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## **REVIEW ARTICLE**

# **Contribution of Ethnic and Indigenous people in the Conservation** of Plant Biodiversity in India

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## ABSTRACT

India is one of the mega-diversity countries of the globe. The country is also recognized as the rich emporia of ethnic and indigenous community. In this country most of the ethnic people live either in hilly regions or in forest fringe areas or in localities which are immensely rich in biodiversity. Ethnic communities have played a critical role in plant biodiversity conservation as well as in ecological restoration. Since few decades the country is facing the problem of rapid deforestation and loss of plant biodiversity. Simultaneously plant based traditional knowledge has also decreased in the younger generation of ethnic people due to influence of technological advancement, urbanization and globalization. There is no doubt indigenous knowledge is a great raw material for advancement of science and technology. Indigenous people and the ethnic knowledge intimately influence biodiversity conservation in a positive way. Since immemorial time ethnic people have managed and conserved the biodiversity of their localities in different ways and for different reasons. Those people have clear concept that how to live with harmony in nature and they have valuable traditional knowledge which has been useful in conservation of plant biodiversity and ecological restoration. In the present era there is an urgent need of implementation of ecologically sustainable conservation policy in the regions where plant biodiversity is highly affected. This communication highlights thevarious aspects of conservation of plant diversity by the ethnic and indigenous people in India.

Keywords: Biodiversity, India, Ethnicity, Indigenous community, Indigenous knowledge, Wild plant, Medicinal plants, Ecological restoration, Rituals, Conservation.

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## **INTRODUCTION**

India harbour immense terrestrial and aquatic biodiversity and represent one of the most species-rich zone of the earth. This country is also recognized as the rich emporia of ethnic and indigenous people. India shares 8.1% of the worldwide species diversity, which comprises approximately 45,500 recognized plant species and 91,000 reported animal species, within only 2.4% of the planet's area [1]. Loss of biodiversity is a global issue which is regarded as a very significant concern in India. Many regions of the country have been facing habitat loss, natural disasters, and pressure from anthropogenic activities, which lead to biodiversity loss in a super-fast speed. Biological diversity, commonly called as biodiversity, refers to the variety and variability of living beings and the ecological complexity in which they live. In popular understanding it is considered as the diversity of plants, animals and microbes, as well as their genes and the ecosystems they make up [2]. The rate of biodiversity loss and concomitant environmental

changes is accelerating faster than ever before in human history, and there are no signs of a slowdown. Biodiversity is a critical component of sustainability, and its decline seems to be a typical result of expanding population, agricultural intensification, habitat destruction, disintegration of forests, invasion of exotic species, uncontrolled exploitation, intensity of pollution, global climatic changes, and most importantly, industrial upliftment [3]. Among the organisms plants especially non timber and underutilized plants are rapidly destroyed as majority people are not aware of their importance. Plant conservation has traditionally gained far less focus than animal conservation, possibly due to lack the popular appeal in plants in comparison to most of the animal groups [4]. Despite the fact that only a small proportion of plant species have been documented as valuable to humans, but almost all perform vital roles in natural ecosystems and provide essential services, and uncommon species are more likely to possess features that could be relevant in the future [5].

In Indian almost all states and union territories are inhabited by many indigenous communities [6]. The regions where these people live are found as the least polluted and least disturbed biome of the country as well as of the world. Indigenous people are also called asethnic people, tribal people, aboriginal or autochthonous peoples, national minorities, first peoples etc. Despite making up only 4% of the global population, these peoples account for 95% of the global cultural variety [7]. The term "Indigenous Knowledge" or "Traditional Knowledge" refers to describe any information, understanding, innovation, tactics or customs of indigenous communities. Indigenous knowledge is essential for the protection, preservation, and sustainable utilization of biodiversity as well as bioresources [8]. For those people plants and animals provide basic needs of their life, such as, food, medicine, building materials, income etc., and in most cases these folks are well-versed in the management of natural resources and the preservation of biodiversity.

Since the dawn of time, philosophical debates on biodiversity have realized that the plants and plant product are very important for the advancement of economy and progress of social system. The loss of plant biodiversity on earth is increasing at an alarming rate, jeopardising the long-term viability of ecosystem services and agriculture, as well as their capacity to adjust to changing circumstances. The execution of ecosystem rehabilitation and restoration projects necessitates a thorough understanding of tree propagation, particularly seed propagation, which is the primary mode of propagation for forest species. It is vital for protecting the biodiversity to grasp the local, regional, and socioeconomic patterns that impact ecology and environment at the landscape level [9]. Indigenous peoples across the world have evolved complex knowledge systems for ecosystem protection and sustainable usage of plants.

Plant variety in any environment sustains a wide range of living forms, including fungi, lichens, macroinvertebrates, and higher vertebrates. Since ancient time different communities have using and extracting resources from plants and their associations i.e., lichens, macrofungus etc. The usage of wild plants as food is also a vital element of the culture and heritage of numerous indigenous groups around the globe [10]. Since antiquity, it is known that ancient knowledge and traditional beliefs have made a significant contribution to biodiversity conservation as well as sustainable ecosystem. Religious beliefs, rituals, and myths are sometimes responsible for protecting biodiversity from exploitation for personal and economic gain. A decrease in indigenous people' customs, ceremonies, and age-old methods has a direct impact on the conservation status of edible, medicinal, and commercially significant plants [11]. The deterioration of traditional knowledge is also influenced by the growth of modern health care facilities, the commercialization and the socioeconomic developments [12]. Indigenous peoples and local communities have a wealth of knowledge on traditional forestry, agriculture, animal husbandry, agroforestry management practices, forest ecology and the nutritional, medicinal and other properties of diverse forest products.

## **BIODIVERSITY OF INDIA**

Biodiversity, as defined by the Convention on Biological Variety, includes not just species diversity, but also diversity within species and within ecosystems [13]. Biodiversity not only supplies food and medicines for humans, but it also plays an important part in a country's ecological security. The biodiversity maintains the planet by providing various ecological services such as food web, energy flow, hydrological balance, soil nutrient cycle, drought and flood management, pollution mitigation, and so on. The Convention on Biodiversity (CBD) set up during the Earth Summit (1992), which brought more than 100 leaders and about 30 000 people at the UN Environment and Development conference, is the major international legal framework for biodiversity preservation [7]. According to international regulation, India is a megabiodiversity region which is categorized into 10 biogeographical regions, (i) Himalayan zone, (ii) Trans Himalayan zone, (iii) Indian desert zone, (iv) Semi arid zone, (v) Western Ghats, (vi) Eastern Ghats, (vii) Deccan plateau, (viii) Gangetic plain, (ix) North-Eastern zone, and (x) Coastal and

Island zone. The nation is located in four global biodiversity hotspot regions: the Eastern Himalaya, Indo-Burma, the Western Ghats and Sri Lanka, and Sunderland.

Due to the diverse climatic conditions, India is home to both alpine and tropical species, as well as several medicinal and economically important plants [14]. The region is recognized worldwide for the diversity and endemism of its numerous plant and animal species [15,16]. Genetic resources of rare and/or endangered species, orchids, medicinal plants, aromatic plants etc., can be discovered in forests, protected areas, uncultivated regions, and private homeyard gardens. However, due to population pressure, over-extraction, human disturbances, improper management, and a lack of conservation activities, biodiversity has been lost significantly in the area's natural habitat during the last few decades. Human activities that contribute in extinction of plant, fragmentation of forest and degradation of ecosystem have already resulted in massive biodiversity loss [17]. With the agricultural revolution, human have changed natural ecosystems according to their own requirements into new forms. The use of chemical compounds to increase agricultural yield and plant protection has seriously disrupted the earth's ecology and biodiversity. So called civilized human beings have drastically changed the diversity of underutilized plants and damaged the ecological equilibrium in order to develop some crops and useful plants. However, it is critical for indigenous people to protect all sorts of flora since all types of plants are vital to their survival and socio-cultural need. Plants play a significant role in life and culture throughout tribal belts in India for diet, agricultural purposes, and practices of traditional herbal medicine and in religious rituals. Plants and their byproducts have been used as incense to remove household odors, as fuel for fires, as pest repellant, and even for domestic lighting since ancient times. The Convention on Biological Diversity (CBD) was founded during the Earth Summit of 1992, which attracted over 100 global leaders and approximately 30,000 attendees to the United Nations Conference on Environment and Development [7].

## CAUSES OF BIODIVERSITY LOSS IN INDIA:

Humans are intrinsically reliant on native vegetation for their dietary, sociological, economical, and ecological well-being, hence plant biodiversity is of fundamental importance to all people. Any type of biodiversity loss or mismanagement results to a reduction in resources and ecological imbalances. In the context of India, among the various factors of biodiversity loss most prevalent one is unsustainable human appropriation of ecosystem products and ecosystem transformations to other users. The biodiversity of India and its neighboring nations is rapidly disappearing due to a variety of factors including habitat transformation and destruction caused by land cover change, over-exploitation of biological resources, climate change, pollution, and introduction of invasive species.

1.**Natural Disasters**: The widespread loss of biodiversity is partially due to natural disasters and some manmade actions since time immemorial. Natural disaster includes earthquake, storms, landslide, flood, volcanic eruption etc.

2. **Habitat Destruction**: Anthropogenic activities such as rapid urbanization, industrialization, deforestation, mining, logging, urban sprawl, construction of highways, clearing forest areas for agriculture, changes in the riverine habitat to lacustrine (reservoir) habitat, refilling of ponds and drainage ditches etc also impart negative influence on biodiversity [1,18,19]. Even the use of hazardous compounds in industries, daily activities of human, construction materials, recreation, and entertainment has a negative influence on the environment, which in turn impacts plants and their natural surroundings [20].

