
Impact of climate change on Phyto diversity in region of Aligarh Area

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Abstract

Diversity in biotic community is highly essential for the maintenance of balance in the environment. Plants take up carbon di oxide and that leads to the photosynthetic activity which is responsible for the sustenance of the plants. On the other hand, the living organisms depend on plants for their daily needs. Therefore, maintaining a proper balanced biodiversity is highly essential for nourishment of every living organism. In the process of finding out the floral diversity of area, a comprehensive study of the plants growing in that area should be gathered. One of the major concerns of the environment today is the loss of biodiversity that includes varieties of plants, animals and microorganisms that exist on the surface of planet Earth. This rich biodiversity of life has ever been instrumental in providing humanity with food security, shelter, healthcare and to certain extent, industrial goods and livelihood leading to improvement in people's standard of living in the modern world. Further, biodiversity plays a unique role in the evolution and differentiation of various species. It sustains the system we live in and forms a part of our daily lives. Biodiversity is defined as the variation of biotic organisms present in terrestrial, aquatic and other ecosystems, and when we studying about plants only then this diversity is called phyto diversity. Plant species present in one habitat differ from one another in having different genetic makeup. So, we have different diversity in different region. Aligarh region also is full of diversity of plants, so we make a try to study phyto diversity of this area and the work is in front of you.

Keywords:- Phyto diversity, climate change, ecosystem, environment.

Introduction

The environment is the sum of total of all components and factors that influence the life of an organism including human being from birth to death. One of the major concerns of environment today is the loss of biodiversity that includes varieties of plants, animals and micro-organisms that exist on this Earth. In investigations of many plant species, I found that the forest area leads to the discovery of plants with high medicinal, economical and nutritional values. In order to do this, a questionnaire survey and interaction with local people was the main step, it helps me in to know the values of many medicinal and economical plants.

Kingdom Plantae emerged about 410 million years ago as green algae transitioned from water to land. This land had rich resources base and was comparatively uncolonized. Additionally, terrestrial habitats provide lighter and carbon di oxide essential for plant growth and survival. Being multicellular and mostly photosynthetic organisms living both in water and on land, plant can be found almost everywhere on Earth. Red, brown and green algae are among the aquatic plant bryophytes, pteridophytes, gymnosperms and angiosperms are among the terrestrial plants. Over the past 70 million years, flowering plants dominated the Earth.

Plant diversity increases with the strength of negative density dependence at the global scale. Loss of phyto diversity has harmful knock- out effects for bees, birds and all wildlife. Temperature influences plant diversity in many ways. In humid and warm environment more diversity is found, for example the Amazon forests etc.

so forests have high plant diversity. They are well documented for their high levels of plant diversity, in group including sedges, grasses, carnivorous plants and orchids.

Many workers have been done a lot of work on impact of climate change on plant diversity, such as, Talukdar (2012), studied on an assessment of plant diversity was carried out through 20 km long stretch of old basin of river Atreyee at Balurghat block of Dakshin Dinajpur district, West Bengal, India. Uniyal and Singh (2013) observed that 18% geographical area of world heritage is under forest of which, the maximum is occupied by Himalayan moist temperate forests followed by Chir Pine forest. These forests harbour about 6000 plant species with maximum being in Uttarakhand. Debabrata et al (2014) studied 94 sacred plants distributed in 63 genera belonging to 43 families from 6 different sacred groves in a systematic manner. Wang et al (2015) observed 35112 native species of higher plants belonging to 3818 genera and 454 families in China. Jain and Sharma in 2016 worked on some locations of Rajasthan for plant diversity and concluded that eastern Rajasthan has rich alluvial soil that supports good forests and agricultural crops. Siti (2018) studied 93 species of trees, 112 species of saplings and 48 species of understory. Radha (2020) survey on the floral diversity is an important activity to assess the existing flora. Abhishek Raj and friends (2021) recorded 90 families comprised 267 plants. The recorded plants are also checked by Red Data Book to know the status of plants and their conservation status. Ahmad et al (2022) recorded total 771 alien plant species in the IHR belonging to 459 genera in 112 families.

Material and Methods:

A field work carried out in between October to March, for completing this work. I had gone at different places of Aligarh at regular time intervals during these six months. I have taken help of local peoples to know the local name of many plant species. I used Google lens, PlantNet, LeafSnap and Plantifier like apps for identification of plants. I used Flora also for identification of many plant species.

Observations:

This work observes about 50 plus plant species. On the basis of my observations following table is prepared in alphabetically arranged manner:

Table: Plants with their Botanical and Local names and Family:

S. No.	Botanical Names	Local Names	Family	Habit
1.	<i>Amaranthus viridis</i>	Chaulai	Amaranthaceae	Herb
2.	<i>Aegel marmelose</i>	Bel	Rutaceae	Tree
3.	<i>Acacia nilotica</i>	Babool	Fabaceae	Tree
4.	<i>Achyranthus aspera</i>	Chirchita	Amaranthaceae	Herb
5.	<i>Azadirachta indica</i>	Neem	Meliaceae	Tree
6.	<i>Alstonia scholaris</i>	Devil's Tree	Apocyanaceae	Tree
7.	<i>Bauhinia variegata</i>	Kachnar	Fabaceae	Tree
8.	<i>Bombax ceiba</i>	Cotton tree	Malvaceae	Tree
9.	<i>Brassica oleracea</i>	Jangli gobhi	Brassicaceae	Herb
10.	<i>Brassica Campestris</i>	Mustard, Sarson	Brassicaceae	Herb
11.	<i>Butea monosperma</i>	Dhak	Fabaceae	Tree
12.	<i>Calotropis procera</i>	Aak, Madar	Asclepidiaceae	Shrub

