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Amravati University Chemistry Teachers' Association

A Textbook of
B.Sc. First year course in

Chemistry

Semester - II

As per Sant Gadge Baba Amravati University
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Empowering Women in India's Agrarian Economy

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FULL PAPER

Rural women play a significant role in agriculture and its allied fields, contributing to crop production, livestock production, and cottage industry. Despite their extensive involvement, their role and dignity have yet to be recognized. Women's status remains low in terms of social, economic, and political indicators. Women's wage work is often seen as a threat to the male ego, and their engagement in multiple home-based economic activities leads to under-remuneration for their work. Women also spend long hours performing physically demanding tasks such as fetching water, doing laundry, preparing food, and carrying out agricultural duties, robbing them of the opportunity to study.

In India, women's involvement in agricultural activities varies depending on the agro-production system and land ownership status of farm households. Their roles range from managers to landless labourers, and their average contribution to farm production is estimated to be between 55% to 66% of total labour. Women in agriculture play a vital role in a wide range of activities, contributing to sustainable agricultural development. Empowering women in agriculture requires a comprehensive understanding of work participation, gender issues, drudgery, health, and nutritional status. Gender-friendly technology assessment, refinement, and extension methodologies can address these issues. The Directorate of Research on Women in Agriculture is implementing research and capacity building programs to achieve this goal. The goal of doubling farmers' income in India can be achieved by a capable and skilled women workforce. Empowering women in agriculture, ensuring equal access and opportunity, will lead to a foundational transformation in India's rural economy and improve the lives of millions.

However, female farmers face several challenges, including limited access to services such as financial credit, loans, and insurance. Without land rights, female agricultural labourers, farm widows, and tenant farmers are left without recognition as farmers and the consequent entitlements. Lack of water for irrigation, modernization and mechanization, illiteracy, ignorance, lack of funds, poor infrastructure and lack of social

amenities, absence of modern storage and processing facilities, and loss of land to natural disasters are additional challenges.

Women are involved in all aspects of agriculture, possessing detailed knowledge of agriculture and the use of plants and plant products for food, medicine, and animal feed. Agriculture is the largest production endeavour in India, contributing 25% of GDP, and is increasingly becoming a female activity. More than simply supplying labour, women are critical to the success of India's agriculture sector.

In addition to the challenges faced by women in agriculture, there are also significant gender gaps in education and healthcare in rural areas. Girls are often expected to help with household chores and are therefore less likely to attend school, leading to lower literacy rates and limited opportunities for higher education. This lack of education and skills training also hinders women's ability to access better-paying jobs and entrepreneurial opportunities outside of agriculture.

Furthermore, women in rural areas often have limited access to healthcare, with few health facilities and medical professionals available. This leads to higher rates of maternal and infant mortality, as well as a range of other health issues that disproportionately affect women. Lack of access to family planning services and education also contributes to high fertility rates and maternal mortality. In truth, women are involved in all aspects of agriculture, from crop selection to land preparation, to seed selection, planting, weeding, pest control, harvesting, crop storage, handling, marketing, and processing. Whatever the reason for this neglect, the importance of developing farming technologies relevant to women has only recently been recognized. Rural Women form the most important productive work force in the economy of majority of the developing nations including India. Agriculture, the single largest production endeavor in India, contributing 25 percent of GDP, is increasingly becoming a female activity. Agriculture sector employs 4/5th of all economically active women in the country. 48 percent of India's self-employed grouped the considered states as per their identical behaviour of participation. Thus the entire work can be concluded with the facts that women participation in agriculture is increasing with time and women are now acknowledged with the status of "agricultural worker". Though discrimination of wages and in working status still prevails for women labour but due to implementation of various policies and initiatives taken by government the invisibility of women as an agricultural worker is plummeting and will further diminish in future.

Overall, addressing the gender gap in agriculture and rural development requires a comprehensive approach that tackles multiple factors, including access to education, healthcare, financial resources, and technology. It also requires challenging traditional gender roles and norms that limit women's agency and opportunities for economic and social mobility. Empowering women in agriculture is not only essential for achieving sustainable development and food security, but also for promoting gender equality and social justice.

Conclusion

In conclusion, women's development in agriculture is crucial for achieving sustainable and inclusive agricultural growth. Women play a significant role in agriculture, but they face numerous challenges such as limited access to productive resources, lack of education and training, and social and cultural constraints. Empowering women in agriculture can lead to increased food security, improved nutrition, and poverty reduction. Governments, non-governmental organizations, and other stakeholders must invest in policies and programs that promote women's participation in agriculture and address the gender-based constraints that limit their potential. By doing so, we can help to create a more equitable and sustainable food system that benefits everyone.

