | 8.15 | Moderate Alkali |
| 2 | Electrical Conductivity (millimhos/centimeter) | 0.38 | Normal |
| 3 | Organic Carbon (%) | 0.39 | Low |

SOIL ALGAE OF ONION FIELD OF AHMEDNAGAR DISTRICT

| | | | |
|---|------------------------------------|--------|------|
| 4 | Available Nitrogen (Kg/hectare) | 159.93 | Low |
| 5 | Available Phosphorous (Kg/hectare) | 10.97 | Low |
| 6 | Available Potassium (Kg/hectare) | 392 | High |

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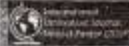



**ROLE OF PSYCHOLOGY IN SPORTS:
ANXIETY, STRESS AND INTELLIGENCE**

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| [Bi-Monthly] | Volume – V | Special Issue – IV | January 2017 |
| ROLE OF PSYCHOLOGY IN SPORTS: ANXIETY, STRESS AND INTELLIGENCE | | | |
| Manisha Narayan Punde Research Scholar Of Dr. Babasaheb Ambedkar Marathwada University Aurangabad. | Dr. Chatrpati Bburao Vairagar (Pangarkar), Swantatraveer Savarkar Mahavidyalaya, Beed | | |
| ABSTRACT: | | | |
| <p>We always say “take a sportily”, if someone hearted by other one. So we know only the sport activity always releasing mental presser. Sports helps an individual much more than in the physical aspects alone. It builds character, goal setting and risk taking ,teaches and develops strategic thinking, analytical thinking, leadership skills. Despite extensive research devoted to determining the nature of the relationship between stress and performance, there has been little systematic examination of the mechanisms underlying this relationship. Anxiety in sport is most common in competitive sports environments and could also be termed competitive stress. A lack of consensus makes it difficult to clearly define anxiety and stress in sports. Although emotional intelligence is still a relatively new term in sport, it is certainly not a new concept. For years we have marveled at how the great athletes are able to “switch themselves on” to create amazing performances with incredible consistency.</p> <p>Emerging evidence indicates that gaze behaviour tendencies are reliably altered when performers are anxious, leading to inefficient and often ineffective search strategies. Alterations of these visual search indices are addressed in the context of both self-paced and externally paced sports events. Recommendations concerning the utility of perceptual training programmes and how these training programmes might be used as anxiety regulation interventions are discussed. The theoretical implications and directions for future research are also addressed.</p> | | | |
| KEYWORDS: Goal setting, Leadership skills, Psychology, Risk taking, Sports, Strategic thinking, Psychology in sports, Emotional Intelligence | | | |
| INTRODUCTION: | | | |
| <p>Not all stress is bad for your performance. Stress can affect your performance in two different ways. Stress can help you when it makes you more alert, more motivated to practice, and gain a competitive edge. In the right amount, stress helps you prepare, focus, and perform at your optimal level. Conversely, too much stress, or bad stress, can cause performance anxiety, which hurts your health and does not allow you to play relaxed, confident, and focused in competition.</p> <p>“You’re always going to be nervous teeing it off for Championship. It’s very natural</p> | | | |
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and it's a good thing. It means that you want it.”

In a nutshell, Emotional Intelligence is the ability to identify, assess and manage the emotions of you, of others, and of groups.

Emotional intelligence is defined as “the ability to recognize your own emotional state, that is how you are feeling”. Coaching is more than just the instruction of skills and drills. It is also about building quality relationships and having the emotional expertise build those relationships. In sports psychology it is called **Emotional Intelligence (EI)**.

EI Strategies:

If we accept Emotional Intelligence refers to the ability to:

1. perceive emotion (and recognise their meanings)
2. use emotions to facilitate thought (understand their relationship);
3. understand emotions (including recognising those of others); and
4. manage emotions (manage relationships with others)

Emerging evidence indicates that gaze behaviour tendencies are reliably altered when performers are anxious, leading to inefficient and often ineffective search strategies. Alterations of these visual search indices are addressed in the context of both self-paced and externally paced sports events. Recommendations concerning the utility of perceptual training programmes and how these training programmes might be used as anxiety regulation interventions are discussed. The theoretical implications and directions for future research are also addressed.

As Psychology in sports, we want to develop not physical but also following development. Sporting attitude/spirit, Positive attitude towards life and its struggles, Shaping one's personality and character. We are all well aware of the fact that participating in sports/physical activity develops the five components of fitness, namely: strength, speed, skill, stamina and flexibility.

Also we know effect of sports. 'Healthy Mind In a healthy Body', and 'Healthy Body in a Healthy Mind'. Both these statements are 100% true.

Then what are sports do:

- Sports improve sleep patterns and levels of anxiety.
- Sports develops motor skills and mind/body connection.
- Sports staves off depression.
- Sports are exercise/physical activity with fun, 'masti'.
- Sports are exercise/physical activity with an objective and definite aim.
- A sport is exercise/physical activity with a purpose to win universities and win.

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- Playing sports helps release pressure and tension in a healthy and controlled way.
- A sport reduces the risk of many physical diseases.

I. Sports in psychology and life:

A Sport is a learning experience. Of all who take up sports only one may eventually become a champion, but definitely all will be winners. Sports has helped me and the principles of sports continue to help me through difficult times. Sports help students study better, improves concentration, problem solving, and memory. A sport teaches one to develop the following:

1. Leadership skills: Lead different people from all walks of life towards a common goal/objective. A good leader is one who leads others on to leadership.
2. Team spirit: Working towards a common goal as a member of a team, selflessly, personal interests notwithstanding.
3. Never give up: Sports teaches you to never give up. 'Success is just round the bend', being persistent, nothing is impossible. You never know how close you are to success when you give up.
4. Great leveler: Sport is a great leveler - you lose 1-day only to bounce back the next. No loss is permanent. Even a loss teaches you how not to do something, or how it could be done better. No setback is permanent, never-should one lose hope.
5. Focus: Sport teaches you to focus on the present. Past is irrelevant, and future, who knows?
6. Strengths and abilities: Sport teaches you to focus on your strengths and abilities, not on your opponents' strengths and capabilities.
7. Process and result: Sport teaches you that the process is more important than the result. If the process is right, success will soon ensue.
8. Planning: Sport teaches you to plan ahead, see through the consequences of your act. You need to quickly assess the situation, adjust, adapt and act accordingly. Being flexible and not carry a fixed mindset.

II. Psychology in sports:

We know important aspects of psychology in sports which are as follows:

1. Positive attitude: It is often said a game is won or lost in the locker room before the start of the match. Having a positive attitude goes a long way in determining the eventual outcome of the game between closely matched participants.
2. Always have a positive body language.
3. 'Killer instinct' is necessary at all times. By this, you are giving due respect to your opponent and acknowledging the fact that he/she is as good as you, and the slightest slackness shown

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by you will allow your opponent to claw back and the outcome of the game may easily be reversed.

4. Never give up attitude: As mentioned in section above, however hopeless the situation may seem success is just around the corner. No match is won till the last ball is bowled. Play to your strength, give it your best, enjoy the game, you have nothing to lose. Loss is not the end, there is no shame, disrespect, humiliation, provided you have given your best.
5. Fear of losing will increase your anxiety and cause distress and hence leading to poor performance and undesirable results.
6. Never bother about consequences, give it your best shot always, and enjoy the game.
7. Respect for the opponent is necessary but do not let this overwhelm you. Respecting their abilities, giving your best always, and no casualness in approach even when comfortably placed. Remember on a given day anything and everything is possible.

Figure A shows: summarizing points of paper as follows:

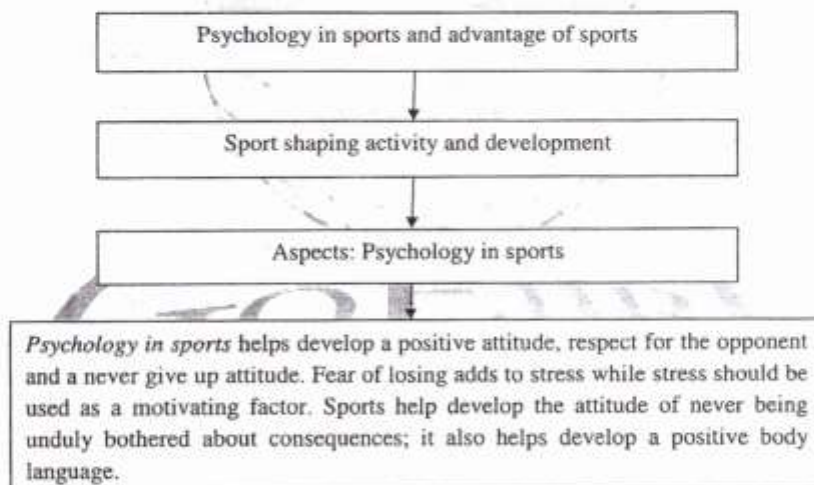
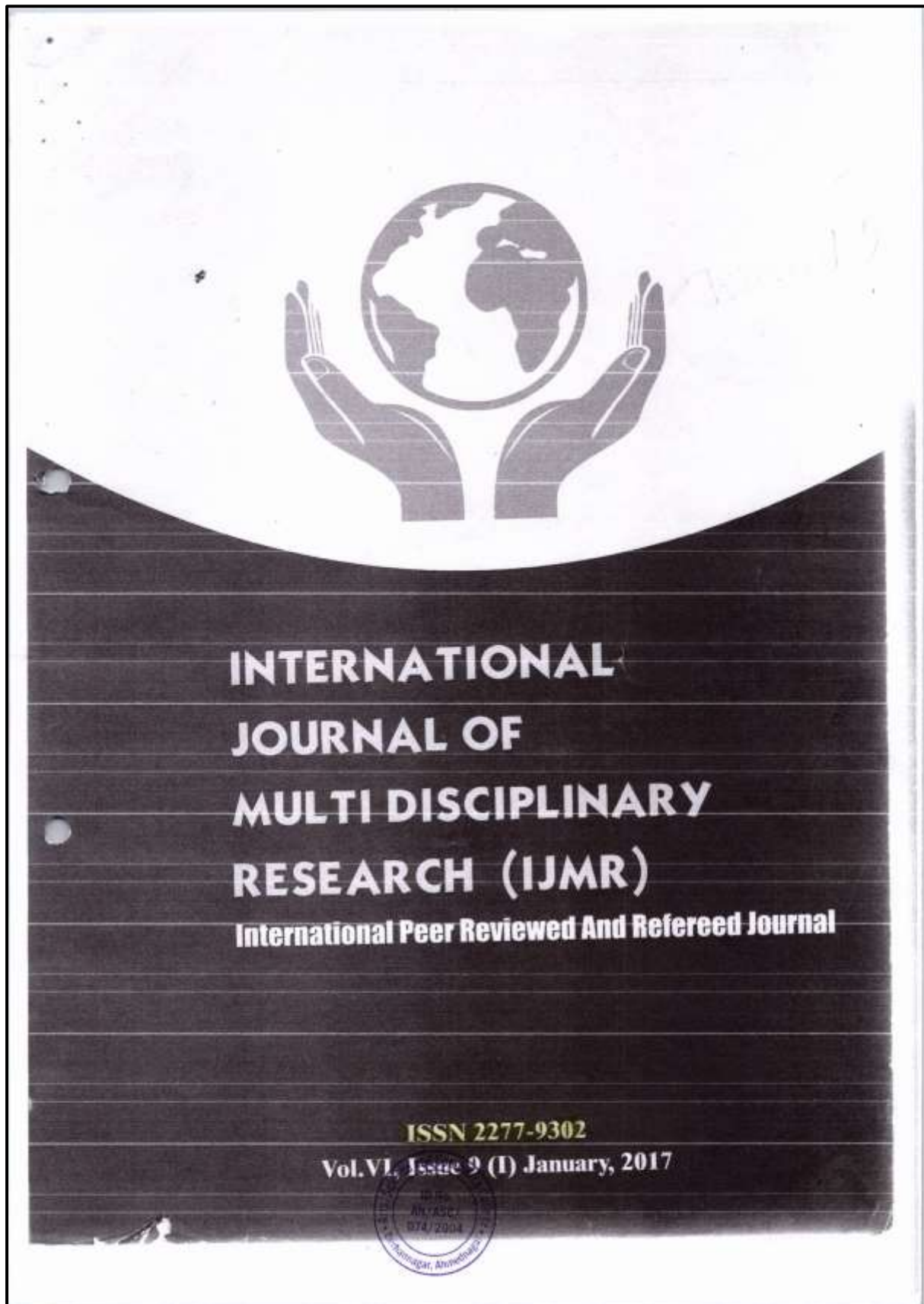


Fig. A

CONCLUSION:

Playing sports activities play an important part in one's personality development. We develop management skills, negotiation skills, communication skills, convincing skills, conflict management and confidence.

SPORTS AND SCIENCE



SPORTS AND SCIENCE

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SPORTS AND SCIENCE

International Journal of Multidisciplinary Research (IJMR)

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SPORTS AND SCIENCE

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Introduction:-

Sports science is a discipline that studies how the healthy human body works during exercise, and how sport and physical activity promote health from cellular to whole body perspectives. The study of sports science traditionally incorporates areas of physiology (exercise physiology), psychology (sport psychology), anatomy, biomechanics, biochemistry and biokinetics. Sports scientists and performance consultants are growing in demand and employment numbers, with the ever-increasing focus within the sporting world on achieving the best results possible. Through the study of science and sport, researchers have developed a greater understanding on how the human body reacts to exercise, training, different environments and many other stimuli. mSports Science can trace its origins to ancient Greece. The noted ancient Greek physician Galen (131–201) wrote 87 detailed essays about improving health (proper nutrition), aerobic fitness, and strengthening muscles. Assyrian Hunayn ibn Ishaq translated Galen's work, along with that of Hippocrates, into Arabic which led to the spread of Greek physiology throughout the Middle East and Europe. Between 776 BC to 393 AD, the ancient Greek physicians planned the training regimens and diets of the Olympic competitors.

New ideas upon the working and functioning of the human body emerged during the renaissance as anatomists and physicians challenged the previously known theories. These spread with the implementation of the printed word, the result of Gutenberg's printing press in the 15th century. Allied with this was a large increase in academia in general, universities were forming all around the world. Importantly these new scholars went beyond the simplistic notions of the early Greek physicians, and shed light upon the complexities of the circulatory, and digestive systems. Furthermore, by the middle of the 19th century early medical schools (such as the Harvard Medical School, formed 1782) began appearing in the United States, whose graduates went on to assume positions of importance in academia and allied medical research.

Principle of anatomy and physiology:-

- 1 Know the structure and function of the skeletal system
- 2 Know the structure and function of the muscular system
- 3 Know the structure and function of the cardiovascular system
- 4 Know the structure and function of the respiratory system
- 5 Know the different types of energy systems

Sports physiology is the study of the long-and short-term effects of training and conditions on athletes. This specialized field of study goes hand in hand with human anatomy. Anatomy is about structure, where physiology is about function.

Sports Training Principles are heavily rooted in this field. Effects of body composition, flexibility training, hydration, environmental conditions, and carbohydrate loading on athletic performance are only a few of the topics explored in this field.

Exercise physiologists, physicians, and athletic trainers can apply research findings from studies to advise athletes on topics concerning nutrition, sport-related injuries, and other issues related to sports medicine.

