

# STUDY OF STATUS AND CONSERVATION OF BEER FOREST OF JHUNJHUNU DISTRICT

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**ABSTRACT:**

Diversity in plant life is still very important to people, since it contributes a great deal, both traditionally and currently, to the development of medical treatments. The expansive territory of Rajasthan, together with its greenery and flora, is home to many different kinds of medicinal plants that may be found growing in their own habitats. The purpose of this study was to detail a preliminary investigation of rare and endangered medicinal plants that are found in the Beer Jhunjhunu Conservation Reserve in the Indian state of Rajasthan. The area under investigation is a protected forest area that is regarded as being significant in terms of the biodiversity it contains. The region is home to a diverse array of vegetation and wildlife. However, this region's abundant resources, such as the medicinal plants, are being depleted at an alarmingly rapid rate as a result of overexploitation. As a result, the proper administration of the resources associated with traditional medicinal plants has become an urgent problem. The recovery of the species from the brink of extinction should ideally involve both the preservation of the species in its natural environment and the cultivation of artificial regeneration.

*Keywords: Jhunjhunu Beed, Conservation Reserve.*

**INTRODUCTION**

Since the beginning of human history, people have known about plants that possess medicinal and other beneficial characteristics, and these plants have been employed in some form or another in the traditional medical system (Jain and Saklani, 1991). According to estimates provided by the World Health Organization (WHO), at the present time, more than 80 percent of the global population depends on traditional healing practises and herbal remedies for basic healthcare and overall wellness. During the past decade, there has been a rise in demand for ever more medications derived from plant sources, particularly in industrialised nations. Out of the 17500 kinds of blooming plants that may be found in India, more than 1600 plant species are known to be utilised as medicinal herbs (BSI-MoEF, 1993). However, as a result of the growth of socioeconomic systems, human pressures have led to the depletion of natural resources all over the world. This includes the plants that are used in therapeutic practises. More than 150 species have been extinct in the wild as a direct result of the degradation of their natural habitats and the unsustainable harvesting practises that have resulted from overexploitation. The present pace of extinction of plants, in particular medicinal plants, has been further accelerated by the illegal trade of rare and endangered medicinal plants as well as the loss of regeneration capacity in degraded forests. Numerous workers (Singh and Pandey (1998); Shetty and Singh) have provided documentation of the floral variety that may be found in Rajasthan (1987-1993). One of the most important concerns for the social as well as the scientific community is the mounting threat posed by the region's rising population, which is contributing to the extinction of several important animal and plant species (Singh, 2004). The decline of an ecosystem's biodiversity can result in significant and unforeseen

shifts in that system. Protected areas (PAs) such as national parks, wildlife sanctuaries, conservation reserves, and biosphere reserves are the best locations on earth to preserve biodiversity. Other types of PAs include conservation reserves and wildlife sanctuaries. According to Goel and Mitru (2000), a wildlife sanctuary is an essential component of in-situ conservation efforts. In their study, Pandey et al. (2012) placed a strong focus on the construction of national parks and sanctuaries as places where endangered plant species can flourish in an unrestricted environment. The Beer Jhunjhunu Conservation Reserve in Rajasthan is one such location. On March 9, 2012, the State Government of Rajasthan designated this region as a conservation reserve with the goal of protecting landscapes, flora, and wildlife as well as the habitats in which they live.