**3.Climatic Factors and Pollution**: Biodiversity loss is caused by climatic fluctuation. Native species and populations may suffer irreversible damage if they are not given sufficient time to adapt to changing climatic conditions [1]. Inorganic and organic contaminants, as well as severe changes in temperature, have emerged as major contributors to biodiversity loss in terrestrial, marine, and freshwater ecosystems during the last five decades.

4. **Co-extinctions:** Overgrazing, lopping, and biomass removal have all contributed to a decline in biodiversity. When a plant species becomes extinct, all associated parasite plants, fungi, and animal species also become extinct.

5. Alien species invasions: The indigenous species of different biodiversity regions are threatened by the introduction of exotic species. In India rapid spread of exotic species such as *Eupatorium odoratum*, *Verbena officinalis, Lantana camara, Parthenium hysterophorus* etc., results a drastic change of native plant species.

6. **Awareness of Human**: One of the greatest obstacles to biodiversity conservation is public ignorance of the significance and value of biodiversity. Many individuals in India destroy plant biodiversity because

they are unaware of the ecological value of plant diversity. Most individuals think all wild plants are weeds and are not advantageous.

The forested regions that once used to be a huge source of food and other resources have now become very thin due to clearing, cutting and other anthropogenic activities, though vestiges remains as protected areas [22]. Many species of wild vegetation have disappeared over the past few decades whereas some are threatened nationally and globally. Several governments and international organizations have tried to protect biodiversity and ecosystem in several ways. Some of the countries including India impose partial dependence on indigenous or native peoples for conservation of biodiversity.

## **INDIGENOUS PEOPLE OF INDIA**

Around the world, ethnic communities, whether they are aware of it or not, are responsible for the maintenance of a significant number of plant species that are in danger of going extinct [23]. More applied and thorough study is now recognized as being urgently required to assess strategies that will contribute to the preservation and conservation of vulnerable species. Indigenous peoples inhabit various ecocultural zones and all biodiversity zones of India, i.e., from geo-ecological instability in the Trans Himalayan region to the desert zone of Rajasthan, coastal zones to island zones, etc [23]. India has nearly 42 million ethnic people, 60 % of whom live on forest fringe areas and rely on forests for a variety of edible resources [24]. Most of the ethnic people of the world, including those in India, considered the environment as a collaborative form of plants, animals, humans, landforms and energy sources instead of separate entity and these entities are linked to local places through cultural traditions and interactive relationships [25]. Indigenous groups in this country that have coexisted with the surroundings in harmony since the beginning of time have amassed a plethora of traditional knowledge regarding plants and their sustainability [26]. In this region, traditional knowledge on the cultivation of plants and animals, their conservation strategies, and their sustainable use has been developed through many generations. In terms of accessible food, natural resources, socio-cultural and political resources, such groups, which typically live in remote places, particularly in mountain ecosystems or forest ecosystems, vary from those in more populated and controlled environments [27]. Gadgil et al. (1993) [28] explained indigenous knowledge as "the cumulative body of knowledge and beliefs handed down through generations by cultural transmission about the relationship of living beings (including humans) with one another and with their environment". Indigenous peoples have a wealth of knowledge on biodiversity including forest ecosystem, traditional forest, aquatic reservoir and agroforestry management practices. They are also well-versed in the nutritional, pharmacological, and other qualities of many forest products. However they are still exploited in many parts of the world. Certain indigenous communities are sidelined on their own customary land by the implementation of rules or creation of protected areas that do not involve them in management, decision making or benefit-sharing and restrict their use of the forest. These individuals can care for both wood and non-timber plants because they understand the value of all plants, but the harsh reality is that most current policymakers are concerned about commercially significant plants. Most of the ethnic communities in India are familiar with both *in situ* and *ex situ* conservation. One of the essential criteria of biodiversity conservation is the maintenance and recovery of viable populations of plants and related species through in situ conservation, and most nations choose to assess their progress above objectives by mentioning the number of endangered species reported from their territory [29].

## INTERRELATION BETWEEN INDIGENOUS PEOPLE AND BIODIVERSITY

India is recognized for ethnic culture and plant diversity where a large number of individuals still live in tribes and possess a wealth of unexplored or underexplored ethnomedicinal and ethnobotanical knowledge about the plants in their immediate environment. Biodiversity and indigenous people's development are somehow interconnected. Because of their mutual reliance on humans and nature for their continued existence, the indigenous people who lived in harmony with nature built a unique system of strategies that were largely focused on plants. They are conscious of the fact that the biological variety of an area is an essential component in the production of the ecological services and natural resources they rely on [28]. Many studies have shown that indigenous communities of Indian states are much familiar with plant resources, habits of animals, plant-animal interactions etc [30]. Instead of destroying natural biodiversity, they use it to produce food, fibre, medicine, and timber through agriculture, social forestry, and fisheries. Government and policy makers should recognize and duly support the identity, culture and interest of these people, and enable their effective participation in conservation of biodiversity programs [31]. Due to a lack of advanced medical facilities and low socioeconomic conditions, indigenous people of Indo-Mongoloid ancestry residing in some forest fringe regions continue

to rely on forest-derived goods for their healthcare requirements [32,33]. Globally there is ample evidence of indigenous knowledge and practices involved in enhancing biodiversity at the landscape level [28]. Collecting and documenting information about useful as well as medicinal plants can help appreciate biodiversity and come up with ideas for how to use and protect it in a sustainable way. Information that isn't written down may be lost forever [34]. In the past, many ethnic groups have come up with and used their own processing and preservation methods to keep vegetation cover. These methods are based on cultural traditions and indigenous knowledge systems. Indigenous knowledge related to the wild habitat also contributes to ecological adaptation and could be used to help design policies for biodiversity conservation.

## Conservation of Biodiversity due to knowledge of Traditional Food:

Plants have been utilized as food and medicine for people as well as domestic animals for centuries. Traditional and informal ecological knowledge about non-domesticated food resources is transferred mostly through socialization within ethnic and household contexts [35]. Any sort of conservation necessitates a thorough understanding of species and site specific utilization pattern of food resources over different seasons [36]. Across many regions around the world, indigenous people mainly rely on wild resources to satisfy their nutritional requirements, and many plants play a crucial role in their food security [37]. In India, the vast majority of indigenous people live in mountainous hills and thatched huts, relying on non-domesticated food sources such as wild fruits, green vegetables, rhizomes, and mushrooms, and plenty of other things. Learning about local biodiversity-focused traditional food systems necessitates the gradual accumulation and integration of information from various sources. Ethnic peoples of India, as well as those of other subcontinental nations, have traditionally relied on an agricultural technique that involves cutting and destroying natural vegetation to create buffer zones in which crops and fruit trees can flourish. These people nowadays cultivate such plants domestically or even commercially for resources such as edible roots, honey, woody plants, leafy vegetables, and so on for their subsistence [38, 39]. Since prehistoric time man knew the plants were recognized by the process of trial and error as their nourishment from the natural stands [26].Wild edible plants are an integral part of the dietary diversity and food security of families of many ethnic cultures around the world. The wild edible plants are known to be a major source of income for many countries. These are the primary source of nutrients, vitamins, and minerals for such indigenous population, thus they conserve the plants to prevent food insecurity. Many of these products are stored and sold in rural markets during the dry season [41]. Over 53 million tribes belonging to 550 distinct communities in India use 9500 different wild plants for food, medicine, fodder, fibre, fuel, essence, cultural, and other reasons [41]. Ethnic people around the country cultivate and conserve many plants used as ingredients and/or flavouring agents in preparation of ethnic dishes. The contemporary international food market situation has prompted a broader examination of plant-based ethnic dishes because they are strongly intertwined to the socioeconomic and cultural Diasporas of a variety of lesser-known communities and, in many cases, contain high levels of beneficial nutrients and therapeutic constituents [42]. Traditional plant-based meals are extremely diverse in India because localized diets have evolved in response to local culture, climate and agricultural patterns [43].

Traditional foods and indigenous crop-based products that were once a staple of the Indian diet are becoming extinct as a result of the Post-Green Revolution concentrate on mono cropping [44]. But some of them are protected by ethnic communities. Indigenous people are very familiar to conservation of seeds of edible plants. In the vast majority of instances, women of indigenous communities play a crucial role in the preservation of seeds [45]. They placed dry leaves, compost, cow dung, cow urine, and a number of fermented ingredients on the land to keep it perpetually fertile and to maintain healthy and suitable seeds for future agriculture [46].

M.S. Swaminathan Foundation at Jeypur, Koraput of Odisha, when it started working toward the conservation of biodiversity, was able to learn that some tribal women had saved seeds of different cultivars of aromatic rice [23]. Subsequently, this foundation also accumulated seeds of some rice varieties from the people who had saved them, and it is currently working toward the establishment of a gene bank containing these varieties of rice [23]. After the 1970s, India has lost over a million indigenous rice varieties that took thousands of years to evolve. This loss of species is mostly attributable to the policymakers' concentration on the cultivation of subsidized high-yielding hybrid crops and monoculture [44]. In comparison to the indigenous species, the newly imported high-yielding hybrid cultivars are less resistant and have a very restricted genetic base [44].