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THE IMPACT OF COVID-19 PANDEMIC ON STUDENT MENTAL HEALTH: A STUDY ON ANXIETY AND STRESS IN ONLINE LEARNING

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ABSTRACT:

The paper discusses the impact of the COVID-19 pandemic on the mental health of students and healthcare workers. The pandemic has not only posed physical challenges but also mental burdens such as anxiety, stress, and depression. In particular, students have been affected by the shift to online learning methods. A quantitative study was conducted to determine the level of student anxiety during the pandemic, revealing that the pandemic has caused stress and increased anxiety and depression levels among students. It is crucial to provide support and resources to address the mental health consequences of the pandemic. The COVID-19 pandemic has had a significant impact on education systems worldwide, and many students have been affected in different ways. The pandemic has caused disruptions to traditional learning methods, leading to school closures and the shift to online learning platforms. The sudden shift to remote learning has posed challenges to both students and teachers. Students are struggling to adapt to the new mode of learning, while teachers are grappling with the need to redesign their courses and deliver them in a virtual environment.

Keywords: COVID-19, Lockdown, Anxiety, Disorder, Stress, Pandemic.

In the wake of the sudden 2019 novel coronavirus disease (COVID-19) pandemic, students, people and healthcare workers are not only at risk for physical challenges but also mental burden, particularly psychological distress. Student anxiety, stress and depression are further enhanced by the existence of the Covid-19 pandemic with online learning methods. The study aims to determine the level of student anxiety in the learning process during the Covid-19 pandemic. This research is a quantitative research with a descriptive analytic approach. The present study estimated the mental health of school students during the COVID-19 pandemic. The findings revealed that the COVID-19 pandemic caused stress which increased the levels of anxiety and depression among the students. One of its kind the Novel Corona Virus or Covid-19 shut the entire world with only one hit and declared it a pandemic all over the globe. The impact of the COVID-19 pandemic on student life and mental health is concerning. It made no choices for people, society, and the government other than to stay at home, and schools, colleges, and educational institutions had to shut down since the outbreak of the pandemic in March 2020. A great number of people have reported psychological distress and symptoms of depression, anxiety or post-traumatic stress. And there have been worrying



signs of more widespread suicidal thoughts and behaviours, including among health care workers. Some groups of people have been affected much more than others.

Educational institutions worldwide promptly responded to the pandemic by going online. In record time, students moved from physical spaces that provided them with much-needed social interactions, to being seated behind a screen for hours on end. In Lebanon, the shift to online platforms happened at a slower pace, and was mainly driven by the academic institutions that already had digital learning platforms in place, and the means to operate them. Uncertainty arose by the unprecedented spread of COVID-19 throughout the world, imposing a great challenge on students' psychological resilience. The current study aimed to do a nationwide survey on college students to understand the level of mental impact, stress, and anxiety among them amidst the coronavirus outbreak. We prepared a questionnaire packet having three sections viz. demographic information, Generalized Anxiety Disorder-7 (GAD-7), and possible stressors to collect the responses of students. The circumstances of the COVID-19 pandemic, lockdown across the country and strict isolation and social distancing measures, delay in prevailing educational system viz. postponement of examinations, sudden closure of classes, etc., are expected to influence the mental health of the students of several schools, colleges and universities across the country. Several studies have reported on the psychological impact of the COVID-19 pandemic on the students mentality. Out of 414 responses, 32% of students unveiled mild anxiety symptoms, 16.7 % moderate level anxiety, and 12% reported severe level anxiety. Demographic factors like age, marital status, degree and year had no significant impact on the anxiety level, Whereas COVID-19 stressors such as the impact on academic activities worry about academic delays, and change in daily routine life had a remarkable positive impact on the anxiety level.

Many states have announced the cancellation of exams, even the boards or they have postponed the exam for a time unknown. We all know the pandemic affects, life as a student and increased also workload. The education sector has completely been affected due to the impact of COVID-19. Schools, colleges, and universities have been shut down, exams have been cancelled, and online classes have been running in this need of the hour and it harms the personal lives of students and their education life. Today, the environment of schools and colleges has transformed into such a scenario that we never thought of before. The biggest impact of COVID-19 on students' life.

The pandemic had also caused psychological stress among the students, making it difficult for them to focus on studying. They expressed feelings of anxiety, burnout, loneliness, homesickness, grief, and hopelessness. There were few opportunities to see friends in person or engage in extracurricular activities. At the same time, many students also were contending with the pandemic's frightening impacts on their family's health and welfare, such as illness, the death of a relative or neighbor, and economic hardship. The present study estimated the mental health of school students during the COVID-19 pandemic. The findings revealed that the COVID-19 pandemic caused stress which increased the levels of anxiety and depression among the students. Residing in an urban area and relative or acquaintance diagnosed with COVID-19 also noticeably triggered the mental sound health of the students. Our finding suggests that looking at the severity of the forthcoming situation, there is an urgent need to