The Human Muscular System in Athletic Performance

The human muscular system is the machinery that drives athletic performance. Among their functions, the more than 600 skeletal muscles generate skilled movements and produce energy for sport-specific competition. Muscles have a specialized ability to contract. These contractions pull on the bones of the skeleton to cause movement. Movement can be very basic, such as moving an arm, or leg, or breathing; or they can create highly coordinated skills, such as swimming or throwing a ball.

Muscles maintain posture and body position. They are active just for standing, as well as to help stabilize your spine when lifting heavy weights overhead. Muscles also maintain body temperature. When muscles

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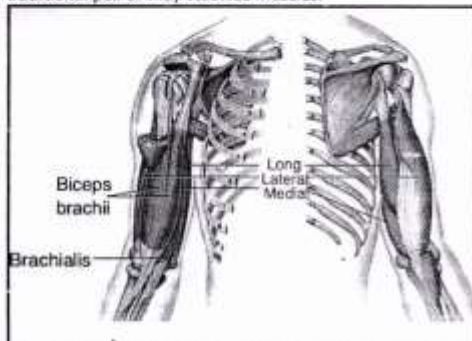
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contract they produce energy, some of which is converted into heat. Heat keeps the body temperature within the range for normal functioning.



The brain and nervous system are the conductors of the muscular system. Athletes make decisions to make particular movements to execute skills, and the nervous system transmits the signals to the muscles so that they generate exact amount of force in the right direction at the right time. Over time, precision improves as the athlete repeats and refines skills. The human muscular system also works in concert with other body systems, such as the cardiovascular and respiratory systems, which supply oxygen and nutrients for energy. Muscles do not work individually. They function in groups to generate efficient movement. For example, while the elbow flexors (biceps) contract when performing a curl (called agonists), the elbow extensors (triceps) extend (called antagonists). A synergist helps a larger agonist work efficiently. Synergists provide additional pull or may stabilize muscles.



To perform a single athletic skill many, many muscles work in concert. Simply walking requires around 200 skeletal muscles. It takes 40 muscles to raise one leg and move it forward. Imagine how many muscles are involved in sprinting or shooting a basketball! To be successful, the athlete must not only learn to smoothly coordinate all muscles for all skills, he or she must also develop sport fitness that prepares the body to perform at its best throughout the competition. Training builds the right combination of fitness components as the muscular system adapts in specific ways to repeated activity.

For example, when the athlete adds resistances in training regimens, the active muscles adapt by getting stronger and larger. When endurance is built, the muscles use oxygen more efficiently and the blood supply improves. The human muscular system makes all the right adjustments to help the athlete improve sport performance.



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THE CARDIOVASCULAR SYSTEM AND EXERCISE

The cardiovascular system serves five important functions during exercise:

- 1) Delivers oxygen to working muscles
- 2) Oxygenates blood by returning it to the lungs
- 3) Transports heat (a by-product of activity) from the core to the skin
- 4) Delivers nutrients and fuel to active tissues
- 5) Transports hormones

Exercise places an increased demand on the cardiovascular system. Oxygen demand by the muscles increases sharply. Metabolic processes speed up and more waste is created. More nutrients are used and body temperature rises. To perform as efficiently as possible the cardiovascular system must regulate these changes and meet the body's increasing demands.

Below we will examine the acute or immediate response to exercise and also the long-term adaptations that take place in the cardiovascular system with repeated exercise. The most important aspects of the cardiovascular system to examine include:

- Heart rate
- Stroke volume
- Cardiac output
- Blood flow
- Blood pressure
- Blood

Muscles Work Together in Sport Skills

Knowing how muscles work together to produce skilled movements impacts your choice of training activities. Muscles play different roles and contract in different ways. Experienced athletes learn to execute precise sport skills by practicing movements that work in sync in a variety of situations.

Muscles can shorten and lengthen, so muscle actions leverage bones to cause them to move. Just the right amount of force and in the right directions contributes to skilled movement.

ATP:-

"What is ATP?" is an important question in sports training because all energy production is powered by this compound. The training programs you design for your athletes will target their ability to produce energy for power and/or endurance. ATP is often referred to as the energy currency of life. The body's cells use a special form of energy called adenosine triphosphate (ATP) to power almost all their activities, such as muscle contraction, protein construction, transportation of substrates, communication with other cells, activating heat control mechanisms, and dismantling damaged and unused structures.

Every cell has a small store of highly charged ATP located in the cytoplasm. ATP is made up of adenosine and three inorganic phosphate (Pi) groups bonded together in sequence. Each of the phosphate bonds stores the energy the cell can use. The bond between the second and third phosphate groups contains the most accessible energy. Understanding the internal effects of exercise on athletes sets the stage for designing fitness training programs that prepare them for the physical demands of specific sports. Don't forget, though, that internal changes in athletes' bodies are one piece of the training puzzle.

It is important to know that in order to understand the effects of training, scientists must "zoom in" under lab conditions. Athletes and coaches must consider how well artificial conditions apply to training athletes in the real world. Be careful not to take theories (possible explanations) as the "gospel" when training athletes--always "zoom out" into the real world of competition. The best coaches read a variety of professional and scholarly resources in the field from publications such as the American Journal of Sports Medicine, the Journal of Strength and Conditioning Research, and the Journal of Sport Sciences. After reading the research, practitioners then consider how applications from each study fit with those from other sport sciences, and temper research findings with personal experience and good judgment.

Aerobic Training for Athletes

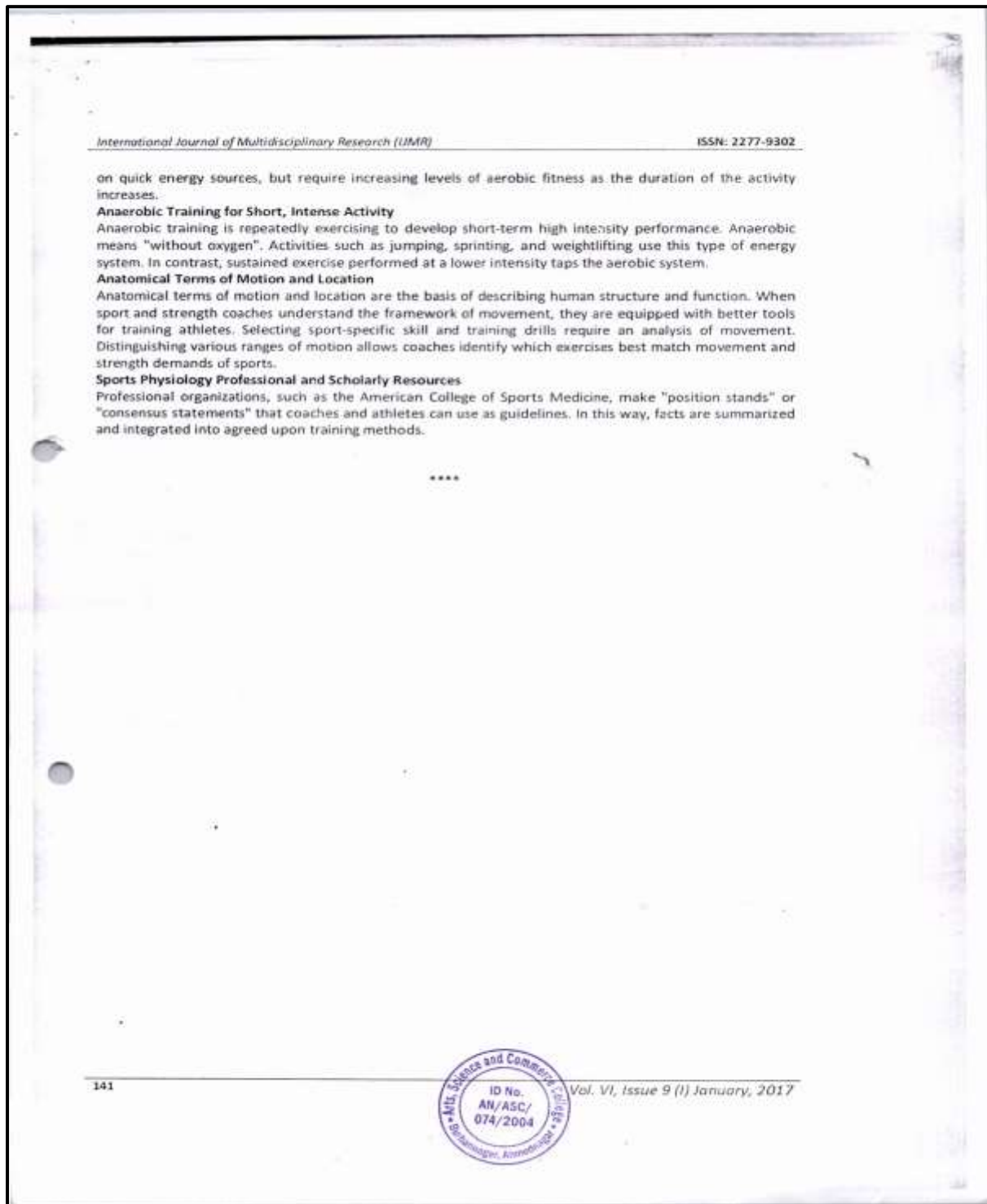
Aerobic training, also called cardio, improves an athlete's ability to use oxygen to sustain activity for periods of time. Examples of sports that demand long-term supplies of oxygen include marathon runners and distance swimmers. Success in many sports requires repeated burst of high intensity activity that draw

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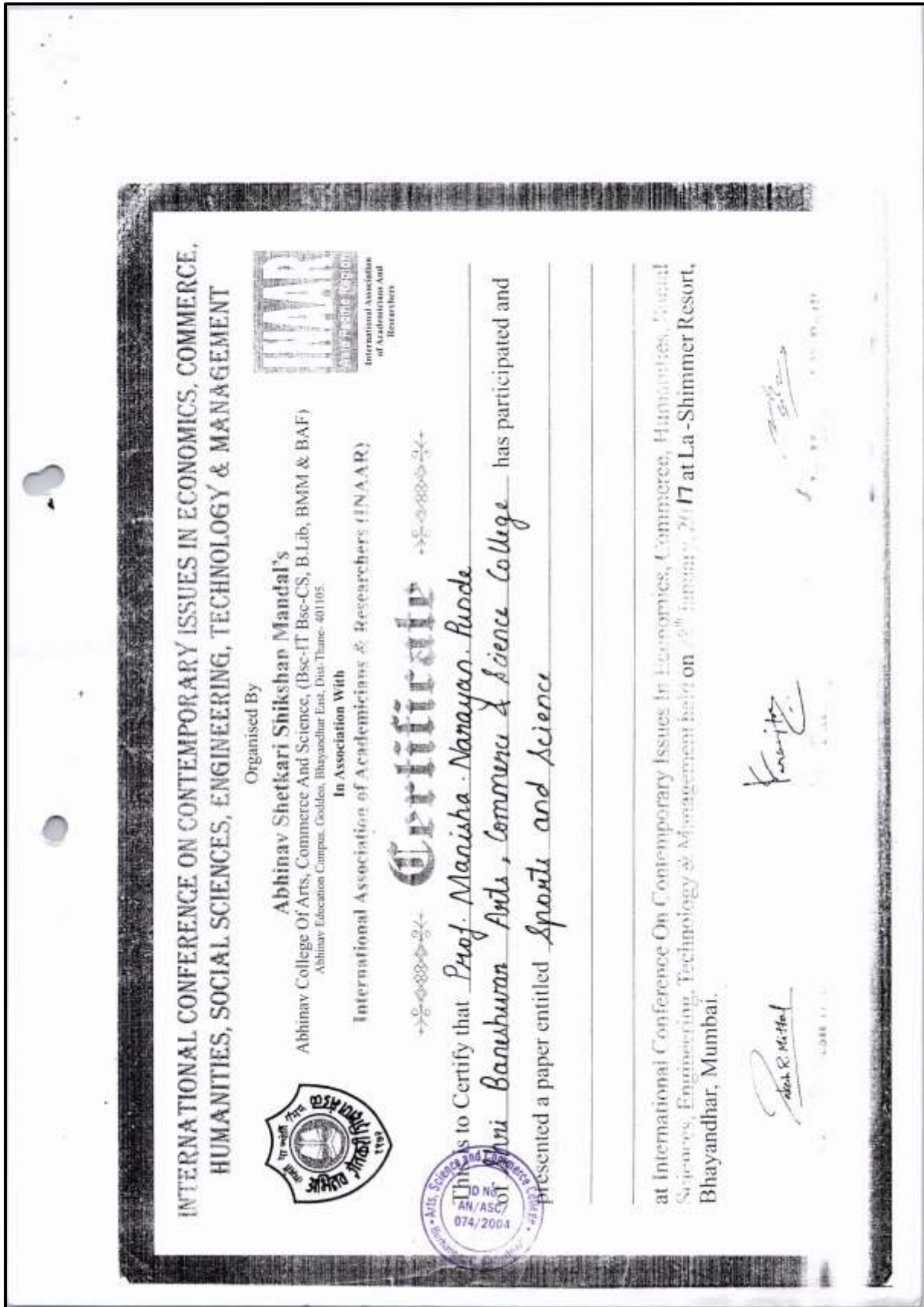
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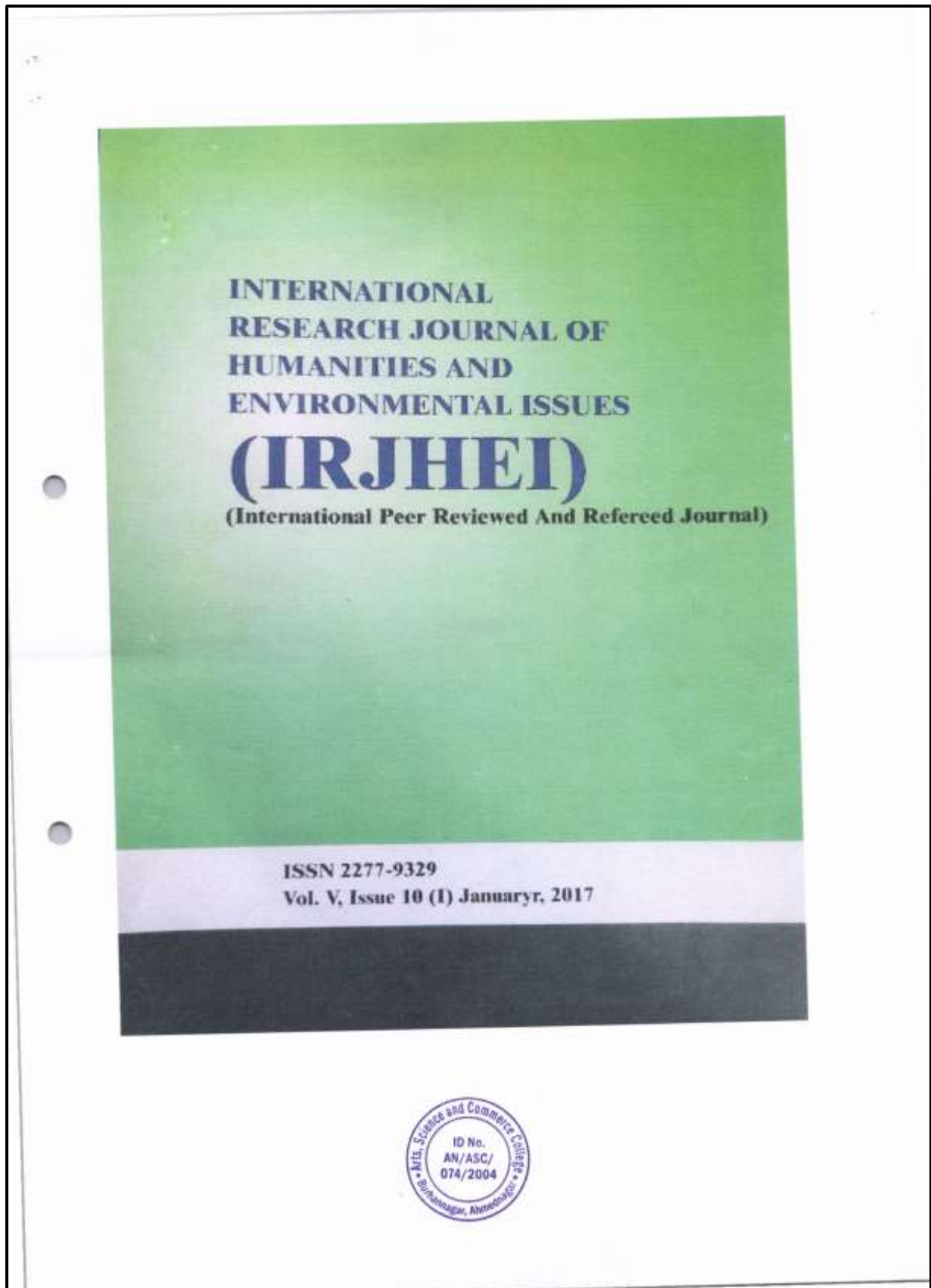
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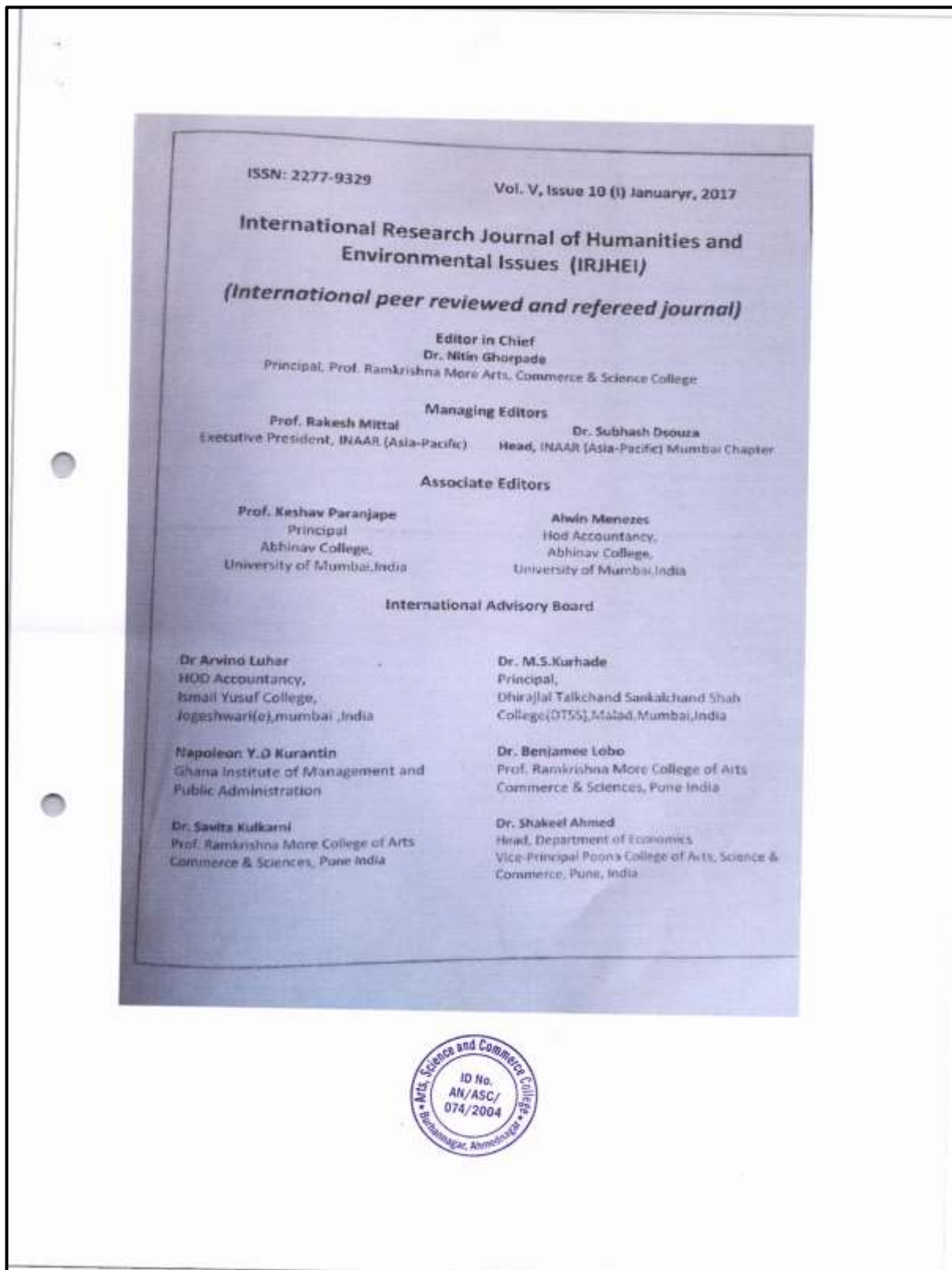
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**COVER PAGE-VIOLATION OF WOMEN HUMAN RIGHTS IN
MAHARASHTRA**