## Conservation of Biodiversity due to Ethnomedicinal Knowledge:

Ancient Indian literatures such as the Vedas, Kalpasutras, Charakasamhita, Sushrutasamhita, and some others, attest to the existence of a comprehensive plant-based health care system [47, 48]. A great

number of the herbal medicines and natural products have come to modern society from the scientific study of plant based remedies traditionally employed by various ethnic cultures [49]. Indigenous peoples from various parts of the world make considerable use of herbal treatments. The indigenous population of India relies mostly on herbal treatments, and traditional understanding of therapeutic plants plays an essential part in resolving local health issues [50]. Medicinal plants have a significant part in the rural healthcare systems of the majority of developing and underdeveloped nations. Several historic medicinal systems, such as ayurveda, unani, and siddha, have amassed information regarding therapeutic plants in India over the course of several centuries [51]. Since the inception of ethnobotanical research, the documentation of traditional knowledge, particularly related to clinical uses of plants, has offered a foundational understanding of several active chemicals and pharmaceutical. India, which is home to a wide diversity of ethnic communities, mainly relies on traditional health systems as a way of life [52,53]. The country enjoys a privileged position due to its abundance of therapeutic and aromatic plants. The details relating the medicinal aspect of plants was transmitted by traditional healers from generation to generation [54]. There are a huge number of formulations and health claims for ethnic people that may have been recorded in ancient writings, but are not yet in widespread use, therefore it is possible that there are numerous unexplored medicines and remedies for individuals who reside in remote areas that have able to withstand many diseases and live healthily [55]. Investigation, exploitation, and preservation of all these plants are crucial for the safeguarding and restoration of indigenous and traditional knowledge. Traditional medicine practioners, concerned and committed elder persons of many tribal communities generally take the responsibility of cultivating few of the wild medicinal plants in their homegardens or community gardens to reduce the time taken to procure them from the forests as well as to decrease the excessive pressure on the forest habitats. Women have an essential part in local health care since they are traditionally the primary caregivers inside the household (as mothers, wives, and sisters). This includes upholding and passing on healing traditions that originated in the village, such as the use of folk remedies [56]. Thus ethnic womens are also very much aware about conservation of ethnomedicinal plants.

SL.	SL. Plant Name Ethnomedicinal Importance & Utilization					
No.						
	ANGIOSPERM					
ACAN	THACEAE					
1	Andrographis paniculata	Leaf extract is used as remedy for patient suffering malaria				
	(Burm.f.) Wall. ex Nees					
2	Hemigraphis hirta (Vahl.)	Leaves are used for headache, ulcer of the mouth & gums.				
	T.Anderson					
3	Hygrophila auriculata	Fresh leaves fried or boil juice is taken for increasing haemoglobin and treatment of				
	(Schumach.) Heine	anaemia.				
4	Justicia gendarussaBurm.f.	Fresh leaves extract use as an antidote to snake venom.				
5	Ruellia tuberosa L.	Root paste useful to cure Stomach pain and Gastric disorder.				
6	Thunbergia grandiflora	Whole plant used to treat Snake bite.				
	(Roxb. ex Rottl.) Roxb.					
ACOR	ACEAE					
7	Acorus calamus L.	Decoction of leaves and underground part is fomented on the body of paralytic patient				
ALISM	ALISMATACEAE					
8	8 Sagittaria sagitifolia L. Leaves are used as antiseptic in insect bite.					
AMARANTHACEAE						
9	Achyranthes aspera L.	Seed and above ground part is used as remedy of scorpion bites				
10	Alternanthera	Tender shoot, Leaves are used as cooked vegetable.				
philoxeroides(C.Martius)						
	Grisebach					
11	Alternanthera	Tender shoot, Leaves Cooked as vegetable.				
	<i>sessilis</i> (Linnaeus) R. Brown ex					
	DC					
12	<b>Amaranthus spinosus</b> Linn.	Tender shoot, Leaves are used as cooked vegetable; also use to treat anaemia, root paste				
	applied for stomach to treat urinary disorder.					
13	<b>Amaranthus viridis</b> Linn.	Decoction of leaf is used as dysentery and inflammations and purifies the blood; Root				
		paste useful against Indigestion.				
14	Celosia cristata L.	Leaf juice taken orally as antihemorrhagic during parturition				
APIA	CEAE					
15	Centella asiatica(L.) Urb.	Use as cooked vegetable; Raw paste use as anti-diarrhoeic medicine.				
AMAF	AMARYLLIDACEAE					
16	Allium tuberosum Roxb.	Leaf decoction is given in urinary problem and as diuretic.				

 Table 1: Abundantly documented edible and medicinal plants from different indigenous communities of India. [11, 18, 49, 57-73]

ANAC	ARDIACEAE				
17	Mangifera indica L.	Eaten as raw and commonly uses in curries, chutney and pickle preparation; Bark used			
		for the treatment of loose motion; Leaves are used during auspicious and religious			
		occasions; Seed powder mixed with salt is used against indigestion and dysentery.			
18	Rhus chinensis Mill.	Dried fruits are taken against Cholera			
<b>APOC</b>	YNACEAE				
19	Aistonia scholaris(L.JK. Br.	applied during joint pain and tied with the fibres obtained from its stem.			
20	<i>Calotropis procera</i> (Aiton) Dryand.	Leaves are used to treat in pain relief, rheumatism and cuts; latex is used in dog bite.			
21	<i>Gymnema sylvestre</i> (Retz.) R.Br. ex Sm.	Leaf powder is taken in diabetics			
22	<i>Holarrhenapubescens</i> Wall.ex G.Don	Raw paste of leaves is used as gastro-intestinal and anti-diarrhoeic supplement.			
23	Tabernaemontanadivaricata	Flower paste is used for hypotension, skin diseases, aches, eye ailments and pain.			
ARAC	EAE				
24	Alocasia macrorrhiza (L.) G. Don.	Cooked as vegetable; stem with ripe banana used for piles.			
25	Colocasia esculenta(L.)Schott.	Corm, leaves and petiole are used as vegetable and different cookeries.			
26	Lasia spinosa Thwaites	Rhizomes are used in dysentery; Stalk is used as anti helminthic remedy			
27	<i>Typhonium trilobatum</i> (L.) Schott	Cooked as vegetable; Root used to treat as an antidote to snake bite.			
28	Xanthosoma sagittifolium (L.) Schott	Leaves, Petiole are cooked as vegetable.			
ARAL	IACEAE				
29	Hydrocotyle	Decoction of whole plant is used for asthma, bone fracture, oedema, fever, detoxification,			
	<i>sibthorpioides</i> Lam.	throat pain, psoriasis.			
AREC	ACEAE				
30	Borassus flabellifer L.	Ripen fruits are used as raw and different cooking purposes; watery latex of tree trunk use as making of sugar-cake. Leaves use as hand-made fan, shading of house-roof; tree-			
		trunk use as different household purposes.			
31	Phoenix sylvestris (L.) Roxb.	Ripen fruits are eaten as raw; watery latex of tree trunk use as making of sugar-cake.			
32	Plectocomia nimalayana Griff.	Stems are used in nandicraft and furniture making.			
33	Calotronis gignnteg (L)	Leaves heated and applied locally to relieve pain			
55	R Brown ex Alton	Leaves heated and applied locally to relieve pain			
ASPA	RAGACEAE				
34	Drimia indica (Roxb.) Jessop	Bulb is used as cardiotonic			
ASTE	RACEAE				
35	Ageratum connyzoidesL.	Whole plant juice applied to stop bleeding; Leaf decoction is applied for skin diseases, leprosy, boils; leaves are made into paste and applied on the wounds			
36	Artemisia nilagirica (C.B. Clarke) Pamp.	Whole Plant is used as remedy of epilepsy			
37	Bidens pilosaL.	Whole plant is used in toothache, rheumatism, leprosy, skin disease; checks bleeding. Leaf juice used in ear and eye complaint.			
38	Blumea lacera(Burm.f.) DC.	Whole plant is used to treat muscular Pain.			
39	Chromolaena odorata (L.) R.M.King & H.Rob.	Leaves are used to treat Skin wounds and to stop bleeding.			
40	<i>Cyanthillium cinereum</i> (L.) H.Rob.	Whole Plant is recommended for relief from Common cold, cough; Juice extracted from the crushed leaves used as eve drops to treat Conjunctivitis			
41	Eclipta prostrata (L.) L.	Leaves are used against skin diseases; Flower extract used in inflammation of jaws, bones and caries			
42	Elephantopus scaber[	Decoction of root is useful to stop vomiting.			
43	<i>Emilia sonchifolia</i> (L.) DC. ex	Plants decoction is used in bowel Complains, night blindness and Dysentery.			
44	Enhydra fluctuansLour.	Tender shoot, Leaves are use as cooked vegetable; Leaves taken in digestion problem.			
45	Mikania micrantha Kunth.	Leaf sap prevents bleeding, antiseptic, anti-inflammatory.			
46	<i>Synedrella nodiflora</i> (L.)Gaertn.	Leaf-sap is used for stomach-ache, rheumatism, earache and laxative.			
46	Xanthium strumariumL.	Decoction of the leaves is used to prevent minor external bleeding and also used as antiseptic medicine.			
BORA	GINACEAE	h · · · · p· · · · · · · · · · · · · · ·			
47	Heliotropium indicumL.	Decoction of the whole plant is used to treat thrush, diarrhoea, diabetes, ulcers, dysentery, and bronchitis. Boot san is used in eve treatment			
BROM	IELIACEAE	, aysencery, and bronchiels. Noor sap is used in Eye a califent.			
48	Ananas comosus (L.) Merr.	Fruits edible; Filtrate of boiled leaves are used as remedy for cough and cold			
CAPP	ARACEAE	,			
49	49 <i>Crateva nurvala</i> BuchHam. Tender shoots are given to women after child birth.				
CANN	ABACEAE				