develop psychological interventions as a coping mechanism against anxiety to nurture the mental health of these vulnerable college students. The uncertainty about the impact of the lockdown in wake of COVID-19 on their future academic and carrier prospects, besides other concerns; makes college students, particularly vulnerable to stress during the COVID-19 pandemic. Gaming has been recognized as a coping mechanism against stress in the previously published literature. Objectives: The current study aimed to assess the gaming behavior of college students during the lockdown following COVID-19. Methods: Data were collected from a cohort of students that constituted the sampling frame of an ongoing project. A total of 393 college students were enrolled. All the eligible students were subsequently contacted through E-mail and WhatsApp messenger and invited to share the details. Results: About half (50.8%) of the participants reported that their gaming behaviour had increased, whereas 14.6% reported a decrease in their gaming during the lockdown period. Students learn, retain and apply information most effectively when they have received personalized education paths and when sufficient resources are made available to them. In typical classrooms, students that require more attention or support are tended to – however, with the pandemic, this was no longer the case.

This challenge was responded to with the rise of online tutoring platforms and digital learning Apps, to complement the journey of learning. Despite heightened disengagement levels due to the loss of social interactions (especially amongst younger children), students did learn new skills, such as time management and responsibility. With reduced learning time, estimated at an approximate 2 to 5 hours of screen time, depending on the students' age, along with the loss of social connections, the development of the child, as a whole, has been impeded. We foresee numerous changes when life returns to 'normal' post-crisis, with an abundance of summer activities, self-development courses and more personalized learning modules to enrich all facets of the students' learning journey. The effectiveness of online learning is still the subject of debate. Experts have been studying the retention of information by students and how remote learning has impacted the development and social skills of children. They conclude that online learning's effectiveness is dependent on the following three conditions. Students having consistent access to the internet and computers. Teachers receiving the needed training to administer courses online Platforms that provide personalized learning, to match the journey of each individual student. These three conditions posed many challenges for Lebanese schools, their faculty and the students – the latter perhaps bearing the brunt of the shift to online methods. Given the state of infrastructure in Lebanon, internet connectivity was and still is choppy, and quite expensive for underprivileged students to gain access to. In addition, many children from less fortunate backgrounds do not have access to desktops or laptops allowing them to take part in courses. In addition, remote education has shown the need for much more support, and self-development courses, for children to grow academically. Teachers are failing to maintain the habit of discipline and decorum among students in online classes. Due to the COVID-19 lockdown, some social and cultural activities are being missed. The impact of Covid-19 on students' life is good and also bad. The good things are that students have time to spend with family and also save time. But the bad thing is online classes, where students have health issues. Also, these online classes are a matter of no concern for families who can afford a



gadget such as a laptop or a smartphone along with the internet to make their children attend online classes through various platforms.

However, it is a matter of concern for a large section of students who attend government schools and colleges. The parents of these children are not able to afford technology and hence the result is too bad for them. Their entire year has been wasted. The life and future of these weaker sections of students are not good and there are no indications even now as to when things will return to normal and the schools will continue running their normal classes. COVID-19 lockdown can lead to mental health problem, and the problem is heterogeneous across individuals. In this study, we aimed to explore the association between the self-reported health status, emotional coping style, emotional intelligence and positive psychological state of college students during the COVID-19 pandemic. They are overwhelmed and coping with anxiety. This can impact students' ability to learn; it makes it difficult for students to take in and process information as well as remember knowledge. It can actually obstruct learning. The outbreak of COVID-19 has been affecting the daily lives of almost everyone and puts huge psychological pressure on people worldwide, including Turkey. Anxiety and stress levels among university students were already a public health concern. As far as anxiety is concerned, students, researchers, and health professionals reported a moderate level of anxiety, whereas, teachers and corporate employees reported mild levels of stress. These findings could be because students and researchers (mostly Ph.D. scholars in social sciences faculty) engage and interact with each other frequently and physically in a social setting. During lockdown, with the closure of universities and colleges, such physical and social interaction has been restricted resulting in stress. For learning, students and researchers have to utilise online platforms that they may not be used to or competent with. In addition, online learning may be disruptive due to technological issues and thereby, jeopardizing their future careers. Conversely, for health care professionals, many are not working in the manner that they did earlier (because of lockdown and government restrictions on OPDs), and those who are working are fatigued and stressed since they have to work in extremely challenging situations and for long hours. Notably, many frontline doctors and health care professionals have been infected with COVID-19.

