

## 2. Significance of Women Contributions to Biodiversity Conservation in India

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### **Abstract:**

*The Interdependence of Humans and Biodiversity, with a Special Focus on Women's Vital Contributions to Conservation in India. Women have emerged as prominent figures in various fields, notably in environmental conservation. They are acknowledged as the protectors of biodiversity, maintaining an intimate relationship with nature and its diversity, which are essential for the sustenance of families and communities. Women, as the primary bearers of traditional knowledge about biodiversity, are crucial in the decision-making processes regarding the utilization of natural and biodiversity resources. Evidence indicates that women are predominantly responsible for the collection and utilization of a majority of wild plants for various purposes. Their constant interaction with nature has endowed them with an extensive understanding of different species and ecosystems. The effective management and conservation of biodiversity are unattainable without the active participation of women. They are, in many ways, natural resource managers and play a critical role in transferring traditional knowledge. As acknowledged guardians of biodiversity, enhancing women's roles and involving them more in the management of biodiversity resources can lead to significant advancements in conservation efforts.*

### **Keywords:**

*Biodiversity, community, ecosystem, women power, custodians, strides.*

### **2.1 Introduction:**

Biodiversity encompasses the variety of life forms in all environments, including terrestrial, marine, and other aquatic ecosystems, and the ecological complexes they form. This diversity spans across species, within species, and among ecosystems. Globally, there are approximately 8.7 million species, evidencing the rich tapestry of life [1].

Biodiversity is not only a cornerstone for ecological balance but also a crucial resource for technological advancements in sectors like agriculture and pharmaceuticals [2]. India, covering about 2.4% of the world's landmass, boasts a significant portion of global biodiversity, with 47,513 plant species, accounting for 11.4% of the world's flora [3]. The country is recognized as a biodiversity hotspot, with diverse natural ecosystems ranging from the Himalayas to coastal regions, and from lush northeastern forests to the arid northwestern deserts.

These include varied forests, wetlands, islands, and oceanic areas [4]. In recent years, significant strides have been made in biodiversity conservation. Central to these conservation efforts are women, whose roles cannot be overstated. Traditionally responsible for their families' food, medicinal, and nutritional needs, women are deeply involved in all farming aspects, from seed selection to post-harvest processes. Their intimate connection with nature endows them with profound knowledge of species and ecosystems. They are indispensable in managing and conserving biodiversity, effectively serving as natural resource managers and mediators of traditional knowledge, including local medicinal practices often referred to as "Grandmother's cures" [5]. Indian women, in particular, play a custodial role in biodiversity conservation. Their practices, deeply rooted in cultural and religious traditions, include nurturing and venerating plants like *Ocimum sanctum* (Tulsi) and *Ficus religiosa* (Peepal), which have significant ecological and cultural value. These practices symbolize their devotion and respect for nature, highlighting the ecological importance of these species. Additionally, Indian women's involvement in home gardening conserves various plant varieties, many of which have medicinal uses. Rural women in areas like Madhya Pradesh use plant combinations as birth control agents [6]. Historically, women have been affected by environmental degradation and development but have increasingly been recognized for their critical role in cultivating and managing biodiversity. Their participation in movements like the Chipko movement underscores their commitment to biodiversity conservation. Women's involvement spans the spectrum of biodiversity, from sustainable use to protection, preservation, and cultural reverence, highlighting their indispensable role in maintaining the balance of life on Earth.

## **2.2 Plants are conserved and worshipped by Indian women as home of God and Goddess:**

In Indian culture, many women hold a deep reverence for plants, treating them as sacred abodes of gods and goddesses. This practice reflects a spiritual connection with nature, where plants are not merely seen as flora but as entities embodying divine presence.

**Table 2.1: Worshipped by Indian Women as Home of God and Goddess**

<b>Sr. No.</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Name of God and Goddess Residing in Plants</b>
1	Tulsi	<i>Ocimum sanctum</i>	Lord Vishnu
2	Bel	<i>Aegle marmelos Corr</i>	Lord Shiva
3	Chandan	<i>Santalum album</i>	Goddess Parvati
4	Ashoka	<i>Saraca asoca</i>	Kama Deva or God of love

Sr. No.	Common Name	Scientific Name	Name of God and Goddess Residing in Plants
5	Kamal	<i>Nelumbi nucifera</i>	Goddess Sarswati, Laxmi
6	Kadamba	<i>Neolamarckia cadamba</i>	Goddess Durga
7	Banana	<i>Musa acuminata</i>	Lord Vishnu and Goddess Laxmi
8	Peepal	<i>Ficus religiosa</i>	Lord brahma, Vishnu and Shiva
9	Neem	<i>Azadiracta indica</i>	Goddess Durga and Neemari Devi
10	Arjun	<i>Terminelia arjuna</i>	Lord Brahma
11	Madar	<i>Calotropis gigantean</i>	Lord Shiva
12	Agasti	<i>Sesbania grandiflora</i>	Lord Narayana
13	Amla	<i>Phyllanthus emblica</i> Linn	Lord Shiva
14	Durva	<i>Cynodon dactylon Pers</i>	Lord Ganesha, Vishnu and Shiva

### 2.2.1 Food Plants Conserved by Indian Women:

An Indian woman is considered as custodian of culture and biodiversity. Indian women have conserved several plants and endangered cultivars of agriculture crops such as rice, maize, millet, grains, legumes, fruits, and vegetables. Women are also well versed with the economically important plant species of their area which they learned from their ancestors, make sustainable use of it and pass this knowledge to their future generations.