50	<i>Trema orientalis</i> (L.) Blume	Root decoction to reduce the Mennorrhagia.	
51	CERATOPHYLLACEAE		
52	Cleome rutidosperma DC.	Decoction of leaf is used to treat malaria, appetizer, laxative applied to soothe irritable skin conditions, convulsions and earache, inflammation and deafness; Seeds used in menstrual problems.	
CLOR	ANTHACEAE		
53	Chloranthus elatior Link	Leaves are boiled with water and regularly taken as vegetable for at least one month before expected date of delivery	
COLC	HICACEAE		
54	Gloriosa superba L.	Oil decoction of the fresh flower is applied for massaging on the joint to reduce the pain of arthritis	
COMB	RETACEAE		
55	<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn.	Bark decoction taken in empty stomach to treat cardiac trouble.	
56	<b>Terminalia bellirica</b> (Gaertn.) Roxb.	Dried fruits use to treat against dyspepsia and Also use in serious gastritis problems.	
COMM	IELINACEAE		
57	Commelina diffusa Burm. f.	Bruised plant is used against boils, dysentery.	
58	Commelina benghalensis L.	Root paste use as an antidote to snake bite; Leaf paste is used against constipation, boils, skin diseases.	
59	<i>Murdannia</i> <i>nudiflora</i> (L.)Brenan	Plant paste is used against leprosy, headache, asthma, piles. Root used to treat jaundice.	
CONV	OLVULACEAE		
60.	Cuscuta reflexa Roxb.	Whole plant juice used to treat Jaundice	
61	Evolvulus nummularius(L.)L.	Decoction of whole plant is used to treat amoebic dysentery.	
62	Ipomoea aquatica Forsskal	Tender twigs and Leaves are cooked as vegetable; Leaf useful in snake bite, Stem in Poisonous snake bite (pain), Tender shoot in Purgative & Whole plant in spasmolytic.	
63	<i>Merremia vitifolia</i> (Burm. F.)Hallier f.	Juice of the whole plant is considered cooling and diuretic, high fever, strangury and urethral discharges, malaria and smallpox.	
CRAS	SULACEAE		
64	Bryopliyllum calycinum Salisbury	Chewed raw with sugar to control dysentery and diarrhea; Decoction of tender leaves is prescribed twice a day to the patient suffering from Kidney and Gall Bladder stone	
CUCU	RBITACEAE		
65.	<i>Coccinia grandis</i> (L.) Voigt	Leaf extraction used in head migraine. Decoction of leaf also applied on head to reduce the body temperature. Unripe Fruit used as vegetable.	
66	<b>Mukia</b> maderaspatana(L.)M.Roem.	Plant uses for anti-inflammatory, anorexia, astringent, anti-arthritic and acid-reflux.	
67	<i>Trichosanthes</i> <i>tricuspidata</i> Laur.	The unripe fruit and the tender shoots used as vegetable to improve appetite, digestion and anti-diabetic.	
CYPE	RACEAE		
68	Cyperus rotundusL	Decoction of root is used to treat leprosy, fever, blood disease, biliousness, pain epilepsy, Ophthalmic, dyspepsia, urinary concretions, diarrhea, and stomach complaints.	
69	<i>Kyllinga monocephala</i> Thunb.	Decoction of the whole plant is used against malaria; colds with fever; whooping cough; antidote to snake venom;	
DIOSO	COREACEAE		
70 EUPH	<i>Dioscorea alata</i> L. ORBIACEAE	Boiled tubers give energy and better immunity to the body	
71	Acalypha indicaL.	Paste of whole plant used to treat as an antidote of snake venom.	
72	Croton bonplandianus Baill.	Leaf extract used to treat cut and wounds.	
73	Croton joufra Roxb.	Warmed leaves are used to massage over the abdomen to relieve from acute stomach pain soon after delivery	
74	Euphorbia hirtaL.	Leaves used to treat menstrual problems and extract used to stop irregular periods; Latex used to treat eye problem.	
75	Jatropha gossypifolia L.	Root paste used to treat tuberculosis.	
76	<i>Mallotus nudiflorus</i> (L.) Kulju & Welzen	Roots applied in gout and rheumatism. Pounded bark is given in snakebite.	
77	Ricinus communis L.	Seed oil used as pain killer; Infusion of leaves are used as remedy of epilepsy.	
FABA	CEAE		
78	Abrus precatorius L.	Decoction of root is useful to Jaundice; Dried seeds are made in to paste with a few drops of honey and recommended for rheumatic pain	
79	Acacia catechu (L.f.) Willd.	Stem bark is used as remedy of night blindness	
80	Acacia nilotica (L.) Delile	Latex used to treat dysentery, indigestion, acidity. Young leaves for physical weakness.	
Q1	Caesalninia nulcharima (I.) S	Prenuer twig use to treat as various dental problems.	
82	Caianus caian (L.) Millen	Paste of leaves and twigs applied throughout the body in joundice. The leaf extract is	
02	Sayanas cajan (11.) milisp.	given to the person suffering from jaundice in empty stomach once a day for 1 month.	
83	Cassia fistula L.	The leaf extract and fruit pulp are used as laxative. Flowers and pods used as febrifugal, astringent and purgative. Root pastes are used for skin disease and tuberculosis glands.	

		Vood porudor ucod in omoobiogia	
94	Seed powder used in amoebiosis.		
85	Dalheraja sissoo DC	Leaves and not at parts of the plants are sometimes used in paralysed part.	
86	Desmodium trifolium(L)DC	Root paste is used to cure the Dysuria and Haematuria	
87	Fleminaia strohilifera (L.)	Powder of roots is used as remedy, of enilensy	
07	W.T.Aiton	· · · · · · · · · · · · · · · · · · ·	
88	<i>Leucaena leucocephala</i> (Lam.) de Wit	Seeds are used to control stomachache, as contraception and abortifacient and anti-	
89	Mimosa invisaColla.	Leaves are applied against snake bites and having antioxidant and antibacterial.	
90	Mimosa pudicaL.	Leaves, Root and seeds are used as remady for toothache, leprosy, dysentery, vaginal and	
		uterine complaints, inflammation, leucoderma, fatigue, asthma, blood diseases, jaundice, leprosy, ulcers, small pox.	
91	Peltophorum pterocarpum (DC.) K.Heyne	The stem bark is useful in dysentery.	
92	Pongamia pinneta (L.)Pierre	Seed oil is applied on skin diseases externally	
93	Pueraria tuberosa Roxb	Tuber powder is diuretic	
94	<i>Senna sophera</i> (L.) Roxb.	Cook in curry; Paste prepared from root along with black pepper is given to treat jaundice and paste prepared from leaf mixed with sugar candy is taken one or two tea spoonful twice-thrice daily to treat dyasuria.	
95	<i>Senna tora</i> (L.) Roxb.	Leaves are applied for skin diseases such as leprosy, ringworm, itching and psoriasis and snakebites.	
96	Tephrosia purpurea L.	Root powder is used for blood purifier	
HYDR	OCHARITACEAE	-	
97	<i>Ottelia alismoides</i> (L.) Pers.	Eaten as raw.	
HYPE		Deste of Learner is used as anti-data in such a bit	
98 1 A MT	ACEAE	Paste of Leaves is used as antidote in snake bite	
QQ LAMI	ALEAE Anisomeles indica(L) Kuntze	Leaves are used as carminative astringent utering infection and Deportion of the plant	
55	Amsomeres marcu(E.) Kuntze	for dysentery, inflammation, boil, fever, cough. Root is anti-allergic, cures sores and ulcers of the mouth.	
100	Clerodendrum glandulosum Lindl.	Tender leaves as boiled vegetables, leaf used in hyper tension and bowel troubles.	
101	Clerodendrum hastatum Lindl.	Baked leaves for treatment of vaginal itches.	
102	Clerodendrum infortunatumL.	Fresh young leaf paste soup is given in empty stomach for treatment intestinal worm; Decoction of twig is to reduce complicacy of menstruation.	
103	<i>Gmelina arborea</i> Roxb.	Root extract is used in stomach disorder; Inner portion of fresh root paste use as an antidote to snake bite.	
104	Elsholtzia strobilifera (Benth.) Benth.	Warmed tender twigs and leaves are used to massage over the abdomen to relieve acute abdominal pain after delivery	
105	Hyptis suaveolens(L.) Poit.	Decoction of the roots is valued as an appetizer, rheumatism. Leaves are used stomach problems, fevers, cold.	
106	<i>Leucas aspera</i> (Willd.) Link	Used in jaundice, oedema, asthma, wormicide, nasal drops in sinusitis, cold and jaundice, flower nectar used in cough and cold.	
107	Leucas ciliata Benth	Paste of Leaves is used as antidote in snake bite	
108	Leucosceptrum canum Smith	Root decoction and root juice is taken in Malaria	
109	Ocimum americanum L.	children, hepatic affections. It is also used to treat common cold and cough. Juice applied	
110	Tectona grandisL.f.	Woods used as expectorant, anti inflammatory, anti helmintic. Bark as stringent, used in	
		bronchitis. The oil is obtained from seeds and flower is useful for treatment of scabies,	
		eczema and ringworm. Flower used in bronchitis and urinary discharges.	
LILIA	СЕАЕ		
111	Asphodelus tenuifolius Cav	Paste of above ground part of plant is recommended for burnt portion till recovery.	
<b>LYTH</b> 112	RACEAE Lagerstroemia speciosa (L.)	Decoction of leaves extracts useful against diuretic and purgative action.	
MAGN			
112	Maanolia hodasonii (Hook f &	Person suffering from toothache can chew this fruit and it will provide relief from pain	
115	Thomson)	and can make the teeth strong.	
MALV	ACEAE		
114	Abroma augusta L.	Juice of root bark is used as regulates the menstrual flow	
115	Althea rosea (L.) Cavan	Seed paste applied on children's the head during cold	
116	Bombax ceibaL.	Root is used in bone fracture and blood dysentery. Latex is used in amoebioasis.	
117	Sida rhomboidea Roxb.	Leaves are recommended for treatment of blood vomiting.	
118	<i>Sida cordata</i> (Burm.f.) Borss.Waalk.	Decoction of root and leaves paste useful against blood vomiting.	
119	<b>Urena lobata</b> L. Root extraction used to treat hydrophobia. Fresh leaf juice applied to treat bone fra		
120	<b>Triumfetta rhomboidea</b> Jacq.	Decoction of the root is used for internal ulcerations; Leaves are antihypertensive, astringent, diuretic and used for diarrhoea, dysentery, internal haemorrhages and gonorrhoea.	