Humans have evolved and adapted as a social being and it has ensured the survival of all. The novel corona virus, COVID 19 has impacted the psychosocial functioning of billions of people around the world. The various impacts it might have on different categories of people over a period of time is one of the main concerns of the World Health Organisation. College students are vulnerable and are more prone to psychological problems due to the prolonged stress experienced by them during this period of uncertainty and social isolation. We wanted to analyse the level of perceived stress among college students in India and the impact of this sudden break in studies and social distancing has on them. We also wanted to study the number of mental setbacks the college students experience because of their financial situation and their future job prospects during this lockdown. METHODS An online survey was conducted among the college students in India. A total of 775 responses were analysed for the level of perceived stress using the perceived stress scale. The psychological impact caused by the lockdown was analysed through statements regarding the amount of worry they felt across various aspects of their life such as economic stability, missing friends during

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lockdown, use of mobile phone for connecting with people, continuation of education and impact of Covid 19 on future job prospects.

RESULTS College students were experiencing significant amount of stress as measured by the perceived stress (PS) scale with 11.5% experiencing high stress and 81.2% students experiencing moderate amount of stress. The perceived stress was found to be significantly associated with worry regarding education, job prospects being affected by the Covid 19 situation and the reduction of time spent with their peers. The COVID-19 pandemic disrupted the world in ways unimaginable. As we look back on the past two years and the harsh repercussions of the pandemic that continue until today, it is apparent that one of the most impacted sectors was education. Neither the world nor educational institutions were prepared to embrace the shift to online platforms brought on at lightning speed.

CONCLUSIONS College students are experiencing moderate to high level of stress in the context of the pandemic situation and preventive and protective measures have to be taken by the college administration to address these issues. More targeted assessments needs to be done in colleges to assess the mental health of its student population and protective measures like counselling services should be made to vulnerable students as they try to handle the stress associated with the current pandemic situation. **KEY WORDS** COVID 19, Perceived Stress, College Students, Social Isolation, Worry Regarding job Prospects, Break in Education.

Conclusion

In the lockdown period following COVID-19 pandemic, the increase in gaming behavior was associated with examination-related stress and the belief that gaming helps combat stress. These observations highlight the need to focus on the coping style of the students to ascertain the likelihood of them engaging in gaming behavior as a coping mechanism against stress. Anxiety, depression, irritability, boredom, inattention and fear of COVID-19 are predominant new-onset psychological problems in children during the COVID-19 pandemic. Children with pre-existing behavioral problems like autism and attention deficit hyperactivity.

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**DIVERSITY OF MOTHS (LEPIDOPTERA: HETEROCERA) AND THEIR
POTENTIAL ROLE AS A CONSERVATION TOOL IN PROTECTED AREAS OF
KATEPURNA WILDLIFE SANCTUARY OF AKOLA (M.S.)**

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Abstract:

Moths are diverse group of insects belonging to the order Lepidoptera and regarded as one of the indicators of a healthy environment. Despite a large number of studies been taken up on the documentation of various wildlife taxa found in and around Katepurna wildlife Sanctuary of Akola by the biologists, information on Moths of this region remains unknown. The present study is the first documentation on the moth species of Katepurna wildlife Sanctuary of Akola. The study will be carried out throughout the year surveying areas mostly in the protected areas of Katepurna wildlife Sanctuary of Akola (M.S.) and agricultural lands. Light trapping equipped with a 18w UV-Actinic tube attached to a white sheet 6 x 4 feet joined to two poles and then the tube powered by 6v Battery, which will be used to record moths from playgrounds of college, human settlements and agricultural lands. In total, 12 moth individuals were recorded belonging to 12 species Within 12 genera falling under 8 families.. The family Crambidae -3 represented the highest number of species, followed by *Geometridae* -2 , Saturniidae -2. . The less commonly observed species belonging to families are Pyralidae-1, Uraniidae-1, Noctuidae-1, Erebidae -1 and Sphingidae-1 individuals respectively.

Keywords: Moths, Lepidoptera, Katepurna Wildlife Sanctuary

Intoduction:

Akola town of the Vidharbha State of Maharashtra situated at latitude 20.70 North and longitudinal 77.07 0 East.It is an altitude of 925ft (287m) to 1036.745ft (316m) above sea level. Akola has tropical savanna climate Annual temperature range from a high of 47.60c to a low 2.20c. Annual rain fall averages 800mm. Katepurna Sanctuary is situated in the district of Akola, which comes under the Vidarbha region. The sanctuary occupies a large part of catchment area

of the Katepurna reservoir. Due to the presence of large amount of water, birds get attracted towards the place. The period between October to June is the ideal time for visiting the place. Flora- The place is very rich in vegetation cover and mainly comprises of southern tropical deciduous forests. There are more than 115 species of plants & trees like Bahada, Aola, Tendu, Dhawada, Salai, Moha, Teude and many more. Fauna- The sanctuary is a home to a wide array of animals like Black buck, Hyena, Wolf, Nilgai, Leopard, Jungle cat, Hare, Wild boar, Monkey etc. The chief attraction of the sanctuary is the Barking deer and the Four-horned Antelope.