## Material and methods

The present paper, which is based on a comprehensive survey that was carried out between 2012 and 2014, not only analyses the concerns of the conservation challenges linked with these resources but also explains the richness of medicinal plants that can be found in the forest region. An exhaustive investigation of the protected forest area in Beer indicates that the region is rich in flora and has a variety of medicinal plants that are in danger of extinction. The area also contains a large number of endangered plant categories. The taxonomical classification of the gathered plant species was accomplished with the aid of the published regional flora. During the field study, a variety of different criteria used by the IUCN to classify vulnerable plant species were measured. These included the range of occurrence, the region of occurrence, the number of individuals, and the chance of extinction. The rarity of the species was assessed by a combination of in-field research, visual estimation, literature, and herbaria, as well as conversations with traditional healers, tribe members, and senior residents. An alphabetical list of the plants that were documented along with their local names, families, habits, conservation statuses, main threats, and current statuses in the research region are provided (Table 1). At the regional and global levels, plants are categorised as Critically endangered (CR), Endangered (EN), Vulnerable (VU), Rare (R), Near threatened (NT), and Least concern (LC) threatened according to the current criteria used by the International Union for the Conservation of Nature (IUCN) and the natural resources red list. According to IUCN Red List Category Strategies and Criteria version 3.1 (IUCN Red List Category Strategies and Criteria, 2001), as well as with the assistance of using available Red Data book and standard publications, the endangered status of the plant species was ascertained. This was done so in order to determine whether or not the plant species is currently threatened (Walter and Gillet, 1998; Rao et al., 2003). Utilizing scientific research and engaging in conversation with traditional healers allowed for the evaluation of the therapeutic efficacy of the plant.

## Results

According to the findings of the present study, the Beer Jhunjhunu Conservation Reserve contains a diverse collection of flora and wildlife. The information included in Table 1 pertains to the threatened species of medicinal plants that are native to the area under investigation. The following are some examples of general information on taxonomy, traditional therapeutic usage, and present threats:

### *Acacia catechu* (L. f.) Willd. (Fabaceae)

Gregarious, deciduous tree that may grow up to 6 metres tall and has a greyish brown bark that peels away in long and thin strips. Prickles have a hooked appearance and can be brown or grey. The leaves are a bipinnately complex structure, each consisting of anywhere from 10 to 30 pairs of leaflets. The blooms are a light yellow hue and have spikes that are shaped like cylinders. The pods have a convex surface, are elongated, and are hairless. In the ancient Indian medical system, the extract of the heartwood of the *A. catechu* tree, which is known as "Katha," has been utilised extensively. The plant is utilised as a natural birth control method that does not involve the use of any chemicals. This medicinal plant aids in the process of

blood coagulation in situations where there is considerable bleeding. Gargling with its extract can provide relief for gingivitis, as well as for sore throats and oral ulcers. Gargling with its extract is recommended. Psoriasis, anaemia, ulcers, and gum troubles can all be treated with the bark. People who struggle with weight might benefit greatly by drinking liquid acacia catechu. Both the bark and the heartwood are extracted and used in traditional veterinary medicine for the treatment of broken horn.

*Argyria nervosa* (Burm. f.) Boj. (Convolvulaceae)

A huge climbing shrub that is planted in the garden for its decorative value. White tomentose on the stem. The bottom surfaces of the ovate, cordate, and glabrous leaves have a white tomentose coating. The flowers have a funnel form and are silky and pubescent, while the fruit is globose and apiculate and contains black seeds. The roots are utilised as a tonic, in addition to having diuretic and aphrodisiac properties. The blood is cleansed by the root decoction, and rheumatic discomfort is alleviated as a result. It is recommended to tie the bottom hairy surface of leaves over wounds, boils, and tumours in order to promote early suppuration and healing. A poultice made of leaves is applied to the area in order to bring down the swelling. The top surface of leaves, which possesses cooling capabilities, is called the leaf epidermis. It is used topically to alleviate the irritation. As a result of its antifungal characteristics, it is highly effective in the treatment of fungal infections. It has become extinct in its natural habitat, however it may be seen growing in the Baba Khetanath Ashram in the Beer forest region.

*Calligonum polygonoides* Linn. (Polygonaceae)

It is a perennial shrub that is commonly referred to as Phog in the area. It is a branching shrub that may reach heights of 1-2 metres and has roots that penetrate quite deeply into the ground. Flowers are light pink and sweetly perfumed; they are arranged in axillary fascicles; nuts are rectangular and thickly covered with reddish brown bristles. The stem has been changed into a phylloclade, and the leaves have been reduced, few or none, and have a linear shape (Pullaiah, 2006). Because they produce less smoke and have an excellent burning quality, the thick branching stem and the roots are utilised as a fuel. Buds of flowers are a good remedy for curing sunstroke (Singh et al. 1996). In the study region, these buds are typically served with a dish that is based on curd. As a result of widespread harvesting, the plant is included in the IUCN Red Data Book as a species of plant considered to be in risk of extinction (Singh, 2004). In the past, elderly people had said that its widespread incidence in the research region, but the current analysis has revealed that its occurrence is extremely rare in the study area (Plate 2 g).

*Ceropegia bulbosa* Roxb. (Asclepiadaceae)

The research region had two different types of *Ceropegia bulbosa*, which were identified as *Ceropegia bulbosa* var. *bulbosa* and *Ceropegia bulbosa* var. *lushii*, also referred to as 'khadulo' in the local language. The latter is a variety that has narrower leaves, whereas the former has leaves that are broader (Cooke, 1958). It is a little perennial plant that twines around itself and has a root tuber that is either spherical or oblong and resembles a turnip. It was only seen in a few locations within the research region. Although it is one of the species with the widest distribution, the *Ceropegia bulbosa* is nevertheless considered to be endangered (Yadav and Kamble, 2008). The *C. bulbosa* var. *lushii* species is regarded as an endemic species (Nayar and Sastry, 1987-1989). Both the current study and the IUCN red data book classify the plant as vulnerable; this finding is consistent with those classifications. During the course of the present inquiry, it was discovered at the Morchhala and Nahran ki Johdi study sites. It is of great relevance to medicine in the region under investigation at the moment. Herders and populations in the area use tubers because of their edible nature.

They were utilised by the women of the countryside to encourage fertility and vigour. Urinary bladder stones can be eliminated with oral consumption of the plant's leaves and tubers (Plate 1a).

***Citrullus colocynthis*** (L.) Kuntze (Cucurbitaceae)

It is a perennial, fragile, climbing, monoecious plant that is found most frequently on sandy areas inside the desert zone. The fruit is spherical and dark green with yellowish spots, and it is variegated. When it is ready, it will be filled with a pulp that is dry, spongy, and extremely bitter. The seed was compact, light brown in colour, and smooth.

The fruit can be used to treat gaseous problems and is bitter, pungent, cooling, purgative, antipyretic, anthelmintic, and purgative. It is harmful when consumed in big quantities. Earaches can be alleviated by placing two to three drops of root extract in each ear. Jaundice, urinary infections, and rheumatism are all treatable conditions using root powder. A scorpion bite can be treated using an extract of the root. The commercial medicine known as "colocynth," which is made from the dry pulp of fruit, has a laxative effect. The bacteria that are found in teeth can be eliminated by smoking fruit and then inhaling the smoke. Boils and tumours can both benefit from a poultice made of fruit. For therapeutic purposes, there is an excessive demand placed on it (Plate 2 h).

***Cordia sinensis*** Lam. (Ehretiaceae)

It is a shrub that has a low profile and grows in a dense manner, often reaching a height of up to 4 metres but can occasionally develop into a bushy tree that can grow up to 12 metres tall. The plant is used in the area for a variety of purposes, including food, medicinal, and as a source of different commodities. The orange-red ovoid fruits can be eaten fresh, boiled, or made into pickles. They also have a function in the culinary world. Abortion can be induced with the use of the roots. In order to cure gastrointestinal issues, a decoction made of the root and the bark is typically employed. In order to treat malaria, the roots are cooked, and the resulting decoction is consumed. In the region under investigation, the population of this species is considered to be in an endangered condition due to habitat loss and overexploitation (Plate 1f).

***Enicostemma hyssopifolium*** (Willd.) Verd (Gentianaceae) It is a very beneficial medicinal plant that has been in consistent demand among medical professionals due to its high level of use. It is an upright plant that is glabrous all over and branches out from its base with quadrangular stems. It has sessile leaves that are linear-oblong and three-nerved, little white flowers that grow in clusters at the axils, and an ellipsoidal capsule that contains numerous globose seeds. The plant is referred to as "Kutakrayacho" in its native tongue. It is used as a replacement for "Chirayata." In the region under examination, it possesses a significant amount of therapeutic value. The local populace makes use of it as a treatment for diabetes, fever, and joint discomfort (Plate 1 b).

***Ephedra foliata*** Boiss. ex C.A. Mey (Gnetaceae)

Only gymnosperms, also known as untphog, may be found in the Thar Desert. It is an evergreen perennial woody evergreen climber. In India, it is found mostly in the drier regions of the states of Punjab, Haryana, and Rajasthan. Climbing on *Salvadora oleoides* and *Capparis decidua*, it can be seen in large numbers in the region under investigation. It is a well-known medicinal plant that is employed in the treatment of bronchial asthma, allergies, cold symptoms, cough, and fever. It is a source of the alkaloids ephedrine and pseudoephedrine, among other alkaloids. On the list of endangered plants for the state of Rajasthan, it was categorised as having an extremely low frequency (Plate 1e).

***Leptadenia reticulata*** R.Br. (Asclepiadaceae)



The fact that *Leptadenia reticulata* is also known as Jiwanti indicates that the plant is thought to be able to confer both excellent health and vitality on a person. It has yellowish bark that is badly fractured and has many branches and twines around itself. Jiwanti, also known as *L. reticulata*, is a significant medicinal herb in Ayurvedic practise (Kasera and Shukla, 2003). Even in the Athrva Veda, the term jiwanti makes an appearance. It encourages vigour and the continuation of life. According to the Ayurvedic literature, Jiwanti functions as both a stimulant and a tonic. An plant with traits include being sweet, chilly, aphrodisiac, easy to digest, and rejuvenile, it is characterised as having these characteristics. It improves both the vitality of life and fertility (Plate 1c).

***Maerua oblongifolia*** (Forsk.) A. Rich. (Capparaceae)

Large, thorny, and armless, this woody climbing shrub has smooth, light-brown bark. It is a climbing shrub. The leaves are elliptic-oblong in shape, obtuse in point, mucronate at the base, and glabrous all over. The flowers have a greenish-white colour, and the corymbs are fragrant. The fruit is a berry with a moniliform shape. Seeds are globose, minute. Fever, epilepsy, piles, typhoid, sterility, stomachaches, and some skin ailments can all be treated with the root, according to traditional medicine. It has been discovered that the tubers and the roots are used in the treatment of general debility. For the treatment of diabetes, raw root bulbs were combined with pepper and eaten orally (Ratna Raju et al., 2014)



(a) *Ceropegia bulbosa* var. *bulbosa* Roxb. (b) *Enicostemma hyssopifolium* Willd. Verd. (c) *Leptadenia reticulata*



(d) *Peganum harmala* L. (e) *Ephedra foliata* Boiss. & Kotschy ex Boiss (f) *Cordia sinensis* Lam. (Retz.) Wt. & Arn.

**PLATE 1: THREATENED MEDICINAL PLANT SPECIES OF THE STUDY AREA**

***Peganum harmala*** Linn. (Zygophyllaceae)

It is a branching, perennial shrub that can only be found on the margins of saltwater bodies of water or on soils high in calcium carbonate. The stem is branched in a dichotomous pattern and sulcate. The leaf blades

are cut into multiple shorter segments that can be anywhere from five to eight centimetres in length. White in colour, the flower emerges singly from the axil of the leaves and has no discernible scent. The fruit is a globose capsule that contains numerous seeds in an angled arrangement. Jaundice and rheumatism were two of the conditions that it was used to cure among local rural and tribal populations. Smoking the entire plant can help reduce toothaches as well as asthma symptoms. They utilised a mixture of the powdered roots of this plant and mustard oil to rid the hair of lice. Mosquito-repellent houseplants are plants that are kept inside the home. It was spotted in the study area hidden behind the Forest Chowki, which is only accessible to Khadans (Plate 1d).