MELL	MELIACEAE				
121.	Azadirachta indica A.Juss.	Leaf sap is used to treat fever and acidity; leaf paste is used for skin diseases; tender shoot useful against tooth-ache; Grounded root juice is taken orally as antifertility agent.			
122.	Melia azedarach L.	Leaves control many pests; seeds are useful as expectorant, anthelmintic, skin diseases.			
123.	Swietenia macrophylla King	Dried leaves and branches are used as fuel wood for forest adjacent local people, Seed			
		pulp decoction used for control blood sugar level.			
MENI	SPERMACEAE				
124.	Stephania	Roots used to treat bowel complaints, pain in the stomach, dyspepsia, diarrhoea, dropsy,			
	japonica(Thunb.)Miers	cough, and prolepses of uteri. Leaves used to bilious fever, birth control, and leucorrhoea.			
		Roots and leaves used for piles, dysentery and cough.			
MOLI	UGINACEAE				
125.	Glinus oppositifoilus(L.) Aug.	Leaves cooked as vegetable.			
	DC.				
MORA					
126.	Artocarpus heterophyllus Lam.	Unripe used as vegetable and ripe fruits are used as raw; fruit also acts as a tonic for the			
107	F!	liver and skin aliment stimulant, anti dotes of snake venom.			
127	Ficus Facemosa L.	Fried fruit eaten for reducing blood pressure;			
128	FICUS HISPIUU L.I.	Fried Iruit reduce blood sugar level.			
120	Eventure alohulua Lahill	Departian of lawson in used for various skin diseases			
129	Deidium quaiqua I	Decocuoli ol leaves is used iol valious skill diseases.			
130	Psiaium guajava L.	belminthic remody			
131	Suzvajum cumini (L.) Skools	fruit juice is used for anti-diabetic blood nurification liver tonic			
NYCT	AGINACEAE				
132	Boerhavia repens	Fresh root is used to cure Asthma and withdrawal of alcohol or smoking.			
133	Boerhavia diffusa L.	Whole plant is utilized as remedy			
NYME	PHAEACEAE				
134	Nymphaea pubescens Willd.	Petioles cooked as vegetable; fried seed taken as dry food.			
135	Nymphaea nouchali Burman f	Powdered rhizomes used in diarrhea			
OLAC	ACEAE	·			
136	Erythropalum scandens Blume	Leaves are used in prolapsed genitals (characterised by protruding genitals after			
		delivery)			
ONAG	RACEAEOlacaceae	T			
137	Ludwigia adscendens (L.)	Decoction of whole plant is used in Skin disease, Ulcer.			
100	H.Hara				
138	Ludwigia perennis L.	Boiled plant extract used externally to reduce fever.			
UXAL		Inflate the second of the second of the the second of the second s			
139	Oxalis corniculata L.	asthma, skin disease: refrigerant, appetizer			
PHVI	ΙΑΝΤΗΔΟΕΔΕ	astima, skin uisease, reingerant, appenzer.			
140	<b>Phyllanthus reticulatus</b> Poir	Decoction of whole plant is applied for diarrhead vsentery dyspensia colic jaundice and			
110		liver problems.			
141	Phyllanthus fraternus	Whole plant is used as antipyretic, antiseptic, astringent, diuretic, dropsy, diarrhea,			
	G.L.Webster	dysentery, dyspepsia, colic, gonorrhea, menorrhagia, genitor-urinal problems, jaundice			
		and bronchitis as well as in asthma. Decoction used to treat jaundice and liver problems.			
142	Phyllanthus niruri L.	Juice of whole plant is taken in jaundice. Juice of plant is also taken in lever problem.			
143.	Phyllanthus emblica L.	Unripe fruits are used as anti-diabetic, various stomach disorder problems, dysentery			
		and blood purifying medicine.			
PIPE	RACEAE	TAT 1 1			
144.	Peperomia pelluciaa(L.)	whole plant paste used against bolls.			
ΡΙΔΝ	TACINACEAEPlumbaginaceae				
145	Mecardon	The plant is brain stimulant as well as neuro-stimulant, applied for several other diseases			
115.	procumbens(Mill.)Small	like Skin problems, cold, fever, cough, headache, diarrhoea, fertility problems, toothache.			
	<b>F</b> • • • • • • • • • • • • • • • • • • •	stomach ache, wounds, diabetes, rheumatism, asthma, dysentery, small pox, bone			
		fractures, earache, hair loss and snake bite.			
146.	Scoparia dulcisL.	Leaf is used against boils and tumours as well as pneumonia, anti-diabetic, bladder stone,			
		kidney complaints, toothache, mouth ulcers, and diabetes. Roots used in diarrhoea,			
		dysentery, menorrhagia. Seed powder taken to treat kidney problems.			
PLUM	IBAGINACEAE				
147	Plumbago zeylanica L.	Juice of ground root mixed with little sugar and taken orally is also reported to be			
CCDO		effective for permanent sterility.			
3CRU	Pagong monniori (L.) Donnell	Leaf and cheat autract taken to treat liver complein and prolong illness			
140 POAC		Lical and shoot extract taken to treat liver complain and prolong liness			
149	Axononus compressus(Star)	Deportion of the whole plant is used to treat diabetes heart problems and skin diseases			
179.	P.Beauv.	It has antimicrobial and anti-oxidant properties also.			
150	Bambusa bambos (L.) Voss	Boiled leaves are recommended for irregular menstruation			
151	<i>Coix lachryma-jobi</i> Linn.	Tender shoot and Leaves are used as fodder.			
152	Chrysopogon zizanioides (L.)	Root powder is used as remedy of epilepsy			