One can also see various species of birds like Peafowl, eagles, woodpecker etc. Katepurna Wildlife Sanctuary is spread over 73.69 sq. km. It covers a great part of the catchment area of 12 the Katepurna reservoir. It is well known for for-horned antelope and barking deer. Among the winged insects, the moths belong to the scientific order Lepidoptera including the butterflies. They can be distinguished from all other insects by the two pair of wings and the body that is scale covered. Regarded as indicators of healthy environment, inventory of Lepidoptera specially the overlooked group is the first step to know what are the species present in an area and it is essential to ensure future taxonomical and ecological studies of these taxa and implement conservation perspectives for moth individuals as well as their associated habitats.

Global estimates show that there are 1, 27,000 species of moths distributed over the world and of which, 12,000 species are reported from India. Moths are in general are least studied taxa across the globe and in India.

Despite a large number of studies been taken up on the documentation of various wildlife taxa found in and around Katepurna wildlife Sanctuary of Akola by the biologists, information on Moths of this region remains unknown. The present study is the first documentation on the moth species of Katepurna wildlife Sanctuary of Akola.

Materials and Method:

The study will be carried out throughout the year surveying areas mostly in the protected areas of Katepurna wildlife Sanctuary of Akola (M.S.) and agricultural lands. Light trapping equipped with a 18w UV-Actinic tube attached to a white sheet 6 x 4 feet joined to two poles and then the tube powered by 6v Battery, which will be used to record moths from playgrounds of college, human settlements and agricultural lands.

The moths will be photographed and identified and those that will be difficult to identify will be kept for proper identification. Among the literatures, Fauna of British India: Moths Volume I-V by G.F Hampson will be referred for identification along with other journals.

Results and Discussion:

A total of 12 moth individuals were recorded belonging to 12 species Within 12 genera falling under 8 families. A checklist of the moth Species is tabulated in Table 1.

Table 1: List of moth species of protected areas of Katepurna wildlife Sanctuary, Akola

Sr. No.	Name of the species	Family	Genus
1.	<i>Automeris bilinea</i>	Saturniidae	<i>Antheraea</i>
2.	<i>Plodia interpunctella</i>	Pyralidae	<i>Plodia</i>
3.	<i>Hymenia recurvalis</i>	Crambidae	<i>Hymenia</i>
4.	<i>Pseudopanthera macularia</i>	<i>Geometridae</i>	<i>Pseudopanthera</i>
5.	<i>Micronia aculeata</i>	Uraniidae	<i>Micronia</i>
6.	<i>Spirama retorta</i>	Noctuidae	<i>Spirama</i>
7.	<i>Diaphania indica</i>	Crambidae	<i>Diaphania</i>
8.	<i>Thalassodes immasaria</i>	<i>Geometridae</i>	<i>Thalassodes</i>
9.	<i>Antheraea mylitta</i>	Saturniidae	<i>Antheraea</i>
10.	<i>Pygospila tyres</i>	Crambidae	<i>Pygospila</i>
11.	<i>Asota planaria</i>	Erebidae	<i>Asota</i>
12.	<i>Agrius convolvuli</i>	Sphingidae	<i>Agrius</i>

The accumulation of moths in a light source depends on the type of light source, plant communities occurring around the study site, temperature, weather conditions, altitudinal gradient, and the type of methods implemented. The moths recorded by visiting the mentioned

Localities and sheet light trap method was a valuable source for developing a preliminary data record for moths occurring in this region. The notable species accumulated in the Katepurna wildlife habitats were *Automeris bilinea* and *Antheraea mylitta* belongs to Saturniidae family on their host plants namely *Syzygium cumini* (jambul), *Hardwickia binata* (anjan).

Plodia interpunctella belong to family Pyralidae. It feeds on a wide variety of dry vegetable matter, including grains, nuts, dry beans, dried fruits, dried flowers, bird seed, dry pet foods, processed foods such as cereals and crackers, and confections.

Hymenia recurvalis, *Diaphania indica* and *Pygospila tyres* belong to family Crambidae species of observed as a minor pest of potato and cucumber near the crop land area of Katepurna.

Geometridae family represents two species of moth *Pseudopanthera macularia* and *Thalassodes immasaria* on their host plant namely, *Ricinus communis*, *Mangifera indica* (mango).

Images of some moths of protected areas of Katepurna wildlife Sanctuary of Akola



Automeris bilinea



Plodia interpunctella Indian meal moth



Beet webworm moth
Hymenia recurvalis



Pseudopanthera macularia



Micronia aculeate



Spirama retorta



Daphnia indica



Thalassodes immisaria



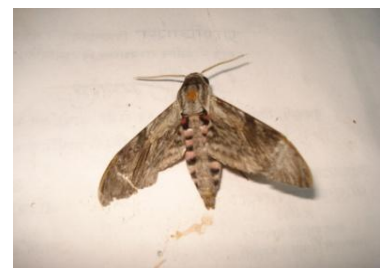
Antheraea mylitta



Pygospila tyres



Asota planaria



Agrius convolvuli

Micronia aculeata belongs to family Uraniidae observed near their host plant namely syzygium jambo.