13.	<i>Cynodon dactylon</i>	Doob grass	Poaceae	Herb
14.	<i>Callistemon</i>	Bottle Brush	Myrtaceae	Tree
15.	<i>Cannabis sativa</i>	Bhaang	Cannabaceae	Herb
16.	<i>Cassia fistula</i>	Amaltas	Fabaceae	Tree
17.	<i>Dactyloctenium aegyptium</i>	Crowfoot Grass	Poaceae	Herb
18.	<i>Datura sromonium</i>	Jimson's weed	Solanaceae	Shrub
19.	<i>Dalbergia sisso</i>	Shisham	Fabaceae	Tree
20.	<i>Delonix regia</i>	Gulmohar	Fabaceae	Tree
21.	<i>Euphorbia hirta</i>	Dudhi	Euphorbiaceae	Herb
22.	<i>Eclipta alba</i>	False Daisy	Asteraceae	Herb
23.	<i>Eragrostis amabilis</i>	Lovegrass	Poaceae	Herb
24.	<i>Ficus racemose</i>	Gular	Moraceae	Tree
25.	<i>Ficus religiosa</i>	Peepal	Moraceae	Tree
26.	<i>Ficus benghalensis</i>	Banyan	Moraceae	Tree
27.	<i>Ficus virens</i>	Pilkhan	Moraceae	Tree
28.	<i>Holoptelea integrifolia</i>	Paapdi	Ulmaceaea	Tree
29.	<i>Jatropha curcas</i>	Jangali arand	Euphorbiaceae	Shrub
30.	<i>Lawsonia inermis</i>	Mehandi	Lytheraceae	Shrub
31.	<i>Lantana camara</i>	Panchpuli	Verbenaceae	Shrub
32.	<i>Lantana indica</i>	Panchpuli	Verbenaceae	Shrub
33.	<i>Leersia oryzoides</i>	Ricecut Grass	Poaceae	Herb
34.	<i>Lactuca graminifolia</i>	Grassleaf lettuce	Asteraceae	Herb
35.	<i>Melia azadirachta</i>	Chinaberry	Meliaceae	Small Tree
36.	<i>Morus alba</i>	Mulberry	Moraceae	Tree
37.	<i>Murraya koenigii</i>	Curry leaves	Rutaceae	Small Tree
38.	<i>Mangifera indica</i>	Mango	Anacardiaceae	Tree
39.	<i>Nyctanthes arbor-tristis</i>	Harsingar	Oleaceae	Small Tree
40.	<i>Nerium oleander</i>	Kanner	Apocynaceae	Tree
41.	<i>Ocimum sanctum</i>	Tulsi	Lamiaceae	Herb
42.	<i>Ocimum basilicum</i>	Marva	Lamiaceae	Herb
43.	<i>Ocimum gratissimum</i>	Vantulsi	Lamiaceae	Herb
44.	<i>Oxalis acetosella</i>	Khatti buti	Oxalidaceae	Herb
45.	<i>Parthenium hystenophorus</i>	Congress Grass	Asteraceae	Herb
46.	<i>Phyllanthus niruri</i>	Bhumi amla	Phyllanthaceae	Herb
47.	<i>Pisidium gujava</i>	Gauva	Myrtaceae	Tree
48.	<i>Polyalthia longifolia</i>	False Ashok	Annonaceae	Tree
49.	<i>Portulaca grandifolia</i>	Eleven o'clock	Portulacaceae	Herb
50.	<i>Sida cordifolia</i>	Flannel weed	Malvaceae	Herb
51.	<i>Solanum nigrum</i>	Makoi	Solanaceae	Shrub

52.	<i>Setaria viridis</i>	Foxtail grass	Poaceae	Herb
53.	<i>Syzygium cumini</i>	Jamun	Myrtaceae	Tree
54.	<i>Tabernaemontana divaricate</i>	Pinwheel flower	Apocynaceae	Small Tree
55.	<i>Terminalia arjuna</i>	Arjun	Combretaceae	Tree
56.	<i>Thevetia peruviana</i>	Pili Kaner	Apocynaceae	Tree
57.	<i>Tribulus terrestris</i>	Bindii	Zygophyllaceae	Herb
58.	<i>Trianthema portulacastrum</i>	Giant pigweed	Aizoaceae	Herb
60.	<i>Tradescantia pallida</i>	Purple Heart	Commelinaceae	Herb
61.	<i>Tectona grandis</i>	Teak	Lamiaceae	Tree
62.	<i>Withania somnifera</i>	Ashwagandha	Solanaceae	Shrub
63.	<i>Ziziphus nummularia</i>	Jharberi	Rhamnaceae	Small Tree

Result and Discussion:-

In this work diversity of plants of Aligarh area are studied. Although many plant species skipped by me but I tried my best for this work. All plant species broadly categorised under: Tree, Shrub and herb. Collective studies reveals that there is about 40 % of herbs, 36 % of trees and 24 % of shrubs are grown in this area.

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