This traditional knowledge helps them collecting edible products from forests products and grow them on their piece of land which are repositories of local biodiversity of plants of utility near the human inhabitations of the tribal and rural area of India. This practice has not only played a significant role in domestication and conservation of varied plant species of Indian origins [7].

**Table 2.2: Different Movements Run by Women for Conservation of Plant Diversity**

Sr. No	Name of Organization	Name of Movement/Year	Place/Area	Related Plants
1	Gaura devi	Chipako Movement 1970	Chamoli, Uttarakhand	Timber plants
2	Amrita Devi Bishnoi	Bishnoi movement 1973	Khejarli village, Rajasthan	Khejari plants
3	Suryamani Bhagat	"Save the forests of Jharkhand movement" 1980	Kotari village, Jharkhand	Sal forests
4	Vasantha Sena (Green force)	Vasantha sena movement"(1810)	Villages near Periyar tiger reserve, Kerala	All forests

Sr. No	Name of Organization	Name of Movement/Year	Place/Area	Related Plants
5	Vasudha Chakrathi and Rathika Ramasamy	Indian wildlife Photographers	Whole India	-
6	Koli-Agri Community	Save the food and fodder	Maharashtra	Worship Ayurvedic plants
7	Ujiyaro Bai	Save the goddess plants	Madhya Pradesh	Forest conservation around Baiga Chakka belt
8	Women's "Forest conservation committee"	Bold conservation movement by women (2000)	Odisha	Plants of "Seven brother hill"

### 2.3 Variety of Plants Conserved by Indian Women for Medicinal Purposes, Including Fertility, Menstrual Disorders, and Other Ailments:

Reproductive health complications in women of childbearing age are a major global health issue, leading to significant morbidity and mortality. However, menstrual disorders, a key aspect of women's health, often go unrecognized in global reproductive health initiatives [8].

Herbal remedies, known to be among the earliest forms of healthcare, play a crucial role in this context. Before the advent of modern medicine, various communities developed traditional medicine systems over centuries, creating a rich repository of herbal medicinal knowledge [9].

This wealth of information, traditionally transmitted orally from one generation to the next, remains a vital part of various indigenous cultures worldwide, though often without written documentation [10]. However, many medicinal studies have tended to overlook the importance of traditional practices specifically tailored to women's health.

These studies often either disregard the plants used for female health issues [11] or categorize them under broad, generic terms such as 'reproductive disorders' [12], 'gynecological disease' [13], or 'postpartum remedy' [14], thereby undervaluing their specific applications and significance.

**Table 2.3: List of Medicinal Plants Used for Female Health Issues**

Sr.No.	Local Name	Scientific Name	Parts Used	Uses
1	Arand	<i>Ricinus communis L.</i>	Leaves	Secretion of more milk
2	Gudahal	<i>Hibiscus rosasinensis</i>	flowers	White discharge
3	Neel	<i>Indigofera tinctoria</i>	Leaves	White discharge
4	Krishna tulsi	<i>Ocimum basilicum L.</i>	Leaves	Labor pain during child birth

Sr.No.	Local Name	Scientific Name	Parts Used	Uses
5	Papeeta	<i>Carica papaya L.</i>	Fruits	Clean uterus and abortion
6	Bhang	<i>Cannabis sativa</i>	Leaves, Fruits	Gonorrhea
7	Saunph	<i>Foeniculam vulgare</i>	Leaves	Menstrual cycle regulation
8	Gajar	<i>Daucas carota</i>	Leaves	For abortion and Antifertility

## 2.4 Variety of Plants Conserved by Tribal Women for Use as Antidotes for Snake Bites and Scorpion Stings:

Throughout history, bites from poisonous animals have posed a significant global problem, with snake bites being particularly prevalent, leading to high rates of morbidity and mortality. This issue is especially acute in agricultural fields, affecting farmers, laborers, villagers, migrating populations, and hunters, where it is considered an occupational hazard. In response to this challenge, various plant species have been identified and utilized for their medicinal properties as antidotes.

For instance, plants like *Elytraria acaulis*, *Lepidagathis cristata*, *Peristrophe paniculata*, *Acyranthes aspera L.*, *Amaranthus* species, *Acorus calamus*, *Gynandropis gynandra*, and *Buchanania lanzan* have been traditionally used as remedies for snake bites. Similarly, for scorpion stings, plants such as *Andrographis paniculata*, *Acyranthes aspera*, *Calotropis procera*, *Ocimum sanctum*, *Emblica officinalis*, *Madhuca latifolia*, *Tamarindus indica L.*, *Piper longum L.*, and *Azadirachta indica* are known to be effective. These botanical remedies highlight the rich traditional knowledge and practices in addressing the challenges posed by venomous animal encounters.

## 2.5 Conclusion:

India currently boasts a rich array of biodiversity. In this context, Indian women have been instrumental in biodiversity conservation, an effort that becomes increasingly vital in the face of rapid industrialization. Addressing this requires a comprehensive approach, encompassing both vertical and horizontal strategies.

The sustainable management, propagation, and conservation of valuable flora, both in-situ and ex-situ, are essential for the 21st century and crucial for the continuation of life on Earth. The role of Indian women in this endeavor cannot be overstated. As highlighted in this paper, they are predominantly involved in wild plant gathering, home gardening, plant domestication, and serve as the true custodians of biodiversity.

Their involvement is imperative in all environmental and biodiversity conservation programs, from grassroots initiatives to the highest levels of governance. Indian women, with their traditional inclination towards biodiversity conservation and their inherent qualities of being God-fearing, passionate, and nurturing towards all living beings, are uniquely positioned to play a supportive and significant role in government-led biodiversity conservation programs. Their contribution is not only valuable but essential for the sustainable future of our planet's diverse ecosystems.

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