The species *Spirama retorta* , *Asota planaria* and *Agrius convolvuli* represented the family Noctuidae, Erebidae and Sphingidae respectively These three families appeared to be scarce representing single species. Near the host plant namely *Solanum lycopersicum* (Tomatoes), Ficus plant and on hibiscus flower respectively.

Conclusion:

Moths also play a vital role in telling us about the health of our environment, like the canary in the coalmine .since they are so widespread and found in so many different habitats, and are so sensitive to changes; moths are particularly useful as indicator species. Monitoring their number and ranges can give us vital clues to changes in our own environment, such as the effect of new farming practices, pesticides, air pollution and climate change.

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Butterfly Species Diversity in the Vicinity of Sonala Dam, Sonala, Dist. Washim, (M.S.)

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Abstract:- Butterflies are important bioindicators which should be protected to conserve the biodiversity and environment. The survey was conducted to prepare a preliminary checklist of butterflies in the vicinity of Sonala dam, Sonala, Dist. Washim, Maharashtra state. Climate of this region is tropically wet and dry. Majority of the rainfall occurs between June and early October. Regular survey were conducted by visual observation. This short term study record

Key words: Butterflies, Nymphalidae, Sonala

Introduction:

Arthropods are exact signs of habitats biodiversity due to the fact they reply quick to environmental changes, and are extraordinarily various taxon. Lepidoptera (Butterflies and moths) are the second one biggest order of arthropods and are maximum effortlessly identified, making them specifically beneficial for biodiversity survey (Erhardt, 1985; Kremen, 1994; Inouye, 2001; Tiple and Arun, 2009). Butterflies are the maximum scary and placing creatures, a number of the insect group, they're an regularly regarded as flagship species. The butterfly range is excessive withinside the tropics as compared to temperate areas of the world. Their habitat stages from Arctic to the super deserts of the world. The butterflies are divided into super families' viz., Papilionoidea constitutes 11, a hundred species and Hesperioidea constitutes 3,650 species withinside the world (Scott, 2001). Other than their aesthetic value, butterflies have critical roles withinside the functioning of wooded area ecosystems. Because in their range, extensive distribution, specificity to plants type, fast reaction to perturbation,

taxonomic tractability, statistically sizable abundance and simplicity of sampling, they had been considered beneficial organisms to reveal environmental changes. There are 16,823 species recorded from everywhere in the international amongst them 1501 species of butterflies are recorded in from India (Gaonkar, 1996). Of the diverse butterfly habitats located in India, the Western Ghats is one of the maximum diverse regions containing a extensive type of species because of the everyday eco-climatic and geographic features. Butterflies are seasonal of their incidence. They are not unusual place for only some months and uncommon or absent in others. The seasons whilst they're uncommon or now no longer lively as adults are commonly spent both as caterpillars or as pupae. The months whilst the adults are lively are referred to as the "flight period". Distinct flight intervals naturally mean seasonality of the early degrees of butterflies as well. Thus arise in exclusive seasons (Kunte, 2000). The overview of literature to be had at the Indian butterfly species of Western Ghats is reviewed (Raja Shakar, 1995). In this paper an attempt was made to observe variety of popularity and incidence of butterflies in the vicinity of Sonala dam, Sonala, Dist. Washim , Maharashtra state.

MATERIALS AND METHODS:

Study area:

Sonala Dam reservoir was constructed in the year 1981. Agricultural fields surround the reservoir. The reservoir is mainly used for drinking water supply to nearby villages and for irrigation. The nearby villages also use the water for bathing and washing purposes. This is an earthen dam. The dam is constructed by irrigation department of Maharashtra Govt. The Sonala dam is located at 77° 12', 30" Longitude and latitude of 20° 19', 00" in Sonala village of Washim district in Maharashtra (India). It is an earthen dam with 19.20 meter maximum height and 446.90 hector submergence with 132.50 square Km. of catchment area. The dam is presently used for irrigation and drinking for regional rural areas. The reservoir is

constructed on the River Aran also known as River Adan a tributary of River Godavari. Adan River in its way runs through the Maraldoh village, before draining in the dam.

The present study was carried out in the vicinity of Sonala dam, Sonala, Washim district of Maharashtra. Four sampling sites were selected for the present study. The tree plantation, ornamental plants, flowering plants around fields, grasses and wild plant varieties spread all over area. It has created a very good habitat and source of attraction for many butterflies. Various host plants of caterpillars of butterflies as well as flowering plants which are used for the nectar by butterflies are present in the selected four sampling sites.