COVER PAGE-VIOLATION OF WOMEN HUMAN RIGHTS IN MAHARASHTRA



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VIOLATION OF WOMEN HUMAN RIGHTS IN MAHARASHTRA

VIOLATION OF WOMEN HUMAN RIGHTS IN MAHARASHTRA

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Abstract :

Women faced with political, economics and educational problem, women face sevier social, economic and political descrimination. Human rights are those minimum rights which are compulsory obtainable by every individual as he or she is member of human family. The constiution of india also guarenties the equality of rights of men and women how ever in the spher of womens human rights in india there exist a wide gulf between theory and practice. Indian society is male dominated society, where male are always assumed to supiorior to society. The constitution of india has granted equal rights to men and women. According to article 14 - 'The State shall not deny to any person equality before law or the equal protection of laws within the territory of india.' And Article 15 - States - 'State shall not descriminate agains any citizen on ground only of religion, race, cast, sex, place of birth or any of them. But today, its seems that there is wide gulf between theory and practice. ' The women in india have always been considered subordinate to men. though the article contained in the constitution mandates equality and non - descrimination on the grounds of sex, women is always descriminated and dishonored in indian society. Although various efforts have been taken to improve the status of women in india. The constitutional dream of gender equality is miles away from becoming a reality. Though Human Rights are the minimum rights which are compulsorily obtainable by every individual as he or she is a member of human society. But it has been found that each and every right of the women is been violated in one or another way. The crime against women in india are increasing at very fast pace. The National Crime Records Bureau (NCRB) had predicted that growth rate of crime against women would be higher than population growth by 2010 which was found to be true

WOMEN HUMAN RIGHTS :-

- * Right to Equality
- * Right to Education
- * Right to live with dignity
- * Right to liberty
- * Right to politics
- * Right to property
- * Right to equal opportunity for employment
- * Right to free choice of profession
- * Right to livelihood
- * Right to work equitabale condition
- * Right to get equal wages for equal work
- * Right to protection from gender .discrimination
- * Right to social protection from in eventuality of retirement, old age,sickness
- * Right to protection from in human treatment
- * Right to protection of health
- * Right to privacy in terms of personal life,family,residence,correspondence etc.
- * Right to protection from Socity,satate,family system.

VIOLATION OF WOMEN HUMAN RIGHTS

It has been repetadly said these days that women in india are enjoying the rights equal to men but in-reality women in india have been the sufferers from past: not only in earlier times but even now days also women have to face discrimination in justice and dishonour.

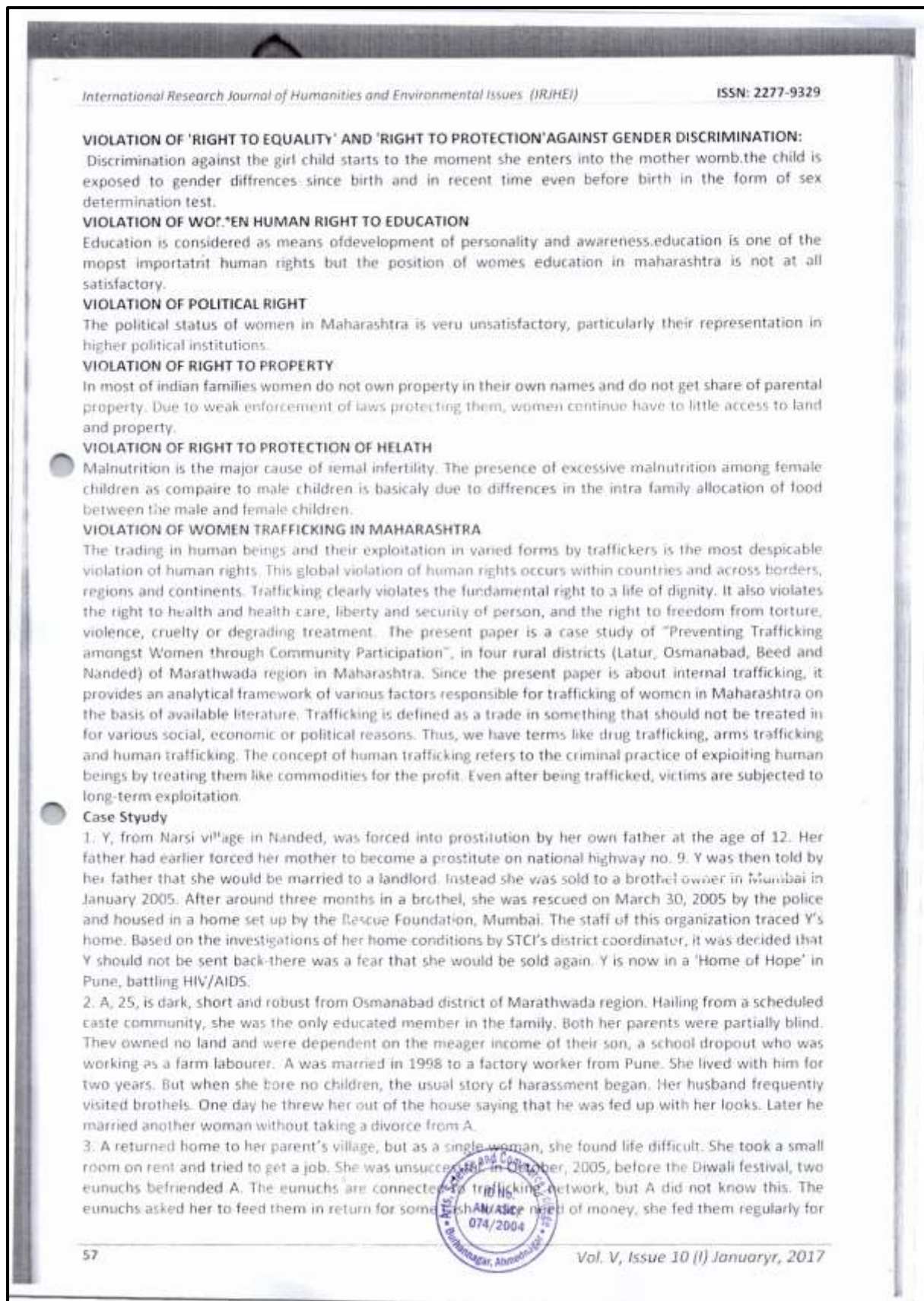
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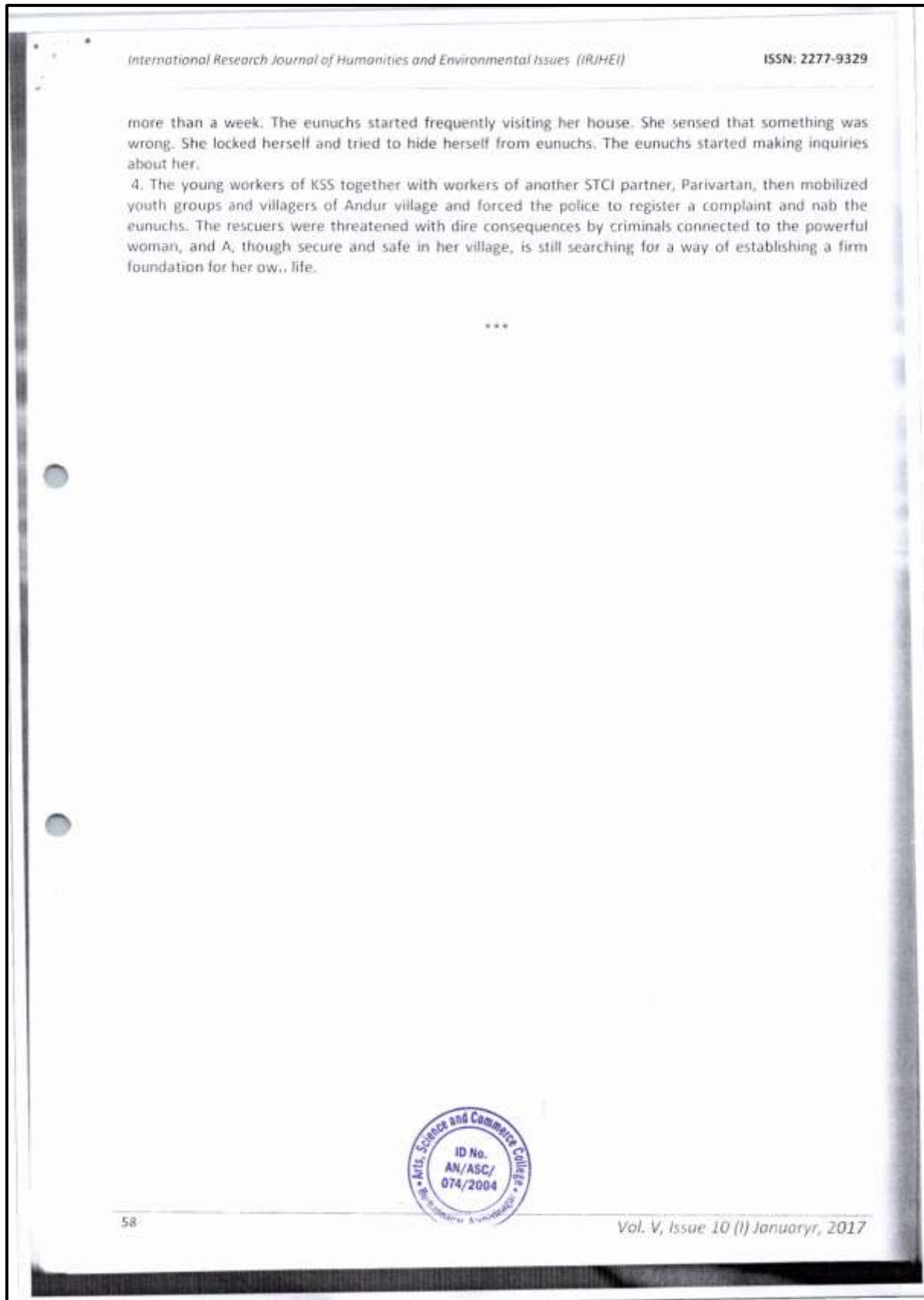
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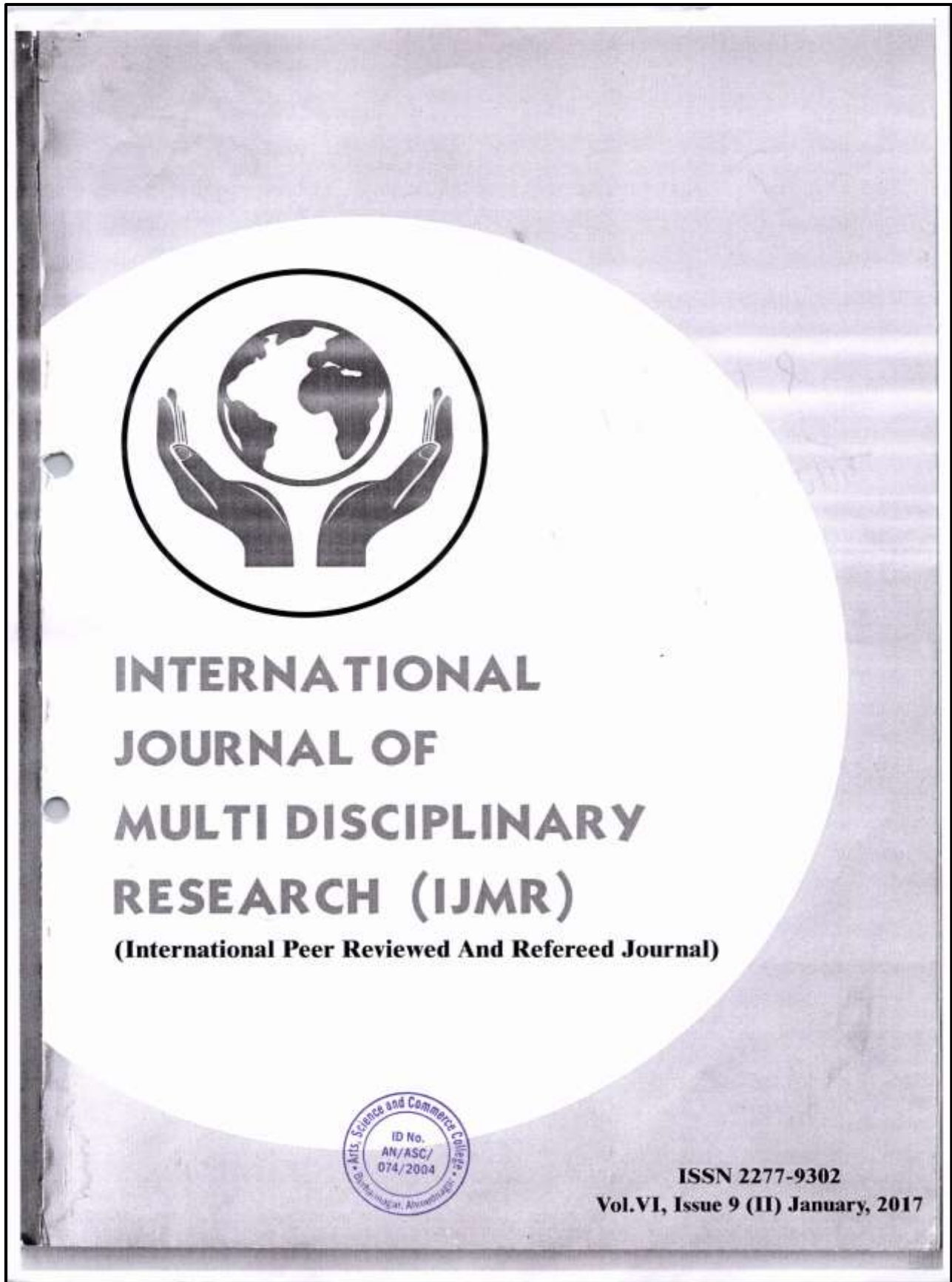
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VIOLETION OF WOMEN HUMAN RIGHTS IN MAHARASHTRA