***Salvadora persica*** Linn. (Salvadoraceae)

It is common in the desert parts of India and may frequently be found on salty soils. Its distribution is widespread. The Miswak, often referred to as the Toothbrush Tree, is a tiny evergreen tree or shrub that stands erect. The product known as miswak, which is used to clean teeth, is made from the roots and delicate branches of the *S. persica* plant. The Holy Quran makes reference to its significance on several occasions. Since ancient times, it has been utilised as a natural toothbrush, and the fibrous branches of the plant have been recommended for use in oral hygiene practises by the World Health Organization (Bairwa et al., 2012). The plant is used to make a variety of useful goods, including fluorides, abrasives, antiseptics, astringents, detergents, and enzyme inhibitors. Rheumatism, leprosy, gonorrhoea, ulcers, scurvy, tumours, and dental problems are among of the conditions that have historically been treated with this remedy. Occasional sightings of it were reported in the Beer region (Plate 2 i).

***Sarcostemma viminalis*** Linn. (Asclepiadaceae)

Within the scope of this research, the plant is referred to as "Khirkhimp" and is characterised as a scraggly, nearly entirely leafless shrub that has a large number of branches. The adjective "fleshy" comes from the Greek word "sarco," which means "flesh," and "Stemma" refers to the fleshy inner corona. The popular name for this plant, which refers to the corrosive nature of the latex that is secreted, is caustic vine. It has a significant therapeutic potential, and the infusion of the whole plant is typically used by people living in rural areas to treat wounds caused by snake bites. In addition, a paste made from plants can be administered topically to cracked bones to heal them. Plant extract is administered in digestive diseases. This kind of plant is often considered to be endangered in the research region and requires the utmost care and conservation (Plate 2 j).

***Tecomella undulata*** (Sm.) Seem (Bignoniaceae) The name "Marwar teak" refers to the fact that it is frequently discovered in plains on sandy hummocky soils. A tree of average size with hairy, drooping branches and a moderate amount of height. The leaves are simple and glabrous. They are oblong in shape, undulating, and have whole edges. Campanulate in shape and ranging in hue from yellow to orange, these flowers are grouped in a racemose inflorescence. The fruit is a falcate to circinate capsule that is smooth, and it contains reniform seeds. In order to cure a variety of skin conditions, a paste made of the leaves, stem, and root bark is utilised. The leaves and the inner bark of the stem are heated to generate an extract that is then used to treat eczema and psoriasis. The juice from the leaves is combined with water and used to treat typhoid fever and pneumonia. The guinea worm can be removed using leaves that have been heated and then



wrapped over the swelling. In the treatment of leucorrhoea, root bark is used. Orange colour may be obtained from flowers using natural dye (Plate 2 k).



(g) *Calligonum polygonoides* L.(h) *Citrullus colocynthis* (L.) Kuntze (i) *Salvadora persica* L.



(j) *Sarcostemma viminalis* (L.)R. Br. (k) *Tecomella undulata* (Sm.) Seem. (l) *Tephrosia falciformis* Ramaswami

#### PLATE 2: THREATENED MEDICINAL PLANT SPECIES OF THE STUDY AREA

*Tephrosia falciformis* (Pers.) Ramaswamy

Ratti biyani is the popular name for this dish. It is a shrub that grows on sandy plains and can reach heights of three to four feet and has many branches. It is a kind of plant that is only found in Rajasthan and is extremely uncommon. The leaves are imparipinnate and consist of seven to nine different pairs of leaflets. On both sides of the leaflets is a rich covering of hairs that feel like silk. This plant has not been studied for its potential medical uses, however it is abundant in secondary metabolites. Pain relief is provided by the plant to patients suffering from inflammatory pathological disorders such as fracture and disintegration (Plate 2 l).