Butterfly collection:

Butterflies were sampled by making field observations once in a week. The survey was done every Sunday between 10.00 to 16.00 hours. Butterflies were listed by various methods. i.e. by actual observations, collection and photographic methods.

The observations were done at a distance of 1 to 3 meter and identified by using physical features. In collection method, if needed the butterflies were collected with specimen net. The collected specimens were narcotized adding menthol crystals in the bottle and then air dried for identification. For maximum butterflies, photographic method was used. Four sampling sites were selected for the present study. Butterflies were collected and transferred to killing jar.

Determination of Abundance:

The species were further divided in to 4 categories: Very Common (VC), Common(C), Not Rare (NR) and Rare (R) on the basis of their count from the study area. Any species with count less than 10 times were placed in rare category, count between 10 and 15 were placed in not rare category, count between 15 and 20 were categorized as common while species with count more than 20 times were placed in very common category.

Identifications of butterflies:

The key characters used for identification were color pattern, wing span and mode of flight. Photographic images and collected specimens were examined carefully and identified using various references, Gey et al. (1992), Haribal (1992) ;Gunanthilagaraj et al. (1998) ;) Kunte (2000) and internet references (<http://www.butterfliesandmoths.org/>) All scientific names follow Varshney (1979, 1985 and 1990) and classifications with common English names are after Wynter-Blyth (1957).

Result and Discussion:

The diversity is niche time stability dependent meaning if a large number of niches are available higher diversity is found in General homogenous conditions yield lower diversity while heterogeneous Condition yield higher diversity. (Sanders, 1968; Gray, 1980). The present study is undoubtedly the first comprehensive effort to investigate the butterfly diversity in the vicinity of Sonala dam, Washim district of Maharashtra In the present investigation, a total no. of 15 species of butterfly belonging to 4 families and 5 subfamilies were recorded during the study period. The total butterfly species observed is tabulated in table 1. Of the total butterfly species listed four belong to the family Papilionidae, six to Pieridae, one to Lycaenidae, four to Nymphalidae . As the work was restricted to a very short period and the occurrence of the butterfly shows seasonal prevalence . It is not possible to study the vast aspect like butterfly diversity. Out of 15 species of butterfly 4 species were very common i.e. their existence was recorded in all the sampling station and their occurrence was also not restricted to a particular season and these species are lemon emigrant, common grass yellow, pea blue and danaid egg fly. Five species recorded were common to all the samplings station and these are lime butterfly, pioneer, common gull, common Castor and joker. Three species were abundant i.e. a large number of population of the species was frequently noticed in study, these are common Marmon, lemon pansy, common Indian crow, the species of tailed Joy, crimson rose, common jezebel, painted lady,

grate fly, blue Tiger and crimson tip were rare throughout the period of investigation and it observed only once at all the sites. Grass yellow, eureka italic have had high population throughout the research period, depending on the site. They also showed some differentiation in dry and wet season wing patterns. Their occurrence all round the investigation period would perhaps be attributable to their polyphagous nature. Same observation was carried out by kunte (1997). However, the fact that their dry season forms were almost as numerous as the wet season forms, is unique. This may be one of their evolutionary advantages which make them among the commonest butterflies in the world (Larsen, 1987). The present study showed a low butterfly diversity as compared to the other regional ecosystems in India This might be due to diversified habitats and vast investigative area.

SUMMARY AND CONCLUSION:

Butterfly diversity in the vicinity of Sonala dam in particular was investigated. The specimens were collected by sweep net from four sampling sites. A total of 15 species of 4 families and 5 sub families were identified. The occurrence of butterfly species shows variation in relation to season and habitat. Relatively low butterfly diversity in the region does not mean that the habitat studied is of noconservation importance. The presence of all these species suggest that the study area might be a stepping stone for these species. However it is suggested that diversity of butterflies in the area should be studied exclusively. Longer term study is needed to identify significant changes in butterfly diversity, permitting the timely adjustment of scientific management activities to prevent undesired trends.

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सारांश

कला की मन-मोहक दुनिया में संगीत अपनी और सृजन की अपार सम्भावनाओं के चलते लोकरंजनात्मक भूमिका में जनसमाज का प्रिय और सुखद माध्यम रहा है। जीवन के आदि स्पंदन से लेकर राग-विराग के अनन्त खास-उश्वासों के साथ संगीत का लयात्मक क्रम अटूट और स्थायी है। यह अविरल प्रवाह यदि मनोरंजन के मार्ग से जन-जन को मोह रहा है तो यह उसके कारणों में मुख्य रूप से उसकी चिरनवीनता का तत्व सम्मिलित होना है। लोकरंजनात्मक संगीत का लक्ष्य लय स्वर तथा काव्य के समन्वय से जनमनोरंजन करना होता है तभी जन-साधारण ने इस संगीत को अपनाया अपने जीवन में रंजकता लाने हेतु जनसाधारण ने समारोहों अत्सवो तथा गोठियों आदि का आयोजन करना आरम्भ किया जिसके माध्यम से उसने अपनी कलात्मक अभिव्यक्तियों को व्यक्त किया।

प्रस्तावना

कला का लोकपक्ष संतुलित जीवन की एक मार्मिक वस्तु-स्थिति सामाजिक रूढ़ि विश्वास तथा कलात्मक रंजन की ओर प्रेरित करता है। कला के लोकपक्ष के प्रेरणात्मक आधार सामाजिक विश्वास, रीती-रिवाज, उत्सव, त्योहार एवं अन्य विशिष्ट मूल्य हैं, जो सामूहिक रूप से सामाजिकता से युक्त होते हैं। कला का लोकपक्ष शास्त्र विहीन है। उसमें सामाजिक परम्पराओं के विशिष्ट दर्शन होते हैं। लोकगीत का जन्म व्यक्ति के नैतिक मूल्यों, सामाजिक उत्सवों रीती-रिवाजों तथा सामूहिक कार्यों द्वारा ही हुआ है। सभी की नैतिक विचारधारा सर्जक की अपनी स्वर कल्पना से सर्जित गीत समाज में प्रचलित धुनों में अविच्छिन्न रूप में घुल मिल जाता है।



लोकसंगीत की उद्भावना में व्यक्ति-निष्ठता प्रधान न होकर समाज के नैतिक मूल्य, सामाजिक विश्वास, रीती-रिवाज, विभिन्न उत्सव त्योहार ही प्रधान होते हैं। व उन्हीं के द्वारा विभिन्न उत्सव त्योहार ही प्रधान होते हैं व उन्हीं के द्वारा विभिन्न प्रकार के लोकगीत, धुनें प्रस्फुटित होकर समाज में अपनी विशेष परम्परा स्थापित करती हैं जो मानव जीवन को एक सूत्र में पिरोने में सहायक होती है।

हमारा देश जहाँ खेतों का खलिहानों का, धर्मों का, आदर्शों का और ऋतुओं का देश है, वहाँ इसे लोक-गीतों का देश भी कहा जा सकता है। जन-जीवन का तो जन्म से लेकर मरण तक कोई भी क्षेत्र ऐसा नहीं, जो गीतों से दूर हो। धरती पर निरंतर लोकगीत झूमते रहते हैं। फिर भी कुछ महीने तो ऐसे हैं, जिनमें रात-दिन कजलियाँ गई जाती हैं, उसी तरह फागुनभर फाग राग की धूम रहती है। गाने के लिए तो पुरुष भी कजली गाया करते हैं, किंतु सच बात यह है कि गीतों के बँटवारे में 'कजली' नारियों के हिस्से पड़ी है और 'फाग' पुरुषों के। फाग राग का शुभारंभ वसंत-पंचमी के दिन से होता है।

लोकसंगीत वह सार्वभौम संगीत है, जो प्रादेशिक एवं राष्ट्रीय संकीर्णताओं से परे अपने मौलिक सिद्धांतों के कारण आंतराष्ट्रिय स्तर पर भी विवेच्य हो सकता है। संगीत की भित्ति 'ध्वनी' होने के कारण, उसकी व्यापकता अन्य ललित कलाओं से अधिक है। स्वरों एवं लयों की सूक्ष्मता का ज्ञान न होते हुए भी एक साधारण रसिक मानव नद की सम्मोदिनी शक्ति आकृष्ट हो, उसका रसास्वादन कर सकता है। अंतराष्ट्रिय स्तर पर कवि-सम्मेलन या साहित्य-सम्मेलन नहीं होते, किंतु संगीत सम्मेलन अवश्य होते हैं।

भारतीय लोकसंगीत में लयात्मकता का महत्व किसी अन्य-देशी से लोकसंगीत से अधिक रहा है। अकननद वाद्यों का विभिन्न लयों में कल्पना शक्ति से प्रस्तार भारत में ही संभव हुआ है। हमारे लोकसंगीत में निश्चित कालमाप का निर्वाह करते हुए असंख्य किलष्ट लय-स्वरूपों का सर्जन चर्म-वाद्यो पर होता है। लयवाद्य वादकों बाल्यावस्था से ही इन गति-स्वरूपों का इतना अभ्यास रहता है कि सहस्रों बोलों की रचना करते भी झुरबे लाय-भ्रष्ट नहीं होते। अन्य देशीय संगीतशास्त्री इस लयात्मकता से मंत्र-मुग्ध होते रहे हैं।

सारांश

भारत के प्रत्येक प्रान्त में अपनी लोककलाओं के माध्यम से गायन वादन तथा सामूहिक नृत्यों की परम्परा को पीढ़ी-दर-पीढ़ी हस्तांतरित किया गया है। इस