ROLE OF THE MAHARASHTRA STATE IN CULTURE



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ROLE OF THE MAHARASHTRA STATE IN CULTURE

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ROLE OF THE MAHARASHTRA STATE IN CULTURE

Dr. Jadhav Vijay Machindra
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Introduction :-

As Maharashtra is a vast state, the people of this colourful state wears different types of costumes, take different cuisines, has different forms of dances and music according to the physical features of their locality. Generally, men wear dhoti and pheta in olden days, while women wear choli and saree. But with the change of time, young Maharashtrians too are fast attracting to the latest fashions imported from the western countries. The mouth watering Konkani and Varadi cuisines would kill any visitor's appetite. Although, Maharashtrian cuisines are a bit strong in pepper and spice, but it is the speciality of the dishes of this state that world knows about. And everybody knows about the unbeatable taste of the Mumbai chaats. The dance forms like Povada, Lavani and Koli with mesmerizing music and rhythmic movements entertain the Maharashtrians. Dhangri Gaja, Dindi, Kala and Tamasha are the folk dances that attach to the heart of the people of this state.

People and Lifestyle of Maharashtra

Marathi reigns supreme as the language of the people of Maharashtra. Although every religion has a fair share in the population of Maharashtra, the Hindus have a clear majority. The traditional clothing involves the Pheta, Kurta and Dhoti for the men while the women don the unique Marathi Saree and Choli. There is also a huge sense of diversity in the state. It would be unfair to use one term for the entire state. With a gamut of dances, Foods, Dresses etc, the people of Maharashtra are popular for their rich culture. The cuisine is also varied, the Varadi and Konkani varieties are set to sweep people off the floor. Apart from the strong spices used in the dishes, the state of Maharashtra is also famous for its delicious street food. The chaat of the state capital is particularly famous. The dance forms in the state too are also diverse.

Maharashtra is the third largest state of India. It is known as the land of saints, educationists and revolutionists, notable among them being Mahadev Govind Ranade, Swatantraveer Savarkar, Savitribai Phule, Bal Gangadhar Tilak and many others. It has long history of Marathi saints of Varakari religious movement which includes saints like Dnyaneshwar, Namdev, Chokhamela, Eknath, and Tukaram which forms the one of base of culture of Maharashtra or Marathi culture. Maharashtra is also known for its purgami culture which translates as reformist or forward culture which was started by earlier saints and led by Mahatma Phule, Shahu Maharaj, Dr. B. R. Ambedkar in modern times. Maharashtra has huge influence all over the world of 17th century King Shivaji of Maratha Empire and his concept of Hindavi Swarajya which translates self-rule of people. The state of Maharashtra spans multiple cultures which includes cultures related to Hindus, Muslims, Buddhists, Sikhs, Christians etc. Lord Ganesha and Lord Vitthal are the traditional deities worshipped by Hindus of Maharashtra.

Maharashtra is divided into various regions; Marathwada, Vidarbha, Khandesh, Konkani, etc. and each region has its own cultural identity in the form of different dialects of Marathi language, folk songs, food, ethnicity.

Costumes of Maharashtra

As Maharashtra is a vast state, the people of this colourful state wears different types of costumes, take different cuisines, has different forms of dances and music according to the physical features of their locality. Generally, men wear dhoti and pheta in olden days, while women wear choli and saree.

The vastness of the state naturally adds the required spice of variety to its culture. The people of Maharashtra have a distinct style of costume that varies from one region to another in the state. Having said that, their basic attire is usually similar. In the golden era, the Men wore a Dhoti and a simple Petha, whereas the women wore the traditional Marathi saree with a choli. The traditional dress for men in Maharashtra involves the basic dhoti and a shirt which they called the Pheta. The traditional attire is incomplete without their usual headgear which is a simple Cap. Several people also use to tie a Pagdi or a Turban which is soon fading away from the scene.



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For women, the traditional dress involves a saree. They tie the saree around their lower part. The sarees usually have varied lengths and are accompanied by the choli for the torso. The Choli is meant to cover half the torso and have cropped sleeves

Cuisines in Maharashtra

Maharashtrians consider anna, or food equals to Brahma, the creator of the universe. Maharashtrians believe in offering their food first to the God as a thanksgiving. Especially on festive occasions, specific mithais (sweets) are offered such as ukadiche modak (Ganesh Chaturthi) and satyanarayan puja sheera.

The culture of Maharashtra equates Brahma, the Universe's creator to food, as a result of which Maharashtra has a culture of offering food first to god. On the occasions of festivals and fairs, Special sweets are offered to gods.

There are basically two different branches of Marathi cuisine - Varadi and Konkani. Maharashtra coastal areas are bordered by the Arabian Sea. This coastal front is known as the Konkani and has a unique cuisine which is a blend of Gaud, Malvani, Saraswat, Goan and Brahmin cuisines. The Non Coastal part of Maharashtra which is often termed as the Vidharba is the home to the Varadi cuisine.

In the traditional cuisine of Maharashtra, vegetables are blessed with a sedate and aromatic delight while the fishes and meats come steamy hot and spice. The Konkani cuisine relies heavily on the use of coconut and spices. Maharashtrian (or Marathi) cuisine encompasses the cooking styles, traditions and recipes associated with the cuisine of the Marathi people from the state of Maharashtra in India. It has distinctive attributes of its own, but also shares much with the wider Indian cuisine. Maharashtrian cuisine covers a range from having mild to very spicy dishes. Wheat, rice, jowar, bajri, vegetables, lentils and fruit form staples of the Maharashtrian diet. Peanuts and cashews are often served with vegetables. Traditionally, Maharashtrians have considered their food to be more austere than that of other regions in India. Meat has traditionally been used quite sparsely or only by the well off until recently because of economic conditions and culture. The urban population of Maharashtra in metropolitan cities such as Mumbai, Pune and others have been open to influence of recipes from other parts of India and abroad. For example, the Udupi dishes idli and dosa as well as Chinese and Western dishes are quite popular in home cooking and in restaurants.

Dances of Maharashtra

Gifted with its rich culture and traditions, Maharashtra has different types of dance forms. Povada is the dance form that showcases the lifetime achievements of the Maratha ruler Shivaji Maharaj.

The diversity and the richness of the Maharashtrian culture drips down to its traditional dance forms too. One very interesting dance form in the state is the Povada. Basically based around the life of Shivaji Rao, this dance form is mesmerizing to see.

Dhangari Gaja

The Marathi dance form referred to as Dhangari Gaja is famous and is performed by the shepherds or the Dhangars belonging to Sholapur district. The Dhangars win their bread by rearing goats and sheep. Their poetry is basically influenced by the trees in the surroundings. This type of poetry is known as 'Ovi' which is formed of couplets. These poems also exhibit tales of the birth of God 'Biruba' in a comprehensive and simple way. Dhangari Gaja is a dance form conducted for pleasing the God of Dhanjars and to gain His blessings in return. The traditional dresses of Maharashtra worn by Dhangar dancers are Dhoti, Pheta, Angarakha and bright-colored handkerchiefs. The dancers' group surrounds the drum players while moving at the rhythm.

Povadas

Povadas are ballads of Maharashtra which describe events of the life of great Marathi leader, Shri Chatrapati Shivaji Maharaj. He had a highly respected place in the hearts of people and is still alive in their thoughts. With the help of these ballads, Shivaji, a great hero of his time, is remembered.

Koli

Koli has been one of the most prominent dances of Maharashtra which got its name from the fisher folk of the state - Kolis. The fishermen are popular because of their unique identity as well as lively dances. Their dances have elements of their occupation, fishing. The Koli dance is conducted by both women and men but, divided in groups of two. The fishermen portray the boat movements in the Koli dance.



ROLE OF THE MAHARASHTRA STATE IN CULTURE

Tamasha

Tamasha is regarded as one of the most significant types of traditional folk dance of the state of Maharashtra. The word 'Tamasha' is Persian meaning entertainment or fun. This dance is a mix of various influences. Few scholars have a belief that this theater form got inspired by 2 types of Sanskrit drama - the 'Bhana' and 'Prahana'. It got developed in the 16th century. The romantic songs ('Lavanis') are the lifelines of Tamasha and are popularly known. The instruments being used are Dholki drum, Manjeera cymbals, Tuntuni, Daf, kade, Haigi along with Lejim, an instrument having a jangling sound, the ghungroos, and Harmonium. Tamasha is related to the 2 major communities of Maharashtra state, called as Mahar and Kolhati. Folk dances usually develop from the areas found in rural regions. In the Maharashtra state, folk dances are conducted during the festive occasions exhibiting the rich culture celebrated with enthusiasm.

Dindi

Dindi is a folk dance belonging to Maharashtra and is seen to be performed on Ekadashi day falling in the month of Kartik. The religious dance devoted to Gods exhibits the playful behavior of Lord Krishna. Dindi is actually a small drum similar to 'Tamate'. The dancers move to the rhythm having musicians in the surrounding with the required musical background.

Kala

Kala is yet another form of folk dance describing the playful behavior of Lord Krishna. This form of dance describes a pot as a symbol of fertility. The major attraction of the dance is beat along with its rhythm. Other than this, Lavani and Koli dances are also particularly famous for their rhythm and grammar. Dindi, Dhangri Gaja, Tamasha and Kala are all part of its folk dance repertoire.

Music of Maharashtra

Every festive occasion is accompanied by song, music and dance in Maharashtra. Talking about the music of Maharashtra won't complete without the mention of Natya Sangeet, numerous folk songs and its great saint poets. Maharashtra is famous for taking its festivals seriously. All of them are filled with colors, Dances and songs. The music in the state of Maharashtra revolves around the Natya Sangeet, abundant folk songs and the saints with their poetry.

The music of Bollywood is also deeply rooted in Maharashtra.