	Roberty			
153	<i>Cynodon dactylon</i> (L.) Pers.	Decoction of the whole plant is used to treat leucoderma, inflammation, leprosy, ant dysenteric, antipyretic, astringent, diuretic, laxative, styptic dysentery, cough and urogenital disorder.		
154	Dendrocalamus strictus (Roxb.) Nees	Young shoot is used as Cooked as curry; Root paste used for anti dote of dog bite.		
155	Eleusine indica (L.) Gaertn.	Use as antidote of snake venom; use as fodder.		
156	<b>Oplismenus burmanni</b> (Retz.) P.Beauv.	Decoction of leaf is used in eye treatments; use as fodder.		
157	Saccharum bengalense Retz.	Root powder is diuretic		
158	Thysanolaena latifolia (Roxb.	Grounded young twigs is		
	ex Hornem.) Honda	popular among Karbi		
		women to affect permanent		
		sterility		
POLY	GONACEAE			
159	Persicaria	Effective cure for toothache, epilepsy, gangrene, rheumatism, and gout.		
160	Rumov manitimus	Departion of leaves used in long term complaints of gastrointectinal tract		
		Decoction of leaves used in long term complaints of gastronitestinal fract.		
161	Monochoria hastata (L.) Solms	Used as tonic cooling agent for Curing hoils		
PORT	III.ACACFAF	osed as tome, cooling agent for curing bons.		
162	Portulaça oleraceal	Tender Shoot cooked as vegetable.		
RHAN	INACEAE	Tondor bilbot booline a di fogenation		
163	Ziziphus jujuba Mill.	Eaten raw; in making pickles.		
ROSA	CEAE			
164	Rubus micropetalus Gardner	Edible fruits are useful to cough		
RUBIA	ACEAE			
165	<i>Neanotis wightiana</i> (Wall. ex Wight & Arn.) W.H.Lewis	Paste of Leaves is used as antidote in snake bite		
166	Neolamarckia cadamba (Roxb.) Bosser	Inflorescence is cooked as vegetable; House furnishing and decorative purpose.		
167	Paederia foetida L.	Paste of Leaves is used as antidote in snake bite		
168	Pavetta indica L.	Fine powder of root is used as remedy of epilepsy.		
RUTA	CEAE	rine powder or root is used as remedy or epilepsy.		
169	Aegle marmelos (L.) Correa	Decoction of leaves is useful to the person suffering from nephritis or urine infection		
170	Glycosmis pentaphyllaDC.	Root powder is used to treat fever, hepatopathy, eczema, skin diseases, wounds, liver disorder.		
171	Limonia acidissima Groff	Eaten raw; helpful against dyspepsia, stomach disorder.		
172	Murraya koenigii (L.) Spreng.	Leaves are used as condiment, leaves juice eaten raw for cure of dysentery, diarrhea,		
		checking vomiting, hereditary diabetes, skin disease, fever.		
SALIC	ACEAE			
173	<i>Flacourtia indica</i> (Burm.f.)	Decoction of root bark given to cure Cholera.		
CADD	Merr.			
SAPIN		The second state of the second state of the second s		
1/4 SOLAI	Laraiospermum naiicacabum L.	Paste of the leaves applied on the body during measies		
175	Prugmansia sugueolons (Humb	Leaves paste are applied externally to treat wounds, raches		
1/3	& Bonnl Fy Willd ) Borcht &	beaves paste alle applieu externally to treat woulds, rasiles.		
	LPres]			
176	Datura stramonium L.	Young leaves and roots is recommended for enilepsy		
177	Physalic minimal	Whole plant is used as remady for colic, ulcers, cough, bronchitis.		
178		Root decoction is venereal diseases, boil. Fruit is diuretic and is used for malaria stomach		
	Solanum torvumSw.	Root decoction is venereal diseases, boil. Fruit is diuretic and is used for malaria. stomach		
	Solanum torvumSw.	Root decoction is venereal diseases, boil. Fruit is diuretic and is used for malaria, stomach aches. Leaves are an effective antimicrobial and diuretic, anti-diabetic.		
179	Solanum nigrum L.	Root decoction is venereal diseases, boil. Fruit is diuretic and is used for malaria, stomach aches. Leaves are an effective antimicrobial and diuretic, anti-diabetic. Leaves are cooked as vegetable.		
179 180	Solanum torvumSw. Solanum nigrum L. Solanum viarum Dunal	Root decoction is venereal diseases, boil. Fruit is diuretic and is used for malaria, stomach aches. Leaves are an effective antimicrobial and diuretic, anti-diabetic.         Leaves are cooked as vegetable.         Fruit extract used in toothache.		
179 180 SAUR	Solanum torvumSw. Solanum nigrum L. Solanum viarum Dunal URACEAE	Root decoction is venereal diseases, boil. Fruit is diuretic and is used for malaria, stomach aches. Leaves are an effective antimicrobial and diuretic, anti-diabetic. Leaves are cooked as vegetable. Fruit extract used in toothache.		
179 180 <b>SAUR</b> 181	Solanum torvumSw. Solanum nigrum L. Solanum viarum Dunal URACEAE Houttuynia cordata Thunb.	Roots are used in curing diarrhea; Extract of leaf is used as anti helminthic remedy		
179 180 SAUR 181 URTIO	Solanum torvumSw. Solanum nigrum L. Solanum viarum Dunal URACEAE Houttuynia cordata Thunb. CACEAE	Root decoction is venereal diseases, boil. Fruit is diuretic and is used for malaria, stomach aches. Leaves are an effective antirobial and diuretic, anti-diabetic.         Leaves are cooked as vegetable.         Fruit extract used in toothache.         Roots are used in curing diarrhea; Extract of leaf is used as anti helminthic remedy		
179 180 <b>SAUR</b> 181 <b>URTIO</b> 182	Solanum torvumSw. Solanum nigrum L. Solanum viarum Dunal URACEAE Houttuynia cordata Thunb. CACEAE Debregeasia longifolia (Burm.f.) Wedd.	Root decoction is venereal diseases, boil. Fruit is diuretic, and is used for malaria, stomach aches. Leaves are an effective antimicrobial and diuretic, anti-diabetic.         Leaves are cooked as vegetable.         Fruit extract used in toothache.         Roots are used in curing diarrhea; Extract of leaf is used as anti helminthic remedy         Fruit and young leaves can be used to treat stomach ache, blood dysentery.		
179 180 <b>SAUR</b> 181 <b>URTIO</b> 182 183	Solanum torvumSw. Solanum nigrum L. Solanum viarum Dunal URACEAE Houttuynia cordata Thunb. CACEAE Debregeasia longifolia (Burm.f.) Wedd. Pouzolzia zeylenica(L.) Benn.	Root decoction is venereal diseases, boil. Fruit is diuretic, and is used for malaria, stomach aches. Leaves are an effective antimicrobial and diuretic, anti-diabetic.         Leaves are cooked as vegetable.         Fruit extract used in toothache.         Roots are used in curing diarrhea; Extract of leaf is used as anti helminthic remedy         Fruit and young leaves can be used to treat stomach ache, blood dysentery.         Roots eaten to cure dysentery, cough and Asthma.		
179 180 <b>SAUR</b> 181 <b>URTIO</b> 182 183 <b>VERB</b>	Solanum torvumSw. Solanum nigrum L. Solanum viarum Dunal URACEAE Houttuynia cordata Thunb. CACEAE Debregeasia longifolia (Burm.f.) Wedd. Pouzolzia zeylenica(L.) Benn. ENACEAE	Root decoction is venereal diseases, boil. Fruit is diuretic and is used for malaria, stomach aches. Leaves are an effective antimicrobial and diuretic, anti-diabetic.         Leaves are cooked as vegetable.         Fruit extract used in toothache.         Roots are used in curing diarrhea; Extract of leaf is used as anti helminthic remedy         Fruit and young leaves can be used to treat stomach ache, blood dysentery.         Roots eaten to cure dysentery, cough and Asthma.		
179 180 SAUR 181 URTIC 182 183 VERB 184	Solanum torvumSw. Solanum nigrum L. Solanum viarum Dunal URACEAE Houttuynia cordata Thunb. CACEAE Debregeasia longifolia (Burm.f.) Wedd. Pouzolzia zeylenica(L.) Benn. ENACEAE Clerodendrunt viscosum Ventenat	Root decoction is venereal diseases, boil. Fruit is diuretic, and is used for malaria, stomach aches. Leaves are an effective antimicrobial and diuretic, anti-diabetic.         Leaves are cooked as vegetable.         Fruit extract used in toothache.         Roots are used in curing diarrhea; Extract of leaf is used as anti helminthic remedy         Fruit and young leaves can be used to treat stomach ache, blood dysentery.         Roots eaten to cure dysentery, cough and Asthma.         Leaf decoction used to check high blood pressure.		
179 180 <b>SAUR</b> 181 <b>URTIO</b> 182 183 <b>VERB</b> 184 185	Solanum torvumSw. Solanum nigrum L. Solanum viarum Dunal URACEAE Houttuynia cordata Thunb. CACEAE Debregeasia longifolia (Burm.f.) Wedd. Pouzolzia zeylenica(L.) Benn. ENACEAE Clerodendrunt viscosum Ventenat Lantana camaraL.	Root decoction is venereal diseases, boil. Fruit is diuretic, and is used for malaria, stomach aches. Leaves are an effective antimicrobial and diuretic, anti-diabetic.         Leaves are cooked as vegetable.         Fruit extract used in toothache.         Roots are used in curing diarrhea; Extract of leaf is used as anti helminthic remedy         Fruit and young leaves can be used to treat stomach ache, blood dysentery.         Roots eaten to cure dysentery, cough and Asthma.         Leaves are applied for headaches, fever, flu, coughs, colds toothaches and indigestion boils, swellings and pain of the body. Bark is used for leprosy and ulcer. Flower for tuberculosis.		
179 180 SAUR 181 URTIO 182 183 VERB 184 185 VITAO	Solanum torvumSw. Solanum nigrum L. Solanum viarum Dunal URACEAE Houttuynia cordata Thunb. CACEAE Debregeasia longifolia (Burm.f.) Wedd. Pouzolzia zeylenica(L.) Benn. ENACEAE Clerodendrunt viscosum Ventenat Lantana camaraL. CEAE	Root decoction is venereal diseases, boil. Fruit is diuretic, and is used for malaria, stomach aches. Leaves are an effective antimicrobial and diuretic, anti-diabetic.         Leaves are cooked as vegetable.         Fruit extract used in toothache.         Roots are used in curing diarrhea; Extract of leaf is used as anti helminthic remedy         Fruit and young leaves can be used to treat stomach ache, blood dysentery.         Roots eaten to cure dysentery, cough and Asthma.         Leaves are applied for headaches, fever, flu, coughs, colds toothaches and indigestion boils, swellings and pain of the body. Bark is used for leprosy and ulcer. Flower for tuberculosis.		
179 180 <b>SAUR</b> 181 <b>URTIO</b> 182 183 <b>VERB</b> 184 185 <b>VITAO</b> 186	Solanum torvumSw. Solanum nigrum L. Solanum viarum Dunal URACEAE Houttuynia cordata Thunb. CACEAE Debregeasia longifolia (Burm.f.) Wedd. Pouzolzia zeylenica(L.) Benn. ENACEAE Clerodendrunt viscosum Ventenat Lantana camaraL. CEAE Ampelocissus latifolia (Roxb.)	Root decoction is venereal diseases, boil. Fruit is diuretic, and is used for malaria, stomach aches. Leaves are an effective antimicrobial and diuretic, anti-diabetic.         Leaves are cooked as vegetable.         Fruit extract used in toothache.         Roots are used in curing diarrhea; Extract of leaf is used as anti helminthic remedy         Fruit and young leaves can be used to treat stomach ache, blood dysentery.         Roots eaten to cure dysentery, cough and Asthma.         Leaves are applied for headaches, fever, flu, coughs, colds toothaches and indigestion boils, swellings and pain of the body. Bark is used for leprosy and ulcer. Flower for tuberculosis.         Plants are used in fever, cough-cold tonic.		

187	87 <i>Cissus quadrangularis</i> L. Stem extract is used to treat broken Bone.			
ZINGI	BERACEA			
188	188         Alpinia nigra (Gertner) Burtt         Juice of rhizome is used against dyspepsia			
		GYMNOSPERM		
GNET	ACEAE			
189	Gnetum gnemonL.	Tender leaves and shoots are used as vegetables and ripe fruits are eaten raw		
PINAC	CEAE			
190	Pinus kesia Royle ex Gordon	Young shoots are taken early in the morning to get relieve from cough in children		
TAXA	CEAE			
191	Taxus baccata L.	The leaves have been used internally in the treatment of asthma, bronchitis, hiccup,		
		indigestion, rheumatism and epilepsy. Externally, the leaves have been used in a steam		
		bath as a treatment for rheumatism.		
		FERN		
ATHY	RIACEAE			
192	Allantodia aspera (Blume)	Tender leaves are used as vegetables		
	Ching			
193	Diplazium esculentum (Retz.)	Tender shoot, Leaves etc.used as vegetable.		
	Sw.			
DRYO	PTERIDACEAE			
194	194 <b>Dryopteris filix-mas</b> (L.) Schott. Fronds are cooked as vegetable.			
POLY	POLYPODIACEAE			
195	Prynaria quercifolia (L.) J. Sm. Pinnae is used in treatment of bone fracture; rhizome paste applied externally for blood			
		clotting.		
196	Microsorum punctatum (L.)	Paste of fronds are useful against constipation, urinary disorders, snakebite, dysentery		
	Copel.	and for healing wounds.		
197	Pyrrosia lanceolata (L.) Farw.	Paste of fronds are useful against Cough & cold and sore throats.		
PTERIDACEAE				
198.	Pteris vittataL.	A paste prepared from the whole plant is applied to the affected area for the treatment of		
		fractures and also taken for coughs in children.		
199	Adiantum caudatumL.	Rhizome paste are used against whooping cough and fever.		
200	Adiantum lunulatumBurm. f. Frond paste useful against asthma, leprosy; also use as hair tonic.			
THEL	THELYPTERIDACEAE			
201	01 Christella dentate (Forssk.) Fronds are used to treat Swellings, rheumatism, blood vomiting, urinary disorders, insec			
	Brownsey & Jermy repellent, wounds & cuts.			
SALVI	INIACEAE			
202	Azolla pinnata R. Br.	Whole plant is use to increase the fertility of rice field, Use as fodder.		
MARSILEACEAE				
203	Marsilea minuta L	Fronds are cooked as vegetable		

#### **Conservation of Biodiversity due to livelihood:**

Culture of indigenous community and various ethnic technologies are deeply linked, like two sides of the same coin. Such people must gather all the necessities for their community; therefore their life and livelihood are dependent on natural resources and appropriate methods. They have developed numerous sustainable techniques since they are keenly aware of how important forest ecosystem is to their economy, way of life, and socio-cultural existence. Indigenous populations that rely on forest products and services can initially pose a significant threat to forest protection. Latter they have adapted to protect forest degradation by plantation of forest plants in their own land and in this way they have developed agroforestry practices. Besides the knowledge on flora, the tribal people in the subcontinent have also expertise in studying behavior of animals and birds in the forest. These people are highly experienced with developing homegardens or kitchen gardens for food security as well as to meet their needs such as remedies, decorative, livestock, fire wood, and monetary income-generating items [38]. Since a long period of time, these resources have been mined by indigenous population using their distinct traditonal practices of their utilization and sold to prospectors for low or negligible prices. Their homeyard garden symbolizes the wisdom indigenous values and ecological understanding that have evolved over the years [74]. Pradheeps et al., (2015) reported that some tribal communities of north Kerala, namely Kattunaikens, Kurumas, Kurichiyas, Paniyas, Adiyas and Ooralis, live in the forests and practices farming in the valleys in between the mountainous terrain that provides them the proper watershed and wetlands. Indigenous people of India are also very familiar to ethnoveterinary practices and the tribal healers of the region had acquired their own traditional system of treatment from their ancestors [75]. They are very careful about cultivation of fodder plants for their cattles. *Cynodon dactylon* (L.)Pers., Eragrostis amabilis (L.)Wight & Arn., Sacciolepis indica (L.) Chase, Dactyloctenium aegyptium (L.) Willd., Chrysopogon aciculatus (Retz.) Trin, etc are widely cultivated as fodder plants by these people. In India, ethnic community inhabiting the Andaman and Nicobar Islands are among the most primitive people and ethnobotanical data gathered from these people has piqued scientists' interest for its unusual inclusion of several pteridophytes, or ferns and related group of plants [66]. Some plants are

automatically conserved due to their utility as fencing. Some of them are *Bougainvillea spectabilis* Willd., *Carissa carandas* L., *Duranta erecta* L., *Euphorbia antiquorum* L., *Euphorbia tithymaloides* L., *Ipomoea fistulosa* Mart., *Jatropha curcas* L., *Juniperus virginiana* L., *Hamelia patens* Jacq., *Murraya paniculata* (L.) Jack, *Pandanus odorifer* (Forssk.)Kuntze, *Volkameria inermis* L. etc [75]. Many plants are conserved due to their pest repellant efficacy. For examples seed powder of *Gloriosa superba* L. is used as wormicide [67];*Gymnocladus assamicus* P.C. Kanjilal is used as is infectant for parasites like leeches and lice [60].

Without any scientific instrument and analytical tools some ethnic communities across the India have developed the practice of assessing weather conditions using their observation, experience and accumulated knowledge of generations. Their traditional knowledge enables them to anticipate cloud formation, lightning, wind direction, precipitation, drought, disaster prediction-response-mitigation, and the effects of weather on agriculture [23]. Ethnic communities rely on traditional methods of prediction to make decisions about the local cultivars of food crops and the preservation of other plants with ethnobotanical significance. Many plants and their phenomena are extensively used as bioindicator for traditional forecasting of weather. Some ethnic communities in Himalayan region have considered that mild blossoming of *Prunus*, *Ficus* etc indicates onset of spring, where as abundant blossoming of such plants represents rainy season [76]. In some hilly region ethnic people can predict about humidity and rainfall by assessing structural change and flexibility of cones of *Pinus*. In some areas, indigenous people believed that if the Azadirachta indica tree produces an abundance of fruit and the Acacia nilotica tree produces an abundance of pods, then the overall monsoon rainfall will be high [77]. Throughout history and up to the current, ethnic groups, particularly those living in hazard-prone locations, have amassed enormous expertise on catastrophe avoidance and management through plant-based strategies. For example, ethnic communities living on islands and in coastal regions such as the Sundarbans contribute to numerous ecosystem services such as soil development, erosion prevention, and the control of the hydrological cycle, moisture content, evaporation, climatic condition, and the protection of the country from natural disasters [78]. They have evolved to avert damage by employing techniques that have been used for centuries. Planting bamboo along riverbanks has been used by indigenous people in some areas of Assam to slow the rate at which water is washed away from the riverbed during times of high rainfall [79].

Through the ages, indigenous people have relied on their own observations and interpretations of weather patterns to plan their annual and seasonal activities [7]. The social configuration that generate, utilize, preserve, and pass down traditional knowledge between generations and the customary laws and protocols that govern these processes, are deeply rooted in their traditional location and community setting, and indeed may be conceived as integral to the land and environment itself [80]. Mainstream civilization or so-called civilized country can learn from bearers of traditional knowledge to better comprehend and enhance region-specific adaptive methods for maintaining biocultural variety and reducing land degradation [81]. They have enough knowledge about the plant products having commercial values. When researchers of pharmaceutical sector set their focus on indigenous procedures for recognized therapeutics and the invention of plant-derived innovative drugs, it becomes clear that indigenous people have practical expertise of drug extraction and purification.

## Conservation of Biodiversity due to religious belief:

Indigenous cultural complexes such as tradition, rituals, belief and celebration of different festivals and events are directly associated with the conservation of the natural environment [82]. In indigenous societies, the ritualistic, symbolic, and religious associations with plants are more deeply ingrained than the material uses of plants and other related bioresources [83]. Many Indian gardens and arboretums have their roots in ancient Indian beliefs and philosophical concept regarding the power of plants over human emotions, behaviour, and even destiny. Sacred groves play a significant role in conserving soil and water and are viewed as holy places where many rituals and devotion take place [84]. Within Indian Territory almost 13720 sacred groves were recorded among which 5000 are in Himachal Pradesh [42,45]. Each of the states of Kerala and Chhattisgarh claimed having 2000 sacred groves, whereas Maharashtra admitted having 1600 [45,85,87]. The Sacred Grooves play an exceptional significance in ecological processes such as hygienic environment, safeguarding of flora and fauna, carbon sequestration, temperature regulation, preservation of traditional knowledge, etc., and are thus the heart of ecological research [84, 87]. There are many different cultural and traditional beliefs connected to these sacred sites, all of which contribute to the preservation of them. Religious beliefs and myths have a significant role in protecting biodiversity from exploitation for both personal and commercial gain. A vast number of tropical plant species are typically threatened in this country as a result of deforestation, disintegration of forest, and destruction of habitat. Indigenous tribes retain certain plants in their native habitat owing to the magical-religious belief that they are the home of gods and goddesses. For example Sacred groves,

which are actually pristine forest pockets, dedicated to local deities, are preserved and managed traditionally by local inhabitants till date [88]. Prakash [89] has reported that among the indigenous communities of Andhra Pradesh, few flora, primarily trees designated as part of a sacred grove, are offlimits to typical human meddling as they belong to the gods habitation. Thus, indigenous knowledge and associated practices are acknowledged as playing an important role in sustainable management of forest and natural vegetation among aborigines, which also contributes to their societal empowerment. The belief is unique and varies from community to community and even from village to village.

Scientific Name	Family Mythological and Religious belief		References
Aegle marmelos (L.) Correa Rutaceae		Leaves are used for prayers and rituals	[90, 91]
Alstonia scholaris (L.) R. Br.	tonia scholaris (L.) R. Br. Apocynaceae Considered as sacred tree and habitat of Shani		[92]
Ardisia solanacea (Poir.) Roxb.	Primulaceae	Considered as sacred tree and habitat of lord	[92]
		Krisna	
Artocarpus chama BuchHam.	Moraceae	Considered as sacred tree and habitat of	[92]
		Nagdevta	
Azadirachta indica A.Juss.	Meliaceae	Habitat of Serpent King	[91,93]
Calotropis gigantea (L.) Dryand.	Asclepiadeceae	Offered during prayers to Lord Shiva	[91]
Citrus medica L.	Rutaceae	Considered sacred for its worship	[91]
Cynodon dactylon(L.) Pers.	Poaceae	Considered sacred for its worship	[94]
Datura stramonium L.	Solanceae	Flowers are used in rituals	[84]
Desmostachya bipinnata (L.)	Poaceae	Plants are used in rituals	[84]
Stapf			
Haldina cordifolia (Roxb.)	Rubiaceae	Regarded as the abode of Goddess Basari	[55]
Ridsdale			
Ficus benghalensis L.	Moraceae	Considered sacred for its worship	[84,93]
Ficus religiosa L.	Moraceae	Considered sacred for its worship	[90,93]
Elaeocarpus serratus L.	Eleocarpaceae	Considered sacred	[84]
Evolvulus alsinoides (L.) L.	Convolvulaceae	Considered sacred for its worship	[94]
Mangifera indica L.	Anacardiaceae	Leaves are used in religious purposes	[91]
Musa paradisica L.	Musaceae	Plants are used in rituals	[84]
Nelumbo nucifera Gaertn.	Nymphaceae	Flowers are used for prayer of goddess Durga or	[91]
		Ambika and many rituals	
Nerium oleander L.	Apocynaceae	Habitat Lord Ganesh	[91]
Ocimum tenuiflorum L.	Lamiaceae	Considered as Goddess in Hindu rituals	[91]
Saraca indica L.	Fabaceae	Considered sacred for its worship	[94]
Saussurea costus (Falc.) Lipsch.	Asteraceae	Offered during prayers to Lord Shiva	[11, 91]
Sesbania grandiflora (L.) Pers.	Fabaceae	Habitat of Lord Narayana	[91]
Terminalia arjuna (Roxb. ex DC.)	Combretaceae	Habitat of Lord Brahma	[91]
Wight & Arn.			

Table 2: Plants associated wit	th Mytholo	gical and Reli	gious belief of	ethnic People
		A		

# PROTECTION OF INTELLECTUAL RIGHTS OF INDIGENOUS PEOPLE MEANS PROTECTION OF BIODIVERSITY:

Biodiversity is crucial for human life, economic prosperity, and the stability of ecosystems. Indigenous communities of India has a rich tradition of conservation of plant, and with growing initiatives from the Government, scientists and NGOs, should provide better result in conservation of plant diversity. Since ancient time indigenous people have managed natural resources through two basic approachessustainable use and preservation. The conservation efforts and cultural ethos of the ethnic people is amply demonstrated by various researchers. Conservation of plant biodiversity is a herculean undertaking whether considered nationally or worldwide, but the combining of well-managed protected area system, ex situ gap-filling and back-up should be effective anywhere [5]. Involvement of ethnic knowledge and approaches in such conservation has given high rate of success throughout the country. But there are some obstacles in the path of this goal. Historically, contemporary civilizations have viewed indigenous people along with their traditions as less progressive and, as a result, many indigenous tribes, particularly the younger generations, are urged to depreciate their native tradition and accept so called modern practices and innovations [95]. In some instances, the rights of indigenous people and native communities are not recognized legally, and as a result, the indigenous people in those locations are disregarded. Prior to independence, British colonial power used forest reserve to invalidate the traditional rights of several indigenous tribes living in India's forests and plains. The condition is still more or less same in respect of social and economical development. The creation of protected areas like

as eco-parks, national parks, and wildlife reserves resulted in the expulsion of thousands of indigenous peoples from their lands. In most cases they are suffering from poverty and insecure life. Presently the ethnic people migrate from one region to another in search for jobs such as agricultural labor, sale of forest products in exchange for other products such as food and/or money [39]. Due to their struggle for existence some of their rituals, technology and traditions will be lost gradually. Since the majority of tribal or ethnic cultures lack their own script and written documents, the prescription, pharmacology, attitude towards diseases, etc. of the ancient tribal medicine system are lost [52]. Similarly their knowledge about ethnobotany, agriculture, biodiversity conservation policy is facing a greater risk of loss and misappropriation. All these ethnic knowledge needs to be preserved carefully in order to achieve inclusive development in the sector of modern sciences including plant science and medicines. Urgent measures are required to preserve valuable oral or folk knowledge of the indigenous people of the country for a better future. There is also a need for increased government and public support to indigenous community and ethnic people of this country. In order to protect the rights of Indigenous peoples as well as rights of native communities over forests and natural resources, various nations, including India, have undertaken forest tenure reforms [96]. In India, the federal government has enacted the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act of 2006 (consequently referred by the Forest Rights Act) to recognize and vest the legal protection of forest communities. This is a significant step towards the conclusion of a long-running struggle by these communities for rights on forest [97].

It is fact that without the active involvement of indigenous people proper conservation of plant diversity is not possible. A balanced leadership among scientists, government and indigenous communities can achieve desired targets of protecting biodiversity. Indigenous communities should have the legal authority to manage their own resources, and this right must be protected [98]. The five principles have been framed by Global Governments and conservation organizations can promote indigenous community-oriented conservation through the Biodiversity Framework 2020. The most notable steps of these (a) building trust-oriented networks of people to work together for conservation; (b) equity and equality for various marginalized communities, social justice, and protection of women; (c) supporting reconciliation and rigorous conservation enclosures over social injustice in conservation; (d) adopting a "rights-based" strategy; and greater transparency about resource extraction; and most importantly (e) respecting and reviving traditional knowledge and local rules [99,100]. By providing these basic rights country has gained many ecological and scientific benefits. In the context of plant biodiversity, threatened plants are regarded as the treasures of our natural heritage, and numerous researchers support the opinion that these species could be maintained, monitored, and safeguarded by specialists in conjunction with indigenous communities [101]. Ancestral regions and the resources they contain hold a special place in the hearts of indigenous people. Their direct involvement in the research can explore many information regarding plant science and environmental science as many indigenous knowledge is documented in tribal languages which is much different from the official languages.

## CONCLUSION

India is blessed with diverse flora and diverse indigenous communities. Most of the indigenous people are very familiar with the conservation of plants. Various aspects of their life are intricately associated with plants. In simple language it can be said that protecting of indigenous communities means maintaining the conservation of plant diversity and ecosystem of their residing areas. In India almost all the tribal territories are rich in biodiversity and plants are intimately related to the socioeconomic, ethnic, linguistic and cultural aspects of the ethnic people. Plant based indigenous knowledge originated in local contexts to solve several local issues related to food, health, agriculture, disaster management etc., and in addition, it is not in competition with the scientific method; it is simply another type of knowledge. For managing edible, medicinal, and ceremonial plants such people have developed a broad variety of practices and regulations. Except some protected areas, most of the regions of India are facing rapid destruction diversity especially the diversity of non timber plants. Since long time it was thought except timber plants only few plants are edible and medicinal. Latter many ethnobotanical and ethnomedicinal studies revealed that only a few plants are apparently non beneficial. Most of these studies have conducted to record the ethnobotanical knowledge of ethnic people. However it is also found that some factors related to indigenous people have also responsible for the destruction of vegetation. One of the disadvantages of some indigenous communities is the overharvesting of plants from the natural vegetation as a result of excessive commercialization of herbal supplements. Though such knowledge is passed down from generation to generation and has resulted in realistic breakthroughs, the impact of urban trends on the socio demographic lifestyle of rural and indigenous people are the key factors asserted for the alarming

situation of native plants and the traditional systems of therapeutics associated with them. The first and most important step in the conservation and restoration process is to raise awareness about the value of plant biodiversity. Indigenous Peoples are very essential to fulfill any global biodiversity targets. Every indigenous community has unique cultural backgrounds and unique ethnobotanical aspects. Notably, much indigenous information concerning biodiversity conservation and ethnobotanical knowledge is passed down verbally from one generation to next generation among family members, but documenting of such knowledge is critical. Research on indigenous people of India, especially that related to ethnobotany, has progressed since many decades but emphasis is placed on only some specific communities that have been detected in geographically famous areas. Most of the researchers are involved in the study of traditional ethnomedicine but some real effort is also needed to collect information regarding their knowledge about biodiversity conservation. If the current rate of cultural shift among India's indigenous populations persists, the understanding of traditional medicinal and culinary plants accumulated over millennia may be lost in the next few generations. Preserving and safeguarding these indigenous and ethnic people as well as their traditional knowledge we can protect our biodiversity and ecosystem. In most cases there settlements are surrounded by well structured homegarden or agroforest which also reveal their ability to adapt and adjust with biodiversity and natural environment. In the recent era a variety of initiatives are being made across the globe including India towards achieving it. Never before has it been more crucial to utilize the full potential of indigenous knowledge for environmental sustainability, both to meet the immediate and long-term needs of growing populations and to ensure the continuation of natural resources.



Fig1: Contribution of Ethnic in the Conservation of Plant Biodiversity in India



Fig 2: Role of Indigenous Knowledge (Green circle) and factors responsible their degradation (yellow box).

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