*Withania somnifera* (Linn.) Dunal (Solanaceae)

A perennial low shrub with many side branches that grows from a tuberous or almost tuberous base. It is a miracle shrub that has been utilised traditionally as a component of folk medicine for a number of different treatments. It is said that the roots have aphrodisiac, diuretic, and germicidal properties. The powder of the roots can be used as a tonic for conditions such as weakness, neurological disorders, leucorrhea, and arthritis. Root that is beneficial in the treatment of digestive disorders, rheumatic diseases, TB, sleeplessness, colds, and coughs The powder made from the dried roots has been shown to stimulate development in youngsters and slow down the ageing process in adults. On painful swellings, dried roots that have been ground up and leaves that have been crushed are applied. The use of leaves has been shown to be effective in the treatment of skin ailments, wounds, and tumours. To bring down a fever, an infusion of leaves may be taken. Seeds and fruits have a diuretic effect.

**Discussion**

All forests act as islands of biodiversity, providing protection for a diverse range of plant and animal species, including those that are extremely uncommon, unique, or endangered. In spite of this, widespread human development activities, excessive extraction of natural resources, and a shift in the state of the climate over the course of the past 15 years have resulted in a significant depletion of the world's forested areas and their medicinal plant biodiversity in particular. Extensive plant research tours and field surveys led to the discovery that 16 different species of medicinal plants, representing 16 different genera and 13 different families, are in danger of extinction as a result of the current study. Ephedra foliata was the only gymnosperm to be found among them, with the others all being angiosperms.

During the course of the research, the presence of some uncommon plant species, such as Calligonum polygonoides and Tecomella undulata, was documented in a few different locations. On the other hand, the natives of the region recorded their widespread prevalence in the area quite a while ago. The frightening situation in which endangered plants demand an increasing amount of attention to preserve their genetic variety is a result of this dilemma. To ensure their continued existence in the region for the long run, more preventative measures of protection are required. Because of their widespread use, medicinal plants are currently facing a significant amount of threat. The most significant dangers that medicinal plants face include unplanned collection, loss of habitat, increasing exploitation, unsustainable harvesting, excessive grazing, deforestation, and attack by diseases. Rural and tribal populations in the research region made extensive use of Enicostemma hyssopifolium, Ceropogia bulbosa, Sarcostemma viminale, and Withania somnifera as medicinal ingredients in a variety of preparations. The export of medicinal plants collected from wild sources ultimately led to a severe and irreplaceable loss of genetic stock for many of these species. Destructive harvesting has resulted in the depletion and scarcity of medicinal plants. For instance, the roots of Salvadora persica were harvested for their commercial use as miswak.

**Table 1: Threatened Plant Species and Their Conservation Status in the Study Area**

S. No	Botanical name	Local name	Family	Habit	Major Threats	Status in the present study
1.	<i>Acacia catechu</i> (L.f.) Willd.	Khairi	Fabaceae	Tree	Habitat loss	LC
2.	<i>Argyreia nervosa</i> (Burm.f.) Boj.	Ghav-bel	Convolvulaceae	Climber	Habitat loss	EW



3.	<i>Calligonum polygonoides</i> L.	Phoglo	Polygonaceae	Shrub	Habitat degradation	CR
4.	<i>Ceropegia bulbosa</i> Roxb.	Khadula	Asclepiadaceae	Climber	Exploited for medicine	CR
5.	<i>Citrullus colocynthis</i> (L.)Schard	Tumba	Cucurbitaceae	Trailing herb	Exploited for medicine	LC
6.	<i>Cordiasinensis</i> Lam.	Gundi	Ehretiaceae	Tree	Exploited for medicine	NT
7.	<i>Ephedra foliata</i> Boiss. & Kotschy ex Boiss.	Unt phog	Gnetaceae	Climber	Exploited for medicine	LC
8.	<i>Enicostemma hyssopifolium</i> (Willd.) Verdoon	Kutak-rayacho	Gentianaceae	Herb	Exploited for medicine	VU
9.	<i>Leptadenia reticulata</i> (Retz.) Wt. & Arn.	Jiwanti	Asclepiadaceae	Climber	Habitat loss	EN
10.	<i>Maerua oblongifolia</i> (Forsk.) A. Rich.	Hemkand	Capparaceae	Climbing Shrub	Habitat loss	NT
11.	<i>Peganum harmala</i> L.	Harmal	Zygophyllaceae	Herb	Over-exploitation	NT
12.	<i>Salvadora persica</i> Linn.	Jal, Pilu	Salvadoraceae	Tree	Exploited for medicine, fuel	VU
13.	<i>Sarcostemma viminale</i> (L.)R. Br.	Khirkhimp	Asclepiadaceae	Shrub	Exploited for medicine	EN
14.	<i>Tecomella undulata</i> (Sm.) Seem.	Rohida	Bignoniaceae	Tree	Exploited for timber	EN
15.	<i>Tephrosia falciformis</i> Ramaswamy	Bansa	Fabaceae	Shrub	Habitat loss	EN
16.	<i>Withania somnifera</i> (L.) Dunal	Aksan, Asgandh	Solanaceae	Undershrub	Exploited for medicine	LC

EW stands for "extinct in the wild." Abbreviations: CR stands for critically endangered, EN for endangered, VU for vulnerable, NT for near threatened, and L for least threatened. LC - Of the smallest concern In the region under research, climbers such as *Leptadenia reticulata*, *Sarcostemma viminale*, and *Ceropegia bulbosa* var. *bulbosa* and *C. bulbosa* var. *lushii* were found to be in a state of critical endangerment. The *Ceropegia bulbosa* species is particularly endangered due to the fact that its edible tubers are frequently consumed by herders and local people and due to the fact that it possesses a high medical value. During the course of the research, it was discovered that some plant species, such as *Enicostemma hyssopifolium* and *Tephrosia falciformis*, had had a significant population decline in the region.

It may be deduced, based on the enumeration of the plant species gathered from Beer Jhunjhunu Conservation Reserve, that many endangered plants were being frequently utilised by the rural inhabitants of the region for the treatment of diseases and for meeting their day-to-day requirements. The elimination of natural habitat in this region has led to a precipitous decline in the region's natural resources over the course of the past several decades. It was found that species such as *Tephrosia falciformis*, *Tecomella undulata*, and *Ceropegia bulbosa*, among others, that are known to be endangered in the sandy environment of the Thar desert (Pandey et al., 1983; Bhandari, 1990), were present in the study region but were having a difficult time surviving. In order to maintain biodiversity and ensure the safety of endangered species, it is essential to launch an organised programme of plant cultivation that focuses on therapeutic herbs.

## Conclusion

Plants used for medicinal purposes are widely acknowledged as a significant but increasingly imperilled world resource. The current observation revealed that several plant species, such as *Ceropegia bulbosa*, *Encicostemma hyssopifolium*, *Sarcostemma viminale*, and *Salvadora persica*, are widely used in the research region for the purpose of developing indigenous medical practises. These animals and their habitats both need to be preserved for future generations. It is impossible to achieve success in conservation efforts in these kinds of locations without the participation of the local inhabitants, whose way of life is closely tied to the resources in question. The development of systematic conservation strategies for rare and vulnerable medicinal plants in the Beer Jhunjhunu area, which might lead to the successful protection of these species, is an important task that has to be completed as soon as possible. In addition, the documenting of the traditional knowledge held by local people is being worked on in conjunction with the in-situ conservation of medicinal plants, which includes the engagement of the community and the implementation of conservation measures. The conventional approaches to the preservation of forests ought to be supported by the government. The recovery of the species from the brink of extinction should ideally involve both the preservation of the species in its natural environment and the cultivation of artificial regeneration. The establishment of conservation reserves, animal sanctuaries, national parks, and botanical gardens are all crucial parts of the conservation movement, especially for endangered and vulnerable species. They have the potential to be extremely helpful in both the ex-situ and in-situ conservation of the endangered plants.

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