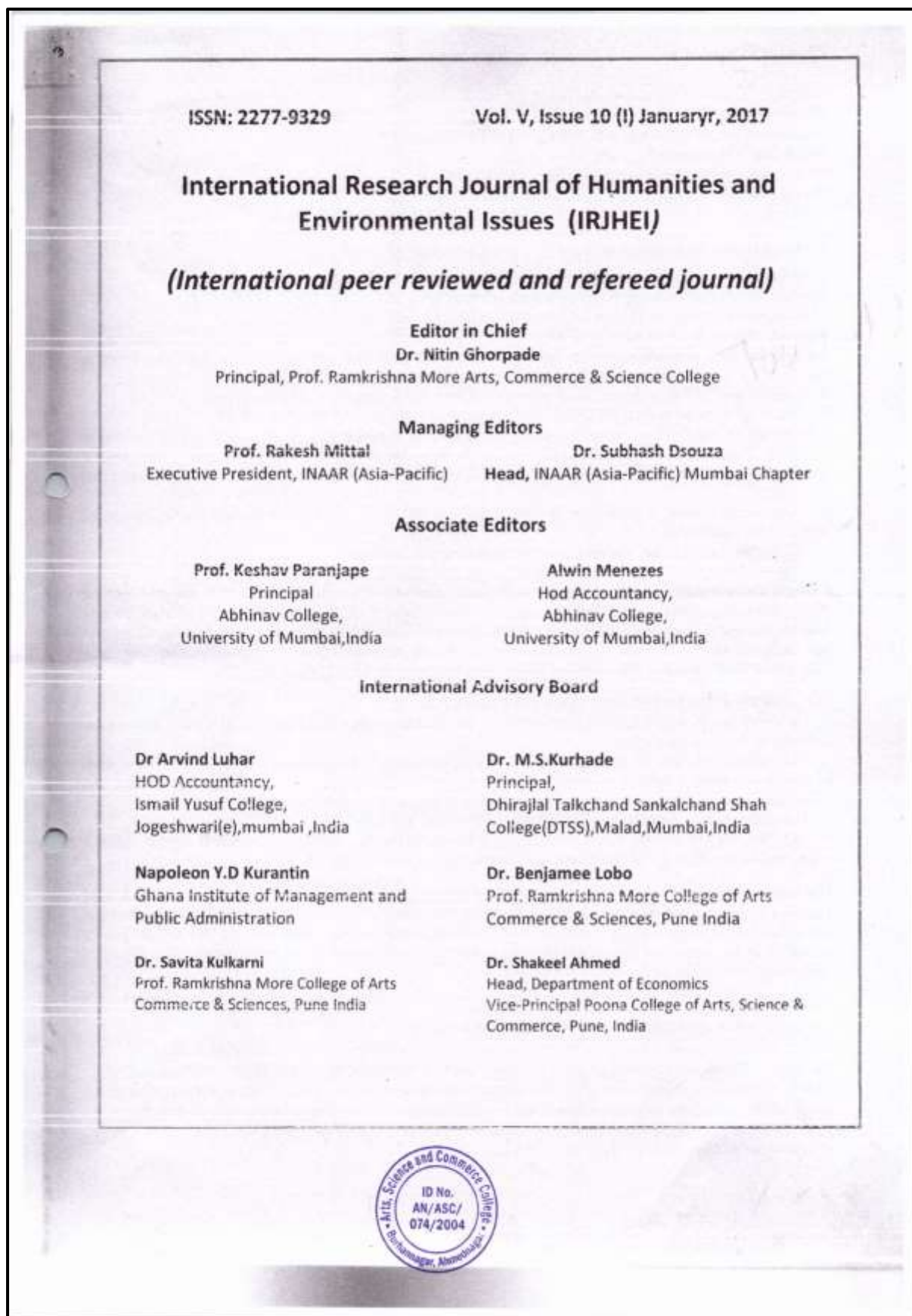
Festivals in Maharashtra

Due to the presence of every religion, all the festivals are observed in Maharashtra. The Ganesh Chaturthi takes festivities to another level and is famed across the country for the same. Diwali, like in the rest of the nation, is celebrated with much fervor and joy in Maharashtra too. All the other major festivals of the Hindus are duly observed. The Muslims in the state celebrate their Eids and Muharram with as much fervor joy and passion.

As Maharashtra is a big state, it is home to many religions. The state also nurtures different traditions with diverse communities. Maharashtrans are fun loving people, so that might be another reason why the state has lots of different festivals. Apart from the main festivals of Eid, Holi, Deewali and other festivals, which are celebrated, all over India, there are other festivals, which are celebrated locally and regionally in Maharashtra. Songs, dance and mouth watering cuisines accompany almost every festivals. Ganesh Chaturthi is the most important festival in Maharashtra. It is celebrated for ten days with huge fun fare. Banganga Festival, Kalidas Festival, Ellora Festival and Elephanta Festival are the festivals organized by the Maharashtra Tourism Development Corporation. Classical music and dance are the main attractions of these festivals. Kojagiri Poornima or Ashwin Poornima, Ganga Dashahara, Banganga Festival, Nag Panchami, Wat Pournima, Shivaji Maharaj Jayanti and Palkhi Festival are some of the important festivals of Maharashtra.



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GREEN COMPUTING

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Introduction:-

In day today life we used E_Products for our daily work. We all are become adict about E_products .It gives us adverse effects than benefits such as Global warming which has been the major disease since it came into light, poses threats for the future. We are in an era where needs and demands are growing by second of the clock.

Tons of Electronic Waste:

Majorly pronounced E-Waste, this is a major threat that has an impact on our environment since the machinery came in. Tons and millions of dump get collected daily around the globe in junkyards. Also, it produces some unbearable toxics that can lead to various unknown deadly diseases. In order to recycle e-waste, we should shift towards Green technology and make use of environment-friendly products.

Limited Resources:

There might be a headline in the future that says "NO MORE RESOURCES TO PRODUCE ELECTRONICS GOODS" until manufacturers around the globe start taking this issue seriously. Resources are limited and should be utilized efficiently in order to save environment. Green ideas that lead to minimize the usage of these scare resources should be used as much as possible. Cloud technology is one great example of that.

Energy Cost:

The thing that runs most of these technological processes all around the globe doesn't come at an easy cost. Producing electrical energy these days is getting costlier and limited. The usage and demand for energy consumption has led to crisis situation in many countries. The problem can only be solved by moving to other clean and green options. Solar energy, bio gas and wind energy are great motivators towards that. So " Green Computing" was probably coined shortly after the ' Energy Star' program began way back in 1992. One of the first results of green computing was the " Sleep mode" function of computer monitors. As the concept developed, green computing began to encompass thin client solutions, energy cost, accounting, virtualization practices, e-Waste, etc. Green computing seeks to minimize negative environmental impacts through the responsible use of electronics, through the creation of energy-efficient designs (such as with CPUs), through the implementation of recycling programs that can repurpose existing computers, and through the designing of manufacturing processes that minimize waste.

Core objectives of Green Computing Strategies:

- Minimizing energy consumption
- Purchasing green energy
- Reducing the paper and other consumables used
- Minimizing equipment disposal requirements
- Reducing travel requirements for employees/customers

Overview of Green Computing:

" Greening" your computing equipment is a low-risk way for your business to not only help the environment but also reduce costs. It's also one of the largest growing trends in business today. " Making a proper decision to go green in the workplace such as offices, not only improves the net profit of your business, but also reduces your carbon footprint. Reducing energy usage, which also reduces carbon dioxide emissions and your energy bill, is the most effective thing you can do.

Needs of green computing:-

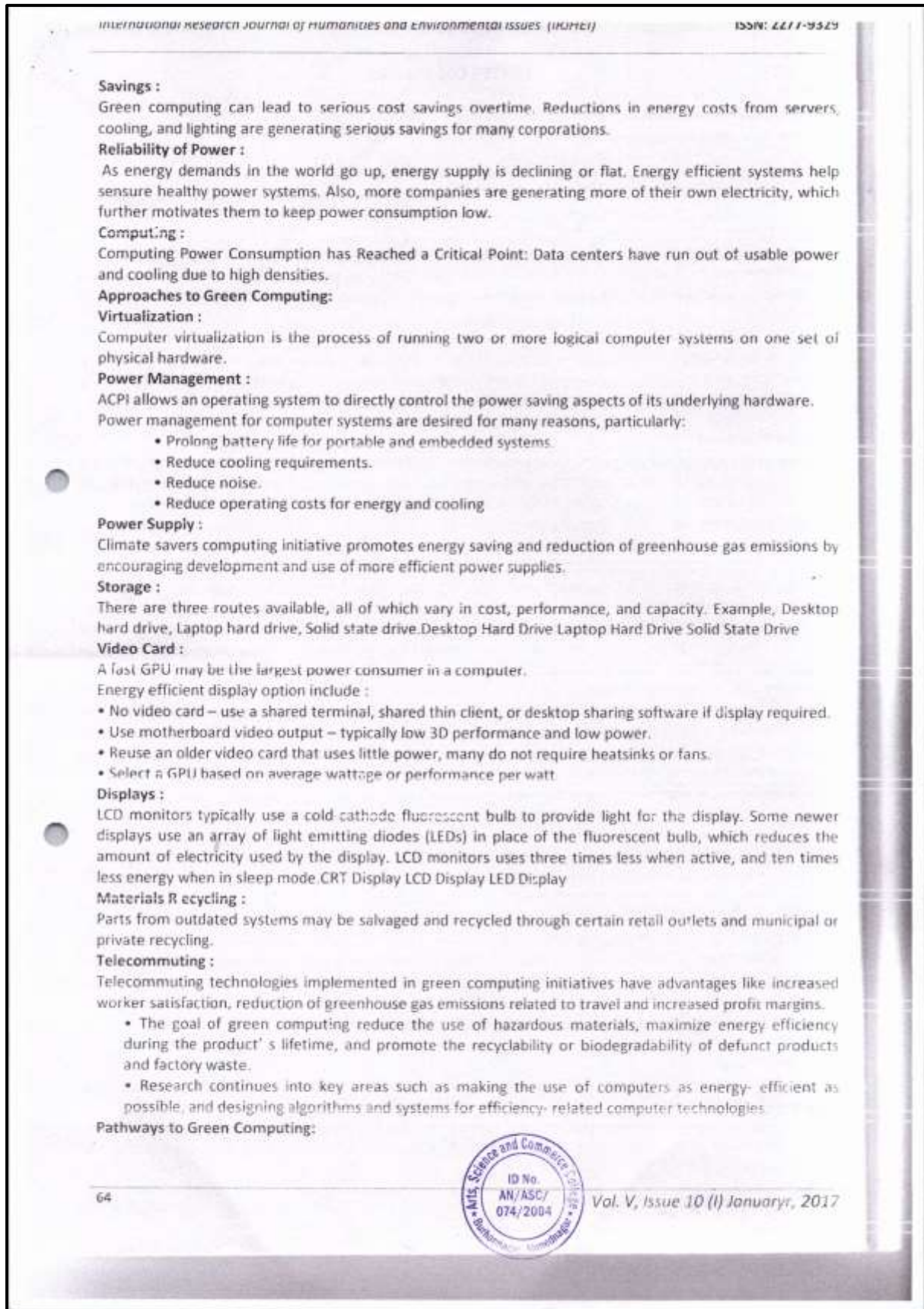
Climate Change :

First and foremost, conclusive research shows that CO2 and other emissions are causing global climate and environmental damage.

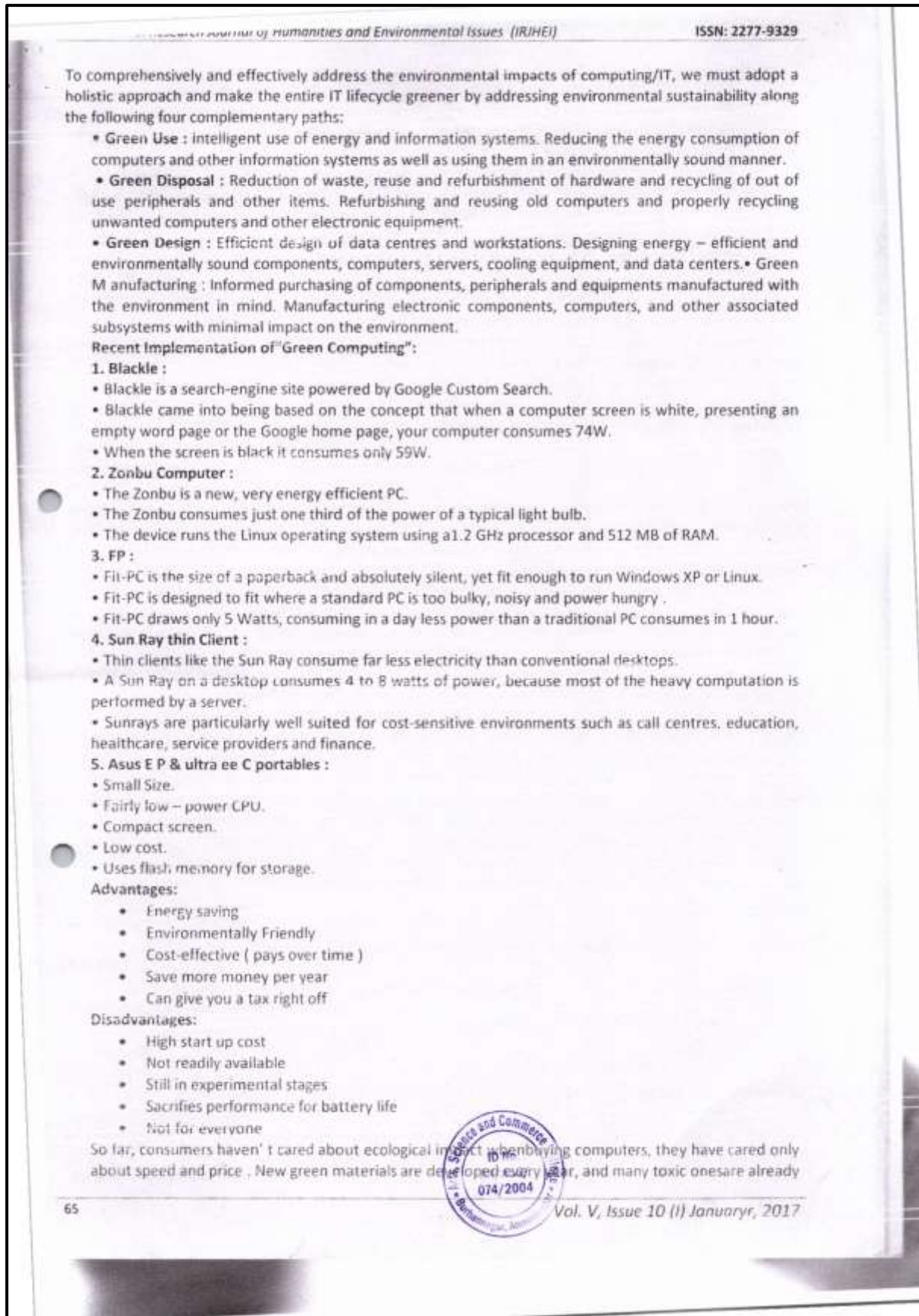
Preserving the planet is a valid goal because it aims to preserve the planets like ours, that supports life, are very rare. None of the planets in our solar system, or in other solar systems have m-class planets as we know them.



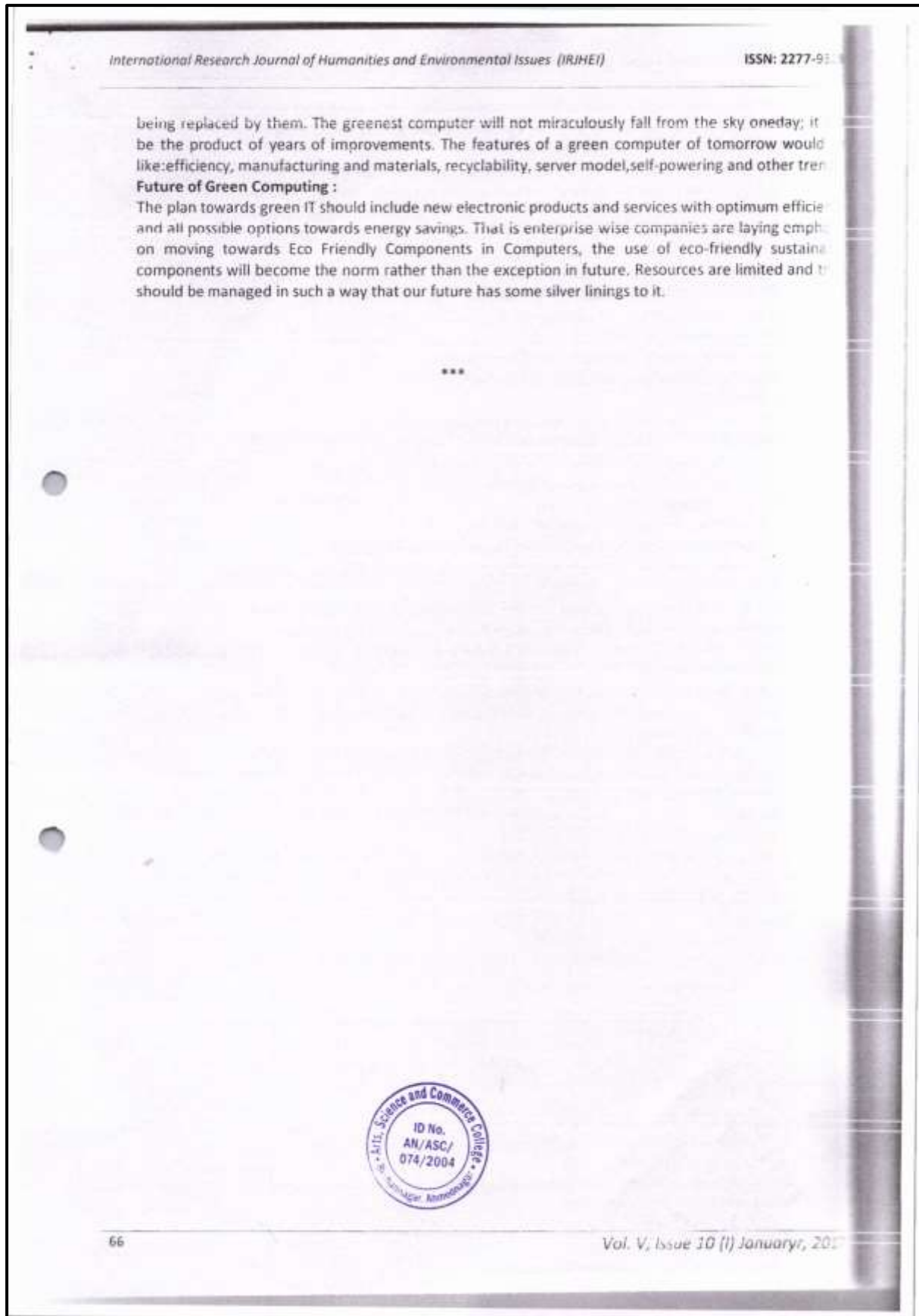
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SOIL ALGAE OF SUGARCANE FIELD IN AHMEDNAGAR DISTRICT OF MAHARASHTRA

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SOIL ALGAE OF SUGARCANE FIELD IN AHMEDNAGAR DISTRICT OF MAHARASHTRA.

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ABSTRACT

Present research work deals with the detailed and scientific study of diversity of soil algae of Sugarcane (*Saccharum officinarum* L.) field. Collected and cultured algal samples were observed thoroughly under research microscope and identified with the help of standard literature on algae. A total of 33 species under 19 genera belonged to Chlorophyceae, Bacillariophyceae and Cyanophyceae were identified and recorded. Cyanophyceae algae were found dominant followed by Bacillariophyceae and Chlorophyceae. Algal forms *Gloeocystis*, *Chlorococcum*, *Chlorella*, *Gomphonema*, *Nitzschia*, *Aphanothece*, *Spirulina*, *Oscillatoria*, *Phormidium*, *Lyngbya*, *Microcoleis*, *Nostoc* and *Plectonema* were found abundant. Physicochemical analysis of sugarcane field soil was carried out by selecting certain physicochemical parameters such as pH, electrical conductivity, organic carbon, available nitrogen and available phosphorus and available potassium to understand fertility status of soil. Sugarcane field soil supports growth and development of algae. Algal flora of sugarcane field is rich and it is found in diverse form.

Figure: 01

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KEY WORDS: Physicochemical analysis, Soil algae, Sugarcane field.

Introduction

Algae constitute an important group of soil microflora. They play a very important role in fertility of soil. It makes the composition of the soil ideal for better crop production, thus plays an important role in economy of soil. It is heterogeneous assemblage of autotrophs. A soil alga generally occurs on or in soil and grows in abundance and found in diverse form.

A Cyanophycean alga fixes atmospheric nitrogen and enhances fertility of soil. The ecological value of soil algae is very important as they contribute to soil formation, protect soil from wind erosion and also act as an absorptive organ for water. Almost soil algae helps in retention of soil moisture and provides germination ground for seeds of flowering plants. Soil algae have attracted the attention of phycologist since past few decades^{2,4,5,8,10,11}. Soil algal diversity studies of paddy, banana, wheat, sugarcane and brinjal fields have been documented^{1,3,6,7,9,10,12,13}.

Sugarcane (*Saccharum officinarum* L.) is widely grown crop in India. It provides employment to over a million people directly and indirectly besides contributing significantly to the national exchequer. Sugarcane growing countries of the world lay between the latitude 36.7° north and 31.0° south of the equator extending from tropical to sub-tropical zones. Sugarcane (*Saccharum officinarum* L.) is one of the main cash crops of India. Extensive review of literature reveals that very rare attention has been paid towards algal flora of sugarcane field therefore to fulfill these lacunas it has been decided to work on algal diversity of sugarcane field soil.

Materials and Methods

A sugarcane field which is located in Ahmednagar district area has been selected to study algal flora. Algal samples from moist surface of sugarcane field were collected at regular intervals from October 2015 to September 2016. Algal samples and



SOIL ALGAE OF SUGARCANE FIELD IN AHMEDNAGAR DISTRICT OF MAHARASHTRA

collected in sterilized collection bottles. Collected algal samples were brought to the laboratory for direct observation and identification with help of standard literature of algae.

The sun dried soil samples collected from same sugarcane field were examined for their algal components by petriplate culture method. 1g of pulverized soil poured and spread uniformly into the petriplates containing agarized Bold's basal medium (Bold 1942). Liquid nutrient medium was poured into the plates at the time of keeping those for incubation and frequently supplemented with the same. The petriplates were incubated under tubelights having 1000 to 1500 lux capacity in the algal culture chamber. Petriplates were checked for the growth of algal colonies. After sufficient growth, algal colonies were picked up for identification.

Algal samples were observed under research microscope and identified with the help of standard literature on algae. In order to know the fertility status of selected sugarcane field, analysis of soil was performed for certain selected physicochemical parameters such as pH, electrical conductivity, organic carbon, available nitrogen, available phosphorus and available potassium.

Results and Discussion

A total of 33 species under 19 genera belonged to Chlorophyceae, Bacillariophyceae and Cyanophyceae were identified and recorded from collected as well as cultured algal samples of Sugarcane field of Ahmednagar district area. Of these 7 species under 6 genera belonged to Chlorophyceae, 5 species under 4 genera belonged to Bacillariophyceae and 21 species under 9 genera belonged to Cyanophyceae (Table-1). Cyanophycean algae were found dominant. Early workers^{1,3,7,10} observed dominance of Cyanophycean algae from wheat field. During present investigation *Aphanothece*, *Oscillatoria*, *Phormidium*,

Lyngbya, *Microcoleus*, *Nostoc* and *Plectonema* were dominant. Similar kind of observations were made by others^{11,13}.

During present study Chlorophycean algae *Gloeocystis*, *Chlorococcum*, *Cosmarium*, *Spirogyra* and *Chlorella* was found abundant. Prasad (2005) also reported abundance of *Chlorococcum* and *Chlorella* from wheat field of Nepal. *Chlorella Vulgaris*, *Chlorococcum humicola* and *Stichococcus subtilis* are important constituent of soil algal flora of various parts of world.

Among Bacillariophyceae *Nitzschia* were found dominant. A workers^{1,11,12} recorded dominance of *Navicula* and *Nitzschia* in wheat field. Unicellular, colonial and filamentous algal forms were recorded during present research work. Filamentous algal forms were found in maximum number. Classwise percentage contribution study of algal flora of Sugarcane field reveals that, highest contribution was of Cyanophyceae (64.00%) followed by Chlorophyceae (21.00%) and Bacillariophyceae (15.00%) (Fig.1) Overall algal taxa which were found common in Sugarcane field during present research work were *Gloeocystis gigas*, *Gloeocystis major*, *Chlorococcum humicola*, *Chlorella vulgaris*, *Cosmarium subtumidum*, *Nitzschia obtusa*, *Nitzschia palea*, *Surirella ovata*, *Aphanothece nidulans*, *Spirulina major*, *Oscillatoria acuta*, *Oscillatoria Obscura*, *Oscillatoria Subbrevis*, *Oscillatoria acuminata*, *Oscillatoria animalis*, *Oscillatoria princeps*, *Phormidium abronema*, *Phormidium bohneri*, *Phormidium coriary*, *Phormidium jenkelianum*, *Phormidium molle*, *Lyngbya hieronymusii*, *Microcoleus acutissimis*, *Microcoleus subtorulosus*, and *Plectonema gracillimum*.

Analysis of Physicochemical parameters of soil revealed fertility status of soil. The overall fertility status of selected Sugarcane field soil was moderate alkaline (pH 7.98), moderate electrical conductivity (0.16 M mhos/cm), high



SOIL ALGAE OF SUGARCANE FIELD IN AHMEDNAGAR DISTRICT OF MAHARASHTRA

organic carbon content (1.51%), and low available nitrogen (125.00 kg/hectare), high available phosphorous (57.66 kg/hectare) and low available potassium (47.04 kg/hectare). Moderate alkaline soil favours growth of algae. Moderate electrical conductivity supports growth of algae. Soil rich in organic carbon and available phosphorous in algal flora. In Sugarcane field available Nitrogen was low and available potassium is low.

Conclusion

A total of 33 species under 19 genera of algae were recorded from soil of Sugarcane field. Cyanophyceae algae were found dominant than Bacillariophyceae

and Chlorophyceae. Unicellular, Colonial and filamentous algae were recorded. Filamentous algal forms were found abundant. Algal flora of Sugarcane field was rich and it was found in diverse form. Soil is moderate alkali with normal electrical conductivity. Organic carbon was high. Nitrogen was low whereas phosphorous is high and potassium was low. Moderate alkaline soil harbours growth of Cyanophyceae algae. Present research work will enrich the knowledge of soil algae of Ahmednagar district of Maharashtra.

TABLE-1: Diversity of soil algae from Sugarcane field.

| Chlorophyceae | | |
|--------------------------------|-------------------------------|--------------------------------------|
| <i>Gloeocystis gigas</i> | <i>Gloeocystis major</i> | <i>Chlorococcum humicola</i> |
| <i>Chlorella vulgaris</i> | <i>Cosmarium subtumidum</i> | <i>Spirogyra</i> |
| Bacillariophyceae | | |
| <i>Pinnularia sp.</i> | <i>Gomphonema spp</i> | <i>Nitzschia obtusa</i> |
| <i>Nitzschia palea</i> | <i>Surirella ovata</i> | |
| Cyanophyceae | | |
| <i>Gloeothece palea</i> | <i>Aphanothece nidulans</i> | <i>Spirulina major</i> |
| <i>Oscillatoria acuta</i> | <i>Oscillatoria acuminata</i> | <i>Oscillatoria animalis</i> |
| <i>Oscillatoria obscura</i> | <i>Oscillatoria princeps</i> | <i>Oscillatoria quadripunctulata</i> |
| <i>Phormidium corium</i> | <i>Phormidium jenkelianum</i> | <i>Phormidium molle</i> |
| <i>Phormidium usterii</i> | <i>Lyngbya hieronymusii</i> | <i>Lyngbya martensina</i> |
| <i>Microcoleus acutissimus</i> | <i>Microcoleus lacustris</i> | <i>Microcoleus subtorulosus</i> |
| <i>Nostoc linckia</i> | <i>Plectonema gracillimum</i> | <i>Plectonema nostocorum</i> |

TABLE- 2: Physicochemical analysis of Sugarcane field soil.

| Sr. No. | Parameters | Observation | Fertility Status |
|---------|--|-------------|------------------|
| 1 | Ph | 7.98 | Moderate alkali |
| 2 | Electrical Conductivity (Mili mohs / Centimeter) | 0.16 | Moderate |
| 3 | Organic Carbon (%) | 1.51 | High |
| 4 | Available Nitrogen (Kg / hectare) | 125.00 | Low |
| 5 | Available Phosphorous (Kg / hectare) | 57.66 | High |
| 6 | Available Potassium (Kg / hectare) | 47.04 | Low |



SOIL ALGAE OF SUGARCANE FIELD IN AHMEDNAGAR DISTRICT OF MAHARASHTRA

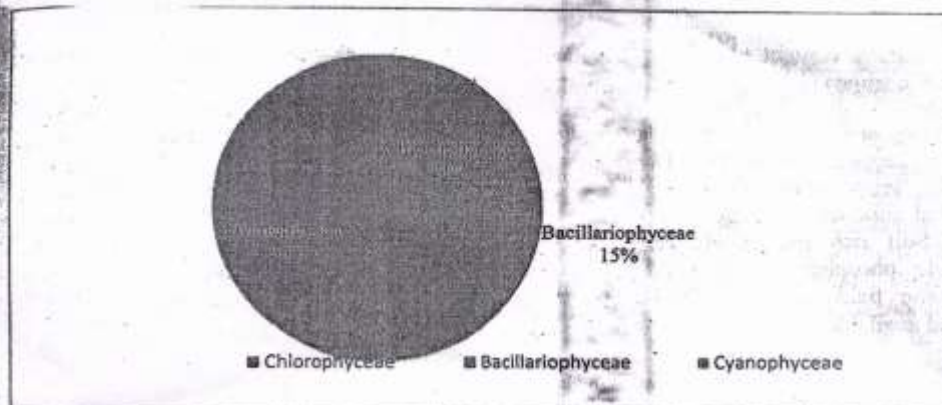


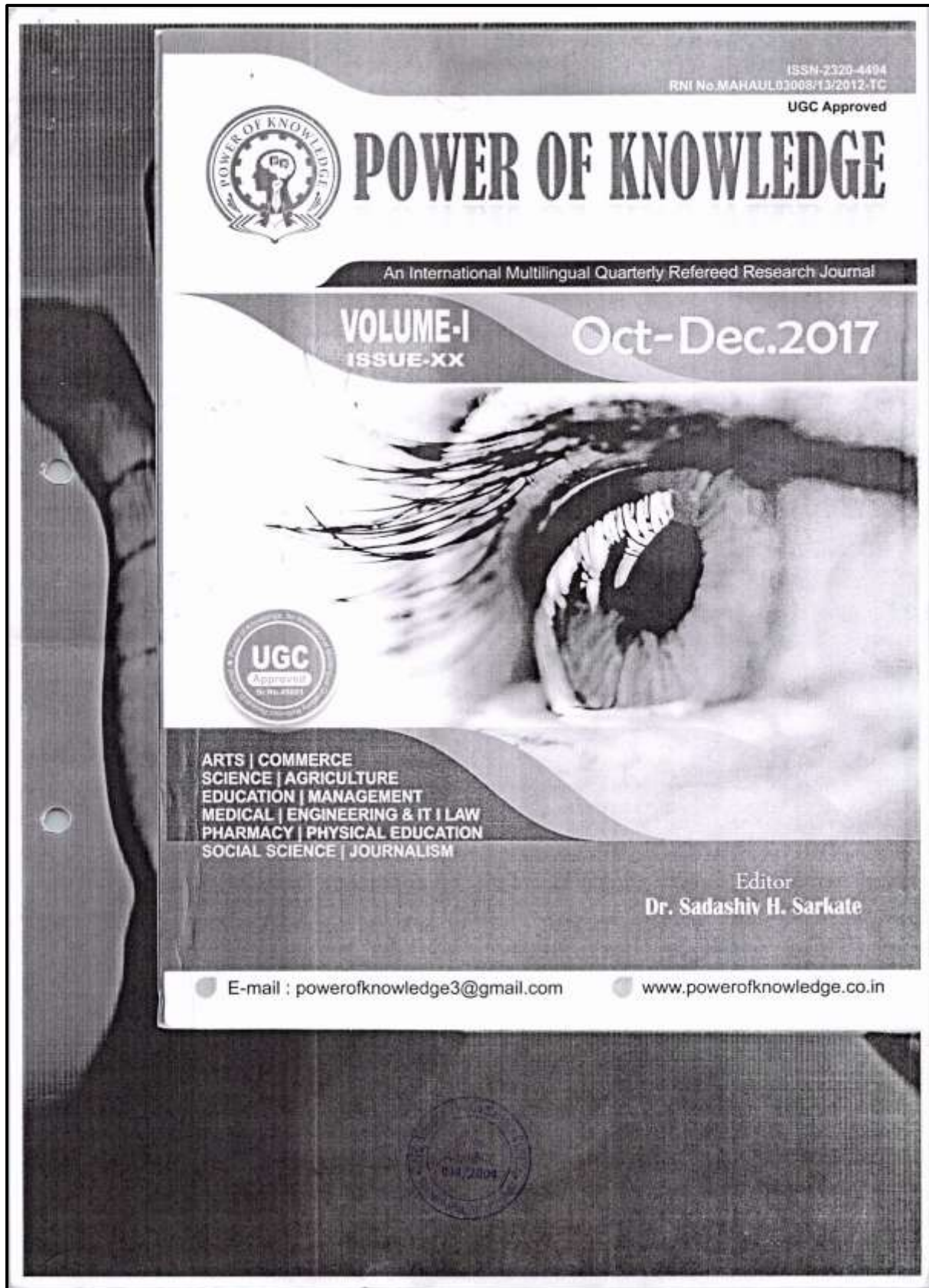
Fig. 1: Class wise Percentage contribution of Algal of Sugarcane field soil.

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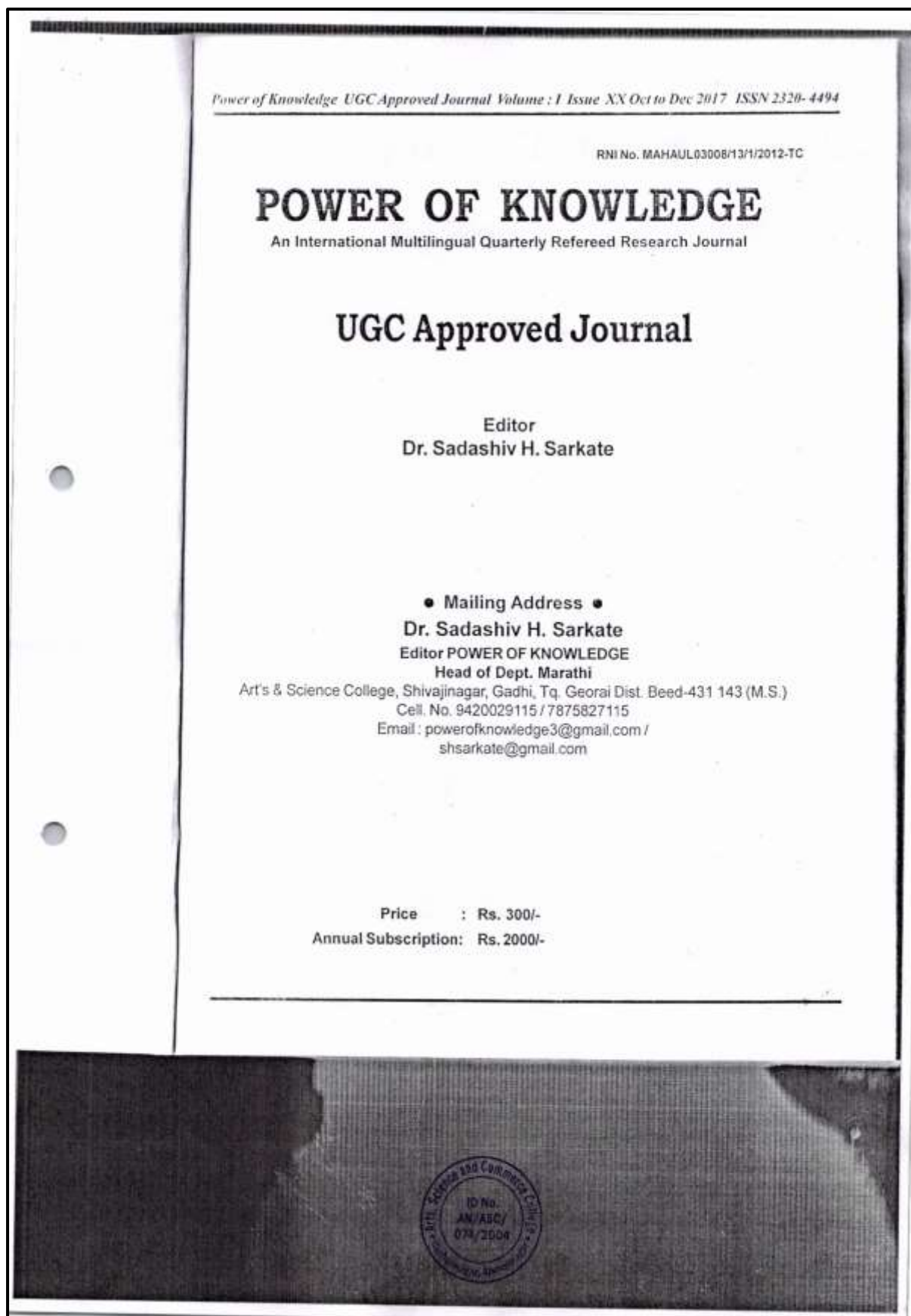
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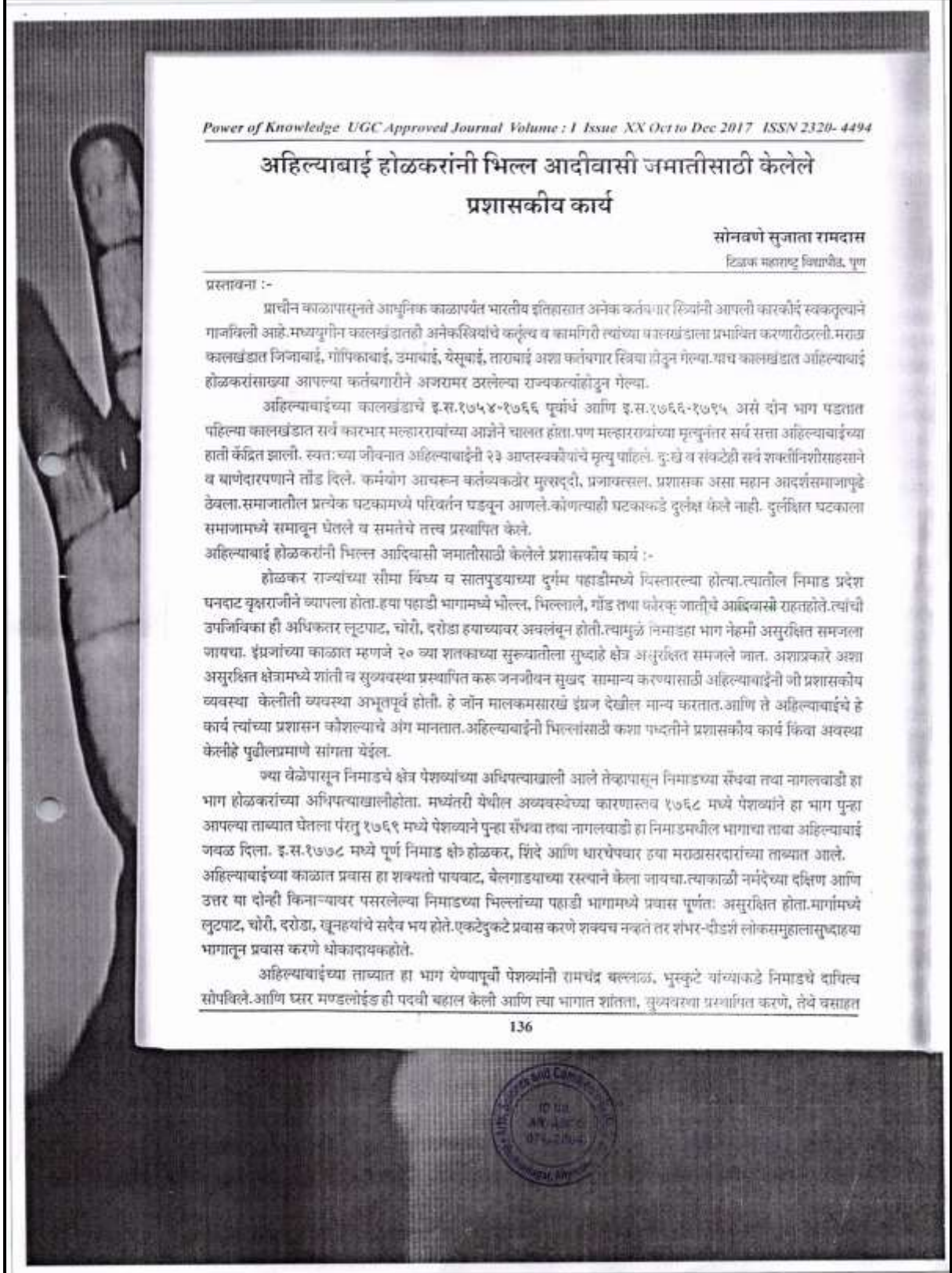
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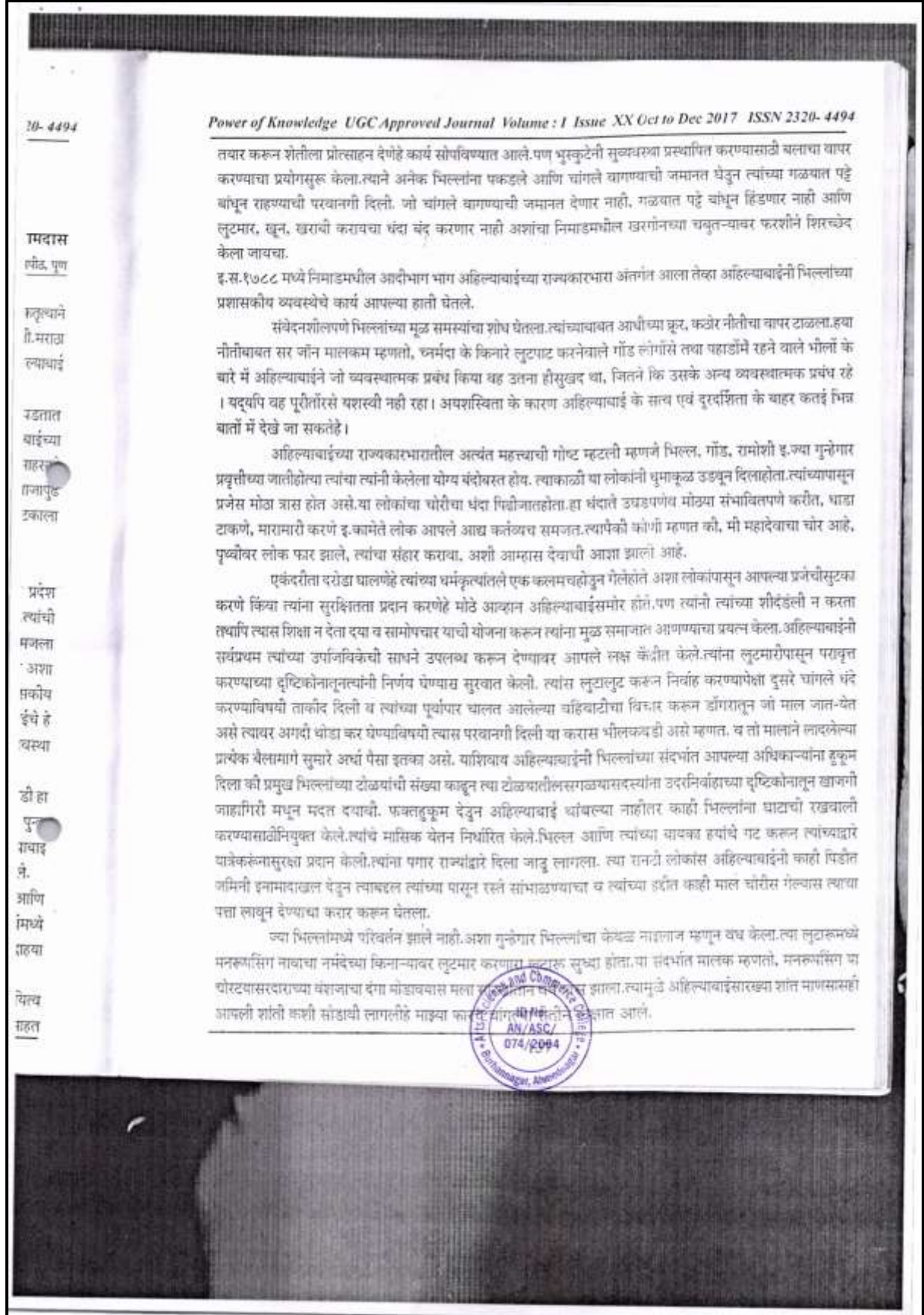
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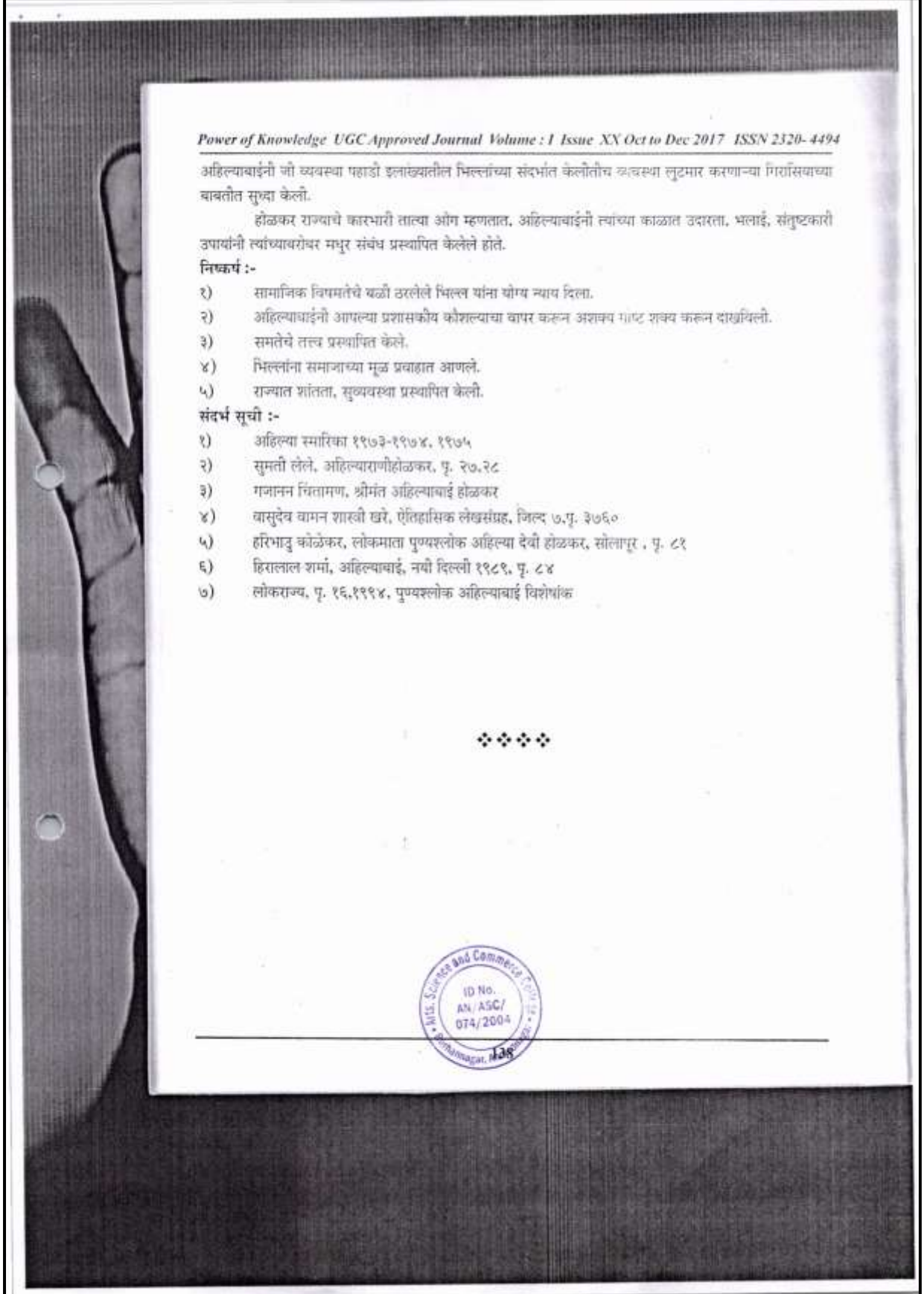
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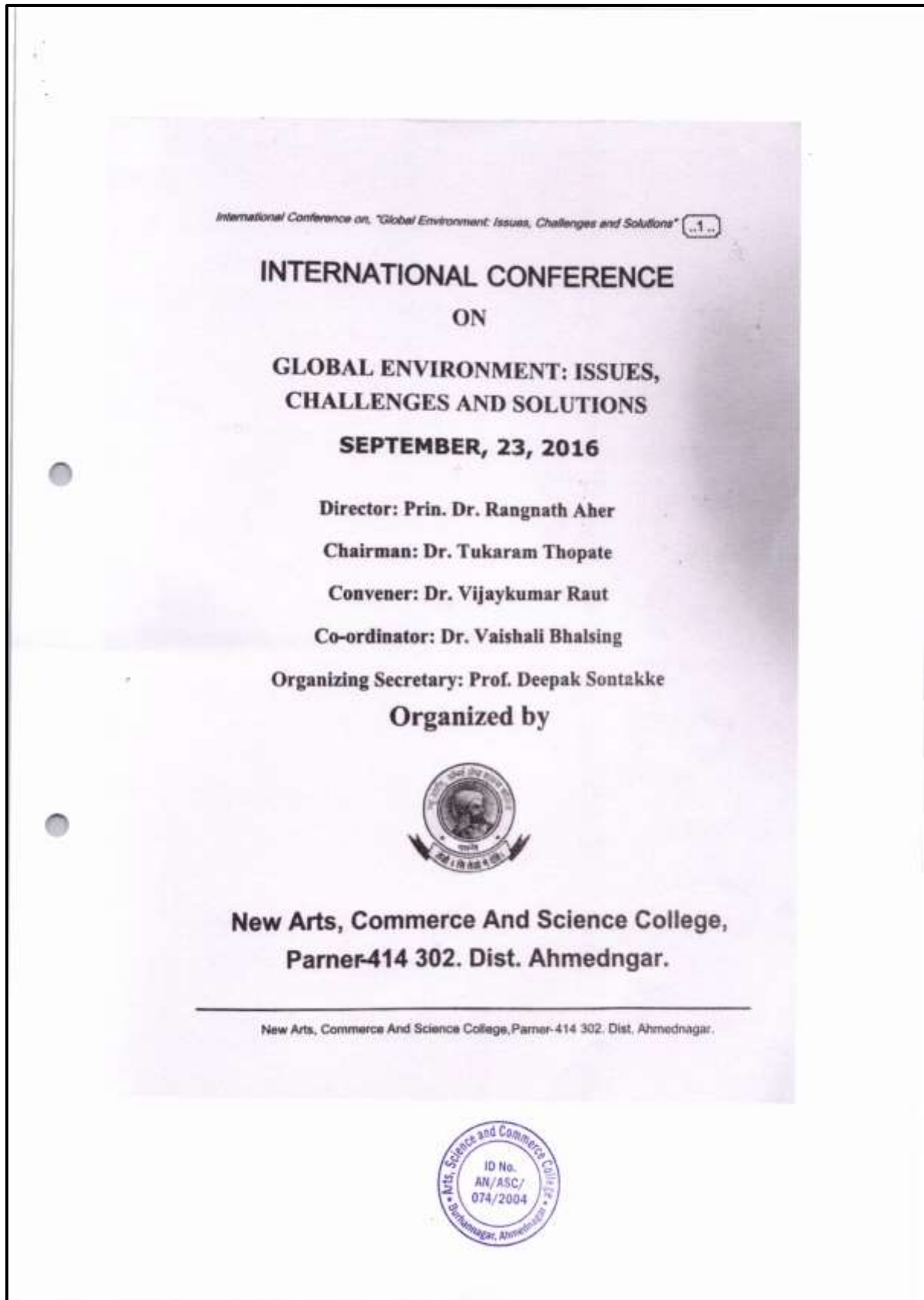
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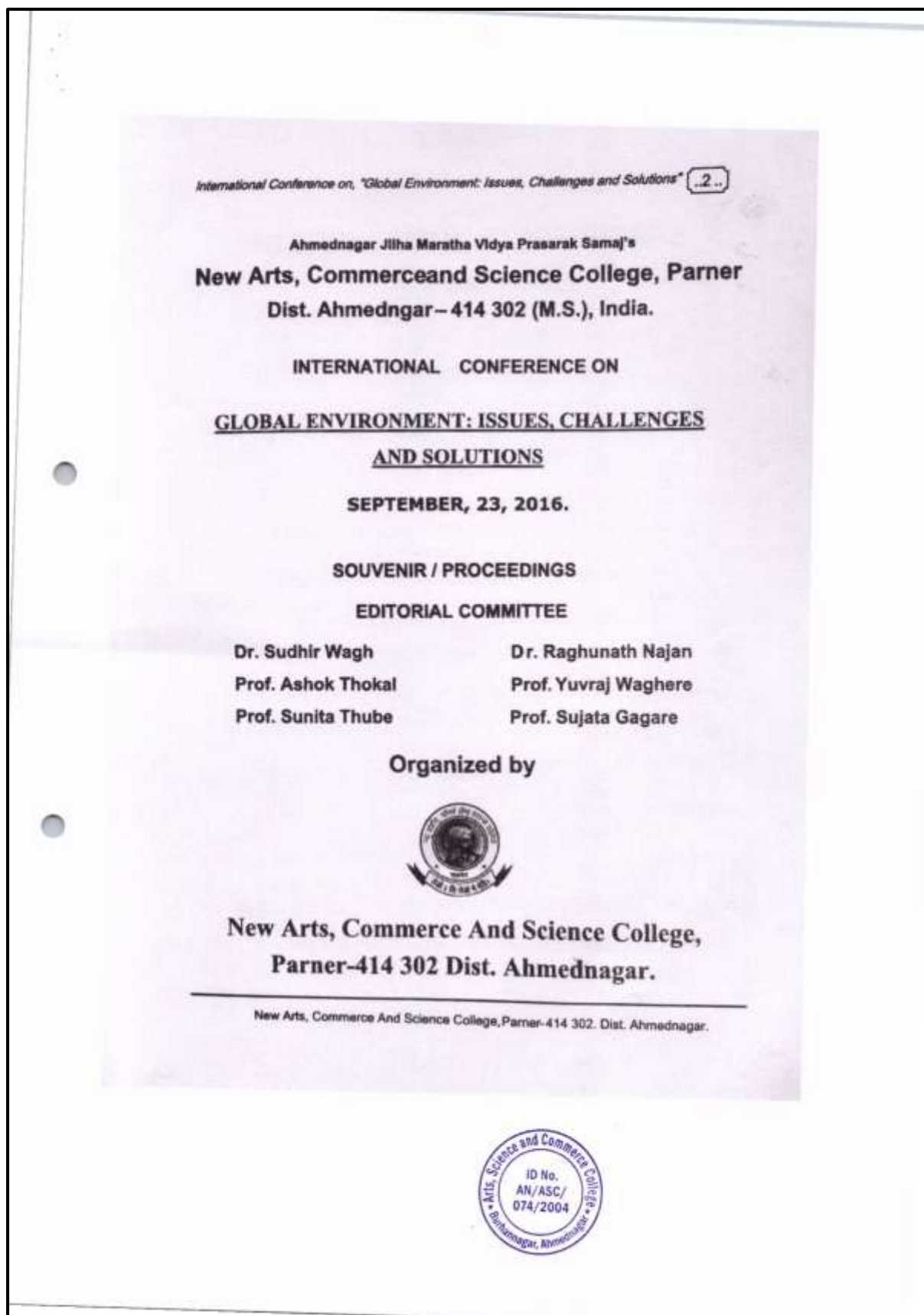
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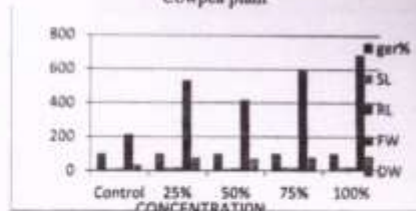
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Fig1. Cowpea var. Sweta seed germination and seedling growth
Table. 1 -Effect of *Jatropha curcas* L. root extract on the seed germination and Seedling growth of Cowpea plant

| SR.NO | Treatment | Germination% | Shoot length[cm] | Root length[cm] | Fresh weight[mg] | Dry weight[mg] |
|-------|-----------|--------------|------------------|-----------------|------------------|----------------|
| 1 | Control | 100 | 10 | 18.5 | 312 | 35 |
| 2 | 25% | 100 | 19.5 | 17 | 534 | 76 |
| 3 | 50% | 100 | 12.4 | 14 | 419 | 70 |
| 4 | 75% | 100 | 23 | 15.3 | 593 | 78 |
| 5 | 100% | 100 | 22 | 19 | 686 | 84 |
| 6 | Mean | 100 | 17.38 | 15.16 | 488.8 | 68.6 |
| 7 | SD | 0 | 5.84 | 3.2 | 182.5 | 19.4 |
| 8 | SE | 0 | 2.62 | 1.43 | 81.85 | 8.71 |

Significant at 5%

Figure. 1- Effect of *Jatropha curcas* L. root extract on the seed germination and Seedling growth of Cowpea plant



*Ger%-Germination Percentages, SL- shoot length, RL-Root Length, FW-Fresh weight, DW-Dry weight.

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PROBLEM OF WATER POLLUTION RELATED WITH ENVIRONMENT

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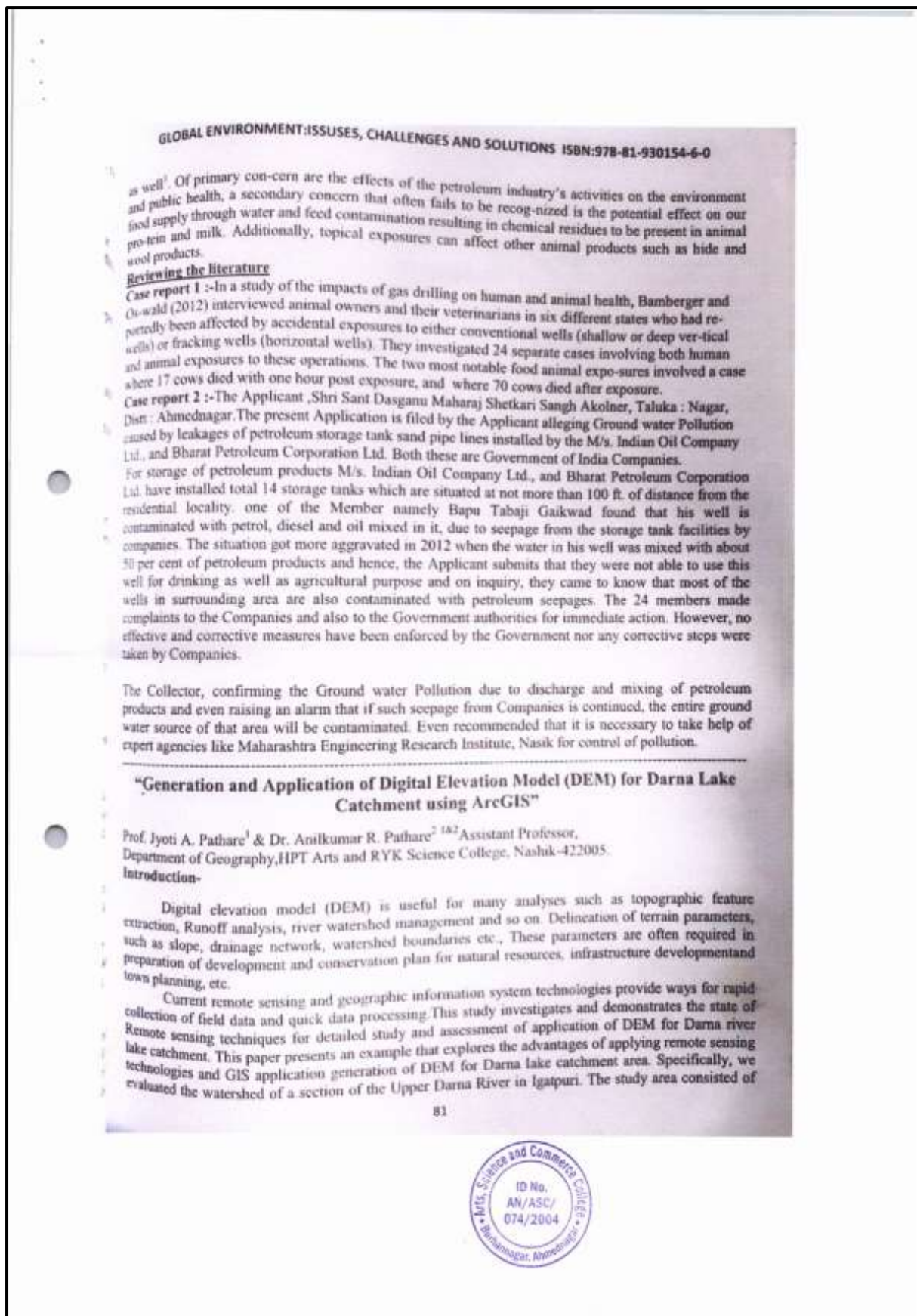
Introduction :-

What is environmental pollution?

Environmental pollution is the undesired spread of toxic chemicals into the aquatic and terrestrial habitats of the world. There are many different types of pollution, usually named for the location that has become polluted. For example, if oil is dumped into a local creek, it is said to be an example of water pollution. Water, air and land pollution are three of the most common types of pollution. However, pollution often affects multiple systems. For example, if chemicals are burned in a factory,



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