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Review Article

Desmodium triflorum (L.) DC. – Botanical and Ethno Pharmacological Insights, Phytochemical Investigations, and Prospects in Pharmacology: A Review

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Abstract: The significant phytochemical, anti-inflammatory, anthelmintic, antacid, anti-proliferative, therapeutic applications, antibacterial, and analgesic properties of *Desmodium triflorum* (L.) DC., family Fabaceae, were reviewed. The review describes the pharmacological and biological properties of *Desmodium triflorum* extracts in addition to their traditional usage. The strong antioxidant activity and the inhibition of α-amylase and α-glucosidase may be linked to various associated activities. Ursolic acid, Vitexin, Genistin, Fucosterol, and 2-Glucosylvitexin, are among the chemical elements of *Desmodium triflorum* that may contribute to the effects that have been documented. There is a need for more well planned, controlled clinical trials using formulations with phytochemical characterization. Additionally, the interest in different pharmaceuticals and cosmeceuticals sectors may be characterised by the unique bioactive substance's multiple biological potencies.

Keywords: *IndexTerms - Desmodium triflorum*, anti-inflammatory, Vitexin, antioxidant, analgesic activities.

I. INTRODUCTION

Background

In the African continent, medicinal plants are a valuable source of income [1]. The foundation of contemporary medicine has been found in ancient wisdom, which will continue to be a valuable source for future medical research and healing [2]. The future of drug development using natural products is multifaceted, involving consideration of multiple factors during the medication selection process, including the compound's safety and efficacy [3].

Technology is now a part of drug discovery due to the development of cutting edge technologies that improve drug design theories, such as artificial intelligence with docking procedures [4]. As a result, drug discovery and safety assessment are now proceeding more quickly [5]. New pathways for processing complicated natural products and utilizing their structures to create novel medications have been made possible by recent developments in analytical and computational approaches [6]. Nature has given upon us an extremely rich botanical diversity, with many different kinds of plants growing all across the planet. Man has been acquainted with plants since the dawn of time [7-8] and has utilized them in various capacities ever since.

In their quest for sustenance and to alleviate their own pain, early humans learned to differentiate between plants that could be used medicinally and those that had definite pharmacological effects. The human-plant interaction has grown [9], and many plants are employed as medicines. For instance, quinine [1] from the bark of *Cinchona* species, phellandrene [2] from *Eucalyptus phellandra*, and taxol [3] from the bark of *Taxus* species are anti-malarial and anti-bacterial. Before humans ever set foot on the Earth, medicinal plants were already present. The only thing that has allowed man to live on this planet is the essential function that the plant world plays in providing for his needs. People and plants have a symbiotic relationship; that much is true. For the creation of food, clothes, shelter, transportation, fertilizers, flavors and scents, and last but not least, medicines, mankind have depended on nature throughout history.

Plants have served as the basis for advanced traditional medicine systems for millennia, continuing to

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offer humans innovative methods for self-healing. Medicinal plant therapy is founded on the empirical discoveries of thousands and even hundreds of years, despite the fact that some of the therapeutic qualities ascribed to plants have turned out to be false.

Because of its unique geographical and climatic characteristics, India has had a diversified and abundant medicinal plant flora since the Vedic era. Around 2,000 of India's 15,000 varieties of plants are known to have medicinal properties, and a few of them are used for conventional medicines in the country's most remote and rural areas.

Synergistic effects of combining *Desmodium triflorum* with other herbs

The combination of *Desmodium triflorum* with other Ayurvedic herbs can yield significant synergistic effects, enhancing medicinal outcomes through various mechanisms. This polyherbal approach is rooted in Ayurvedic principles, which emphasize the therapeutic benefits of combining multiple herbs to achieve greater efficacy and reduced toxicity. The active constituents of *Desmodium triflorum* can interact with those of other herbs, targeting similar therapeutic pathways through diverse mechanisms, thus amplifying their overall effect [10]. The presence of *Desmodium triflorum* may enhance the absorption and bioavailability of other herbal components, leading to improved therapeutic outcomes [10]. Utilizing metabolomics and network pharmacology, researchers can identify how combinations of herbs, including *Desmodium triflorum*, modulate disease-related networks, revealing novel therapeutic potentials [11]. *Desmodium triflorum* has shown promise in enhancing memory and cognitive function, particularly in models of dementia, suggesting its potential when combined with other neuroprotective herbs [12]. Polyherbal formulations that include *Desmodium triflorum* have demonstrated synergistic ant-diabetic effects, outperforming individual herbs in managing glucose levels [13]. While the synergistic effects of combining *Desmodium triflorum* with other herbs are promising, it is essential to consider the potential for negative interactions or reduced efficacy in certain combinations.

Economic value of *Desmodium triflorum* with respect to food industry

The economic value of *Desmodium triflorum* spans various industries, particularly in agriculture, pharmaceuticals, and environmental management. This legume is recognized for its high nutritional content, antifungal properties, and potential medicinal applications, making it a versatile resource. *Desmodium triflorum* is a high-protein forage, with crude protein content ranging from 6.8% to 15.6%, making it suitable for livestock feed [14]. It enhances soil quality by improving nutrient availability and preventing erosion, thus supporting sustainable agricultural practices [15]. Extracts from *D. triflorum* exhibit moderate antifungal activity against pathogens like Sclerotium rolfsii and Fusarium oxysporum, indicating potential for agricultural fungicides [16]. The herb's flavonoid extracts show promise in treating ulcerative colitis, suggesting a growing market in the pharmaceutical industry [17]. D. triflorum contributes to biodiversity and can be integrated into various ecosystems, promoting ecological balance and resilience [18]. While *Desmodium triflorum* holds significant economic potential, challenges remain in fully harnessing its benefits. Particularly in developing markets where awareness and technology may lag behind.

Distinctive morphological features of *Desmodium triflorum*

Desmodium triflorum exhibits several distinctive morphological features that set it apart from other species within the Fabaceae family. These characteristics include specific traits related to its root structure, stem, leaves, and inflorescence, which contribute to its identification and classification.

❖ **Root Structure**

The taproot of D. triflorum is notably thick, measuring approximately 1.5 cm in diameter and 8-20 cm in length, with numerous fibrous sub roots [19].

❖ **Stem Characteristics**

The plant typically has an upright stem that can reach about 20 cm in thickness, with stolons extending up to 100 cm long, which is a unique feature among its relatives [19].

❖ **Leaf Morphology**

D. triflorum is characterized by its trifoliate leaves, which are a key distinguishing feature. The leaf structure shows significant variation in length and width, with correlation coefficients indicating a strong relationship between these dimensions [20-21].

❖ **Inflorescence and Floral Traits**

The inflorescence of *D. triflorum* is lax, and its floral characteristics, including corolla color and size, differ from those of closely related species, aiding in its identification [20-21]. While *D. triflorum* has unique features, it is important to note that morphological variation exists within the *Desmodium* genus, leading to challenges in classification. Some species, like *D. heterophyllum*, show high morphological similarity, complicating the identification process [21].

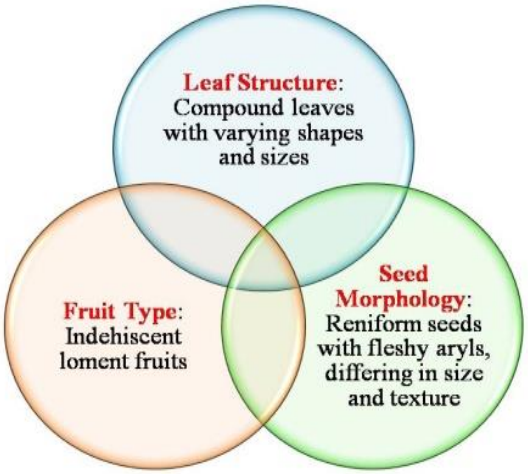

Figure 1: Venn diagram depicting combination of characters used for characterization of genus *Desmodium* within family Fabaceae

Unique genetic characteristics of *Desmodium triflorum*

The unique genetic characteristics of *Desmodium triflorum* significantly enhance its adaptability to various environments. High genetic diversity, as indicated by a polymorphic locus percentage of 76.16% and a total gene diversity of 0.310, allows this species to respond effectively to environmental changes [22]. Additionally, its ability to thrive in diverse conditions is supported by traits such as shade tolerance, drought resistance, and cold hardiness [23]. These genetic traits enable *D. triflorum* to maintain a competitive edge in heterogeneous landscapes, facilitating its range expansion and adaptation to new habitats [24].

1a. Taxonomy and Botanical description

Because the jointed seed pods resemble chain links, The genus *Desmodium* derives its given name to the Greek word "Desmos," meaning "bond" or as "chain." (Common Name: trefoil of creeping ticks).

Table 1: Shows the plant known by different languages

Languages	Vernacular Names
English	Three flower beggar weed
Telugu	Muntamandu
Tamil	Ankuca-Pati
Hindi	Kudaliya, Motha
Sanskrit	Hamsapaadi,Tripaadi
Marathi	Jungalimethi,Raan methi
Kannada	Kaadu pullam purasi, Kaadu menthe
Bengali	Kudaliya
Ceylon	Sirupullady

Botanical description

Annual, diffuse herb. Branches 30–50 cm long, wiry, trailing, and rooted at basal nodes. Trifoliolate leaves with tiny, persistent stipules and ovate or obcordate, 0.4–0.6 cm long, hairy, apressed, and emarginated leaflets. Pinkish-white, tiny flowers with three to four petals in the axils. 3-5-jointed, linear, curved, reticulate, pubescent pods. Often found in wide grasslands, the shadow of buildings, the underbrush of forests, and streambeds.

Figure 2: Some original photographs from A-H taken during collection (*Desmodium triflorum*)

CLASSIFICATION

Table 2: Taxonomical Hierarchy of *Desmodium triflorum*

Kingdom	Plantae
Subkingdom	Tracheobionta
Super division	Spermatophyta
Divison	Magnoliophyta
Class	Magnoliopsida
Order	Fabales
Family	Fabaceae
Genus	*Desmodium*
Species	*triflorum*

Table 3: Organoleptic studies of *Desmodium triflorum*

Parameter	**Organoleptic evaluation**	
	Leaf	**Stem**
Taste	Sweet	Characteristic
Odor	Characteristic	Characteristic
Color—upper/outer	Dark green	Light brown
Color—lower/inner	Light green	Yellowish green
Texture of powder	Coarse	Sandy
Surface	Upper surface-hairless	Glabrous

1b. Phytochemical profile of *Desmodium triflorum*

Fucosterol, vitexin, ursolic acid, genistin, and 2-glucosylvitexin, a rare form of diholosylflavane, are among the chemical constituents of *Desmodium triflorum*. Tyrosine, trigonelline, hypaphorine, choline, indole-3-acetic acid, and the primary alkaloid phenethylamine are among the 0.01-0.015% total alkanoid found in *Desmodium triflorum* leaves. The primary alkaloid in *Desmodium triflorum* root is hypaphorine, which is followed by N, N-dimethyl tryptophan betaine, and choline, with a total alkaloid concentration of 0.01-0.018%. The leaves of this plant are used for diarrhea, convulsions, and as a galactagogue [25, 26–27].Traditional Chinese medicine (TCM) practitioners in Taiwan frequently utilize the Fabaceae family medicinal plant *Desmodium triflorum*, usually referred to as assan-dam-jin-cao, to treat dysmenorrhea, muscle spasms, coughs, pains, and poisoning. Because of the way the leaves are arranged and shaped, the Taiwanese also refer to this plant as having "wings of fly." Astragalin, tectorigenin, cosmossiin, [28], 2-O-glucosylvitexin [29], 2-O-β-xylosylvitexin [30], genistin, vitexin, aliphatic alcohols, ursolic acid, aliphatic acids oleanolic acid, stigmasterol, campesterol, β-sitosterol, campesterol-3-O-β-D-glucose, and stigmasterol have all been isolated through previous phytochemical studies on D. triflorum.3-O-β-D-glucose, (+)-pinitol, and sitosterol-3-O-β-D-glucose (Chio and Huang, 1995). Alkaloids such hypaphorine, N, N-dimethyltryptophan, choline, betaine, β-phenethylamine, and N, N-dimethyltryptamineoxide have also been isolated using *D. triflorum* [31].

Additionally, it has been discovered that *Desmodium triflorum* contains polyhydric alcohols such

as pinitol and flavonoids such as diholosyl flavones, 2-o-glucosylvitexin, vitexin, isovitexin, and apigenin.

Figure 3: The phytoconstituents found in *Desmodium triflorum* are depicted in the schematic diagram

4. Pharmacological activity

4a. Anthelmintic activity

Desmodium triflorum exhibits notable anthelmintic activity, which is comparable to other known antiparasitic compounds. The extracts from its leaves and roots have demonstrated dose-dependent efficacy against helminths, specifically adult Indian earthworms, suggesting its potential as a natural alternative to synthetic anthelmintics. This aligns with the broader trend of utilizing plant-based compounds to combat parasitic infections, which are increasingly favored due to their reduced side effects and lower risk of resistance development. *Desmodium triflorum* extracts, particularly in methanol and cold water, have shown significant anthelmintic activity at a concentration of 10 mg/mL, demonstrating a dose-dependent effect [32]. The plant's efficacy is comparable to standard anthelmintic drugs, making it a viable natural alternative for treating helminthic infections [32]. Phytochemicals such as steroidal saponins, condensed tannins, and flavonoids have been identified as effective anthelmintics. These compounds work by altering membrane permeability, inhibiting mitochondrial activity, and enzyme inhibition, respectively [33]. *Desmodium triflorum* activity is similar to these phytochemicals, which are used in poultry and other animals to manage parasitic infections without the adverse effects associated with synthetic drugs [34]. Plant-derived anthelmintics, including those from *Desmodium triflorum*, are less likely to cause resistance and have minimal side effects compared to synthetic drugs [35,36]. The use of medicinal plants is gaining attention due to their traditional efficacy and the growing need for safer, more sustainable treatment options [36].

While *Desmodium triflorum* and other plant-based anthelmintics show promise, there are challenges such as the need for more comprehensive research on their efficacy, dosage, and mechanisms of action. Additionally, the development of resistance to synthetic drugs underscores the importance of exploring and validating natural alternatives like *Desmodium triflorum* for broader application [34-37].

4b. Antacid activity

Desmodium triflorum has shown promising potential as an antiacid agent, primarily due to its significant acid- neutralizing effects and its phytochemical composition. Research indicates that its aqueous extracts can effectively neutralize artificial gastric acid, demonstrating both immediate and sustained antacid activity [38]. Additionally, the flavonoid extracts from *Desmodium triflorum* have been linked to therapeutic applications in gastrointestinal disorders, such as ulcerative colitis, by modulating inflammatory responses in intestinal tissues [39]. Aqueous extracts of *Desmodium triflorum* exhibited significant acid-neutralizing effects, with statistical significance ($P<0.01$) in various tests [38]. The extracts maintained their neutralizing capacity over extended periods, indicating potential for prolonged relief from acidity [38]. The total flavonoid extract has been shown to improve intestinal health in ulcerative colitis models by regulating inflammatory cytokines [39]. The plant's extracts also possess antioxidant activities, which may contribute to their protective effects against gastric ulcers [40].

Despite these benefits, limitations exist. The efficacy of *Desmodium triflorum* may vary based on extraction methods and dosages, and further clinical

studies are necessary to establish standardized treatment protocols. Additionally. potential toxicity and interactions with other medications warrant careful consideration [40].

4c. Antioxidant activity

Desmodium triflorum exhibits significant antioxidant activity, comparable to other traditional medicinal plants. Its antioxidant potential is primarily attributed to its rich polyphenolic content, which includes phenolic compounds and flavonoids. Studies have shown that the ethyl acetate fraction of *D. triflorum* is particularly effective in scavenging free radicals, demonstrating activity comparable to known antioxidants like alpha-tocopherol and trolox [41]. This positions *D. triflorum* as a potent antioxidant among medicinal plants, with specific assays highlighting its efficacy. *D. triflorum* antioxidant activity is largely due to its high phenolic and flavonoid content, with the crude extract containing 36.60 mg catechin and 45.6 mg rutin per gram [42]. The plant's ethyl acetate fraction shows strong DPPH and TEAC radical scavenging activities, with 0.4 mg of this fraction equating to 186.6 microg of alpha-tocopherol [42]. In reducing power assays, 1.25 mg of D. triflorum extract is comparable to 61.2 microg of ascorbic acid, indicating its strong antioxidant potential [42].

Among *Desmodium* species, *D. sequax* is noted for its superior antioxidant activity, attributed to chlorogenic acid and vitexin [43]. However, *D. triflorum* also demonstrates significant antioxidant capabilities, particularly in scavenging hydroxyl and superoxide radicals [44]. Medicinal plants are widely recognized for their antioxidant properties, which play a crucial role in disease prevention and health promotion [45-46]. *D. triflorum*, with its potent antioxidant activity, fits well within this broader context of medicinal plant efficacy.

While *D. triflorum* is a potent antioxidant, it is important to consider the variability in antioxidant activity across different plant species and even within the same genus. Factors such as specific phenolic compounds and extraction methods can significantly influence the antioxidant potential of these plants [47-48].

4d. Antiproliferative Activity

The antiproliferative activity of *Desmodium triflorum* has been evaluated and compared to other known antiproliferative compounds, revealing its potential as a significant natural product in cancer treatment. The studies indicate that *D. triflorum* exhibits notable antiproliferative effects, particularly through its polyphenolic compounds, which may rival established antiproliferative agents. The crude extract of *D. triflorum* demonstrated significant antiproliferative activity, with the ethyl acetate fraction being the most effective [42]. The study reported that the total phenolic content was equivalent to 36.60 mg of catechin per gram, indicating a strong potential for inhibiting cancer cell proliferation [42]. Known antiproliferative compounds, such as terpenoids isolated from Hypoestes sp., showed IC50 values of 6.9 µM and 3.4 µM against human ovarian cancer cells [48]. In contrast, *D. triflorum* specific IC50 values were not detailed, but its overall efficacy suggests it could be competitive with these established compounds [49].The LD [50] of D. triflorum was greater than 10 g/kg, indicating a favorable safety profile [42]. Additionally, its alkali has shown synergistic effects when combined with imatinib mesylate, enhancing antiproliferative activity without toxicity [50].

While *D. triflorum* shows promise, further research is necessary to quantify its specific IC50 values and fully understand its mechanisms compared to well-established antiproliferative agents.

4e. Therapeutic uses

Desmodium triflorum, a prominent herb in traditional medicine, exhibits a range of therapeutic applications supported by both folkloric use and scientific research. This plant is recognized for its diverse pharmacological properties, making it a valuable resource in treating various ailments. Commonly used for muscle spasms and general pain relief [51]. Employed in treating coughs and asthma [52]. Utilized for gastrointestinal disorders, including ulcerative colitis [53]. Antioxidant Properties: Rich in flavonoids, which help combat oxidative stress [52]. Demonstrated ability to reduce inflammation, particularly in ulcerative colitis models [53]. Exhibits antibacterial and antifungal properties, contributing to its use in treating infections [52].

4f. Anti-diabetics

The antidiabetic activity of *Desmodium triflorum*, a medicinal plant, shows promising potential when compared to other known antidiabetic agents. Its efficacy is attributed to various phytochemicals, particularly alkaloids, which have been recognized for their ability to regulate glucose metabolism and improve insulin sensitivity. This overview will explore the specific mechanisms, comparative effectiveness, and broader implications of *Desmodium triflorum* in diabetes management. *Desmodium triflorum* contains alkaloids that may enhance glucose uptake and modulate insulin signaling pathways, similar to other medicinal plants [54]. The presence of flavonoids and phenolic compounds contributes to its antioxidant properties, which can mitigate oxidative stress associated with diabetes [55]. Unlike synthetic drugs, which often have side effects, *Desmodium triflorum* and other plant-derived agents offer a safer alternative with fewer adverse effects [56]. When combined with other antidiabetic plants, such as *Morinda lucida* and *Cinnamomum verum*, *Desmodium triflorum* may enhance overall therapeutic outcomes through synergistic effects ("Antidiabetic Activity (Anti-

Hyperglycemic Activity, Anti-Hyperlipidemic Activity)/Agents from Medicinal Plants", 2022) [57].

While *Desmodium triflorum* exhibits significant antidiabetic properties, it is essential to consider the variability in individual responses to herbal treatments. Further clinical studies are necessary to establish standardized dosages and efficacy compared to established synthetic medications.

4g. Anti-bacterial

The antibacterial activity of *Desmodium triflorum* has been evaluated in comparison to other known antibacterial agents, revealing its potential efficacy and relatively mild toxicity. The studies indicate that *Desmodium triflorum* exhibits significant antibacterial properties, particularly against *Vibrio cholerae*, with a minimum inhibitory concentration (MIC) of 5 mg/ml [58]. This efficacy is comparable to other medicinal plants, which often show higher MICS, such as those ranging from 512 to 1024 µg/ml for various Cameroonian plants [59]. Demonstrated effective inhibition against *V. cholerae* with an MIC of 5 mg/ml [58]. Contains flavonoids, alkaloids, and tannins, contributing to its antibacterial properties [58]. Exhibits mild toxicity, with less than 90% mortality in brine shrimp assays at high concentrations [58]. Other antibacterial agents, particularly those used in wound dressings, often have higher toxicity profiles [60].

In contrast, while *Desmodium triflorum* shows promise, the emergence of multidrug-resistant bacteria necessitates ongoing research into alternative agents and combinations, as many traditional antibiotics are becoming less effective [61].

4h. Anti-inflammatory and analgesic effect

The anti-inflammatory and analgesic activities of *Desmodium triflorum* have been shown to be significant, particularly when compared to conventional therapeutic agents. Research indicates that the methanol extract of *Desmodium triflorum* exhibits both analgesic and anti-inflammatory effects, demonstrating efficacy in reducing pain and inflammation in animal models [62]. This plant's mechanisms involve modulation of inflammatory mediators and enhancement of antioxidant enzyme activities [62].

Analgesic Activity

The methanol extract significantly reduced acetic acid-induced writhing and formalin test responses, indicating strong analgesic properties [62]. Comparatively, conventional analgesics like diclofenac sodium showed higher efficacy, but *Desmodium triflorum's* effects are notable, especially in lower doses [63].

Anti-inflammatory Activity

Desmodium triflorum reduced paw edema in a carrageenan-induced model, with effects observed at multiple time points post-administration [62]. Its anti-inflammatory action is attributed to the reduction of pro-inflammatory cytokines and oxidative stress markers [64,65]. While *Desmodium triflorum* shows promising therapeutic potential, its efficacy may not yet match that of established anti-inflammatory and analgesic drugs like NSAIDs, suggesting a need for further research to optimize its use in clinical settings.

Table No. 3: Biological activities of *Desmodium triflorum*

S.no.	Species name	Plant part	Biological compound	Biological activity	Reference
1	*Desmodium triflorum*	Whole plant parts	Phenolic	Antimicrobial	[65]
2		Whole plant	Phenolic	Antioxidant	[66]
3		Whole plant	Flavonoids	Support with degenerative disorders and cardiovascular disease	[67]
4		Whole plant	Flavonoids	Analgesic and anti-infammatory properties	[68]
5		Whole plant	Flavonoids	anti-infammatory and Analgesic activities	[69]
5		Whole plant	Flavonoids	anti-infammatory and Analgesic activities	[60]
6		Whole plant	Flavonoids	Antioxidant	[61]
7		Whole plant	Flavonoids	Antiproliferative	[62]
8		Leaves	Flavonoids	Anticonvulsantactivity	[63]
9		Leaves	Flavonoids	Antimicrobial activity	[64]
10		Leaves	Flavonoids	Anticonvulsantactivity	[65]
11		Stem and leaf	Flavonoids	Antihelminthic activity	[66]

Table No. 4: Traditional medicinal uses of the genus *Desmodium triflorum*

S.no.	Country where was reported	Part(s) used	Traditional medicinal uses	References
1	Indonesia	Leaves	Wounds, diarrhea	[67]
2	Indonesia	Leaves	Central nervous system stimulation, seizures, diarrhoea, high fever, diuretic, bone fractures.	[68]
3	Taiwan	Leaves	Dysmenorrhea, muscle spasm, cough, pain, poisoning.	[69]
4	Bangladesh	Leaves	Eye diseases, stomach troubles	[60]
5	India	Whole plant	Pruritus, skin eruption, cuts and wounds	[61]
6	India	Leaves	Diarrhoea, abscesses, galactagogue, wounds and seizures difficult to heal. Sores, dysentery, itch, laxative.	[62]
7	India	Leaves	Dysentery.	[63]
8	India	Leaves	Boils, eye ailments, wounds, spleen disorders.	[64]
9	India	Whole plant	Stomach pain, piles.	[65]
10	China	Whole plant	Stomach ache, cold.	[66]
11	India	Leaves	Wounds	[67]
12	India	Leaves	Seizures, diuretics, galactagogues, antispasmodics, sympathomimetic drugs, central nervous system stimulation, diarrhea, curare-mimetic action, and wounds and abscesses that are difficult to cure. bone fractures, high temperature, sores, itching, coughing, asthma, diarrhea, and laxatives	[68]
13	India	Leaves	Wounds, dysentery, abscesses	[69]
14	India	Roots	Diuretic, cough, asthma.	[60]
15	Thailand	Whole plant	Abscesses, psoriasis.	[61]
16	Thailand	Whole plant	Aphthous ulcer, diarrhoea	[62]
17	India	Leaves	Swelling, Fever, stomachaches, piles, diarrhea, wounds, abscesses, inflammation, coughing, bronchitis, and dysentery	[63]
18	India	Leaves	Body ache, body swelling	[64]
19	Mauritius	Whole plant	Diarrhoea, urinary tract infection	[65]
20	Sri lanka	Whole plant	Snake bites	[96]
21	Colombia	Whole plant	pulmonary affections, blood purification, laxative, and anti-herpes. To make the uterus stronger	[97]
22	India	Whole plant	Sores, spleen complaints, nail problems, toothaches, abscesses, eruptions, breast discomfort, colic, diarrhea, dysentery, menorrhea, and sores	[68]
23	Mauritius	Whole plant	Pulmonary infectons	[69]
24	Mauritius	Leaves	Diarrhea, galactagogue, antispasmodic, sympathomimetic, nervous system stimulation, diuretic, curare-mimetic action, treatment of seizures, sores, itching, wounds and abscesses that are difficult to cure, and lowering elevated fever.	[70]
25	Mauritius	Whole plant	Children are given it to treat bone fractures, coughing, and asthma.	[71]
26	Mauritius	Roots	encouraging labor, as a diuretic, carminative, tonic, and in the treatment of vertigo.	[72]
27	Mauritius	Roots	Dysentery, laxative.	[73]
28	Mauritius	Roots	Stomach aches, dermatosis, diarrhea, ophthalmia, rheumatism, tonic, diuretics, tumors, cough, bronchitis, wounds, infections, sores, pruritus, dysentery, flatulence, and burning sensations	[74]
29	China	Whole plant	Haemostasis	[75]
30	India	Leaves and roots	Wounds, abscesses, dysentery, diuretic	[76]

5. CONCLUSION

According to the review, *Desmodium triflorum* reveals a rich array of bioactive compounds that contribute significantly to their medicinal properties. These compounds include flavonoids, terpenoids, alkaloids, and phenolic derivatives, which are responsible for various therapeutic effects. Antidiabetic, antimicrobial, anti-inflammatory, anticancer, and antioxidant properties are examples of biological actions.

According to the review, several *Desmodium triflorum* plants are used by tribal people as a

phytomedicine for fever, cough, colds, wound healing, and feverishness. These qualities promote the manufacturing of medicine by numerous pharmaceutical companies. Therefore, systematic research on the phytochemical analysis of different portions of the widely used *Desmodium triflorum* will aid in the development of innovative drugs that may be used to treat a range of human diseases.

There is very limited information linking the chemical profile of the extracts being employed and the medicinal applications of *Desmodium triflorum*. The majority of the studies included in this evaluation categorize only the different kinds of extract and the portion of the plant that was utilized, but do not quantify the components that are in the extract. Despite the promising medicinal properties of *Desmodium triflorum*, further research is necessary to fully understand their mechanisms of action and optimize its clinical applications, ensuring safe and effective use in traditional and modern medicine.

REFERENCES

1. Dzoyem, J. P., Tshikalange, E., & Kuete, V. (2013). Medicinal plants market and industry in Africa. *In Medicinal plant research in Africa* (pp. 859-890): Elsevier.
2. Sharma, R., Parashar, B., & Kabra, A. (2013). Efficacy of aqueous and methanolic extracts of plant *Desmodium triflorum* for potential antibacterial activity. *International Journal of Pharmaceutical Sciences and Research*, 4(5), 1975.
3. Ahuja, V., & Sharma, S. (2014). Drug safety testing paradigm, current progress and future challenges: an overview. *Journal of Applied Toxicology*, 34(6), 576-594.
4. Bender, A., & Cortés-Ciriano, I. (2021). Artificial intelligence in drug discovery: what is realistic, what are illusions? Part 1: ways to make an impact, and why we are not there yet. *Drug discovery today*, 26(2), 511-524.
5. Bleicher, K. H., Böhm, H.-J., Müller, K., & Alanine, A. I. (2003). Hit and lead generation: beyond high-throughput screening. *Nature reviews Drug discovery*, 2(5), 369-378.
6. Thomford, N. E., Senthebane, D. A., Rowe, A., Munro, D., Seele, P., Maroyi, A., & Dzobo, K. (2018). Natural products for drug discovery in the 21st century: innovations for novel drug discovery. *International journal of molecular sciences*, 19(6), 1578.
7. Issazadeh, K., MAJID, K. P. M. R., Massiha, A., Bidarigh, S., Giahi, M., & ZULFAGAR, M. P. (2012). Analysis of the Phytochemical Contents and Anti-microbial Activity of *Ocimum basilicum* L.
8. Parekh, J., Jadeja, D., & Chanda, S. (2005). Efficacy of aqueous and methanol extracts of some medicinal plants for potential antibacterial activity. *Turkish Journal of Biology*, 29(4), 203- 210.
9. Shakya, A. K. (2016). Medicinal plants: Future source of new drugs. *International Journal of Herbal Medicine*, 4(4), 59-64.
10. Paudel, N., Paudel, L. P., Rai, P. D., & Das, B. D. (2017). Change in physico-chemical properties of soil and nutrients in *Desmodium triflorum* in case of seasonal variation in Ratnanagar-11, Jirauna, Chitwan, Nepal. *International Journal of Scientific Reports*, *3*(11), 285-287.
11. Joshi, B. R., Hakim, M. M., & Patel, I. C. (2023). The biological active compounds and biological activities of *Desmodium* species from Indian region: a review. *Beni-Suef University Journal of Basic and Applied Sciences*, *12*(1), 1.
12. Mukherjee, S., Stamatis, D., Bertsch, J., Ovchinnikova, G., Sundaramurthi, J. C., Lee, J. & Reddy, T. B. K. (2021). Genomes OnLine Database (GOLD) v. 8: overview and updates. *Nucleic acids research*, *49*(D1), D723-D733.
13. Zong, W. X., Li, C., Hatzivassiliou, G., Lindsten, T., Yu, Q. C., Yuan, J., & Thompson, C. B. (2003). Bax and Bak can localize to the endoplasmic reticulum to initiate apoptosis. *The Journal of cell biology*, *162*(1), 59-69.
14. Rahman, M. K., Barua, S., Islam, M. F., Islam, M. R., Sayeed, M. A., Parvin, M. S., & Islam, M. E. (2013). Studies on the anti–diarrheal properties of leaf extract of *Desmodium puchellum*. *Asian Pacific journal of tropical biomedicine*, *3*(8), 639-643.
15. Zhang, C., Li, L., Xiao, Y. Q., Li, W., Yin, X. J., Tian, G. F., & Wang, Y. (2010). A new phenanthraquinone from the roots of *Peucedanum praeruptorum*. *Chinese Chemical Letters*, *21*(7), 816-817.
16. Adinarayana, D., & Syamasundar, K. V. (1982). Occurrence of a rare diholosylflavone, 2"-O-glucosylvitexin in Desmodium triflorum. *Current Science*, *51*(19), 936-937.
17. Jayaram, U., & Srivastava, N. (2016). Ethnopharmacological and phytochemical profile of three potent *Desmodium* species: *Desmodium gangeticum* (L.) DC, *Desmodium triflorum* Linn. and *Desmodium triquetrum* Linn. J Chem Pharm Res, *8*(7), 91-97.
18. Gavalapu, V. R., Kolli, P., Korra, S. K., Kavuri, M. K., Avagadda, C., Singam, V., ... & Kudirella, H. (2013). Preliminary 2 phytochemical screening and anthelmintic activity of *Desmodium triflorum* (DC) leaf and root extracts. *Int J Pharm Sci*, *3*(1), 156-158.
19. Y Narsimhan, Medicinal Plants of India, Vol-1, Karnataka, *Interline Publishers*, 1996.
20. CP Khare, Indian Medicinal Plant, Springerverlag, Newyork, 2007.
21. Rout, S. K., & Kar, D. M. (2010). A review on antiepileptic agents, current research and future prospectus on conventional and traditional drugs. *Int. J Pharm Sci Rev Res*, *3*(2), 19-23.
22. Ogbeide, O. & Parvez. M. (1992). Identification of the flavonoids in papilionaceae flowers using paper

chromatography. *J. Liq. Chromatogr*. 15: 2989–2996.
23. Adinarayana, D. & Syamasundar. K.V. (1982). Occurrence of a rare diholosylflavone 2"-O-glucosylvitexin in *Desmodium triflorum*. *Curr. Sci.* 51: 936–937.
24. Sreenivasan, K. K., & Sankarasubramanian, S. (1984). Chemical investigation of Desmodium triflorum. *J. Health Sci*, *10*(2), 156-158.
25. Ghosal, S., R.S. Srivastava, P.K. Banerjee & S.K. Dutta. (1971). Alkaloids of *Desmondium triflorum*. Phytochemistry 10: 3312–3313.
26. A Ahmad, N., Alam, M. K., Singh, V. N., & Sharma, S. (2009). Bioprospecting AgNPs from wild *Desmodium* Sunita, K., Kumar, P., Khan, M. A., Husain, S. A., & Singh, D. K. (2017). Anthelminthic/larvicidal activity of some common medicinal plants. *European Journal of Biological Research*, *7*(4), 324-336. species. *Journal of Bionanoscience*, *3*(2), 97-104.jduković et al., 2023).
27. Gavalapu, V. R., Kolli, P., Korra, S. K., Kavuri, M. K., Avagadda, C., Singam, V., & Kudirella, H. (2013). Preliminary phytochemical screening and anthelmintic activity of *Desmodium triflorum*(L.) DC leaf and root extracts. *International Journal of Pharma Sciences*, *3*(1), 156-158.
28. Tsai et al., 2011). Ojewumi, M. E., Akwayo, I. J., Taiwo, O. S., Obanla, O. M., Ayoola, A. A., Ojewumi, E. O., & Oyeniyi, E. A. (2018). Bio-conversion of sweet potato peel waste to bioethanol using *Saccharomyces cerevisiae*. *International Journal of Pharmaceutical and Phytopharmacological Research*, *8*(3), 46-54.
29. Jayasuriya, W. B., Arawwawala, L. M., Gamage, S., Rathnasekara, H., Dias, B., & Suresh, S. (2023). Pharmacognostic Characterization and Antacid Activity of Aqueous Extract of *Desmodium triflorum* Linn and *Pogostemon heyneanus* Benth. *Oriental Journal of Chemistry*, *39*(1).
30. Rajpal, V. R., Sharma, S., Sehgal, D., Sharma, P., Wadhwa, N., Dhakate, P., & Raina, S. N. (2023). Comprehending the dynamism of B chromosomes in their journey towards becoming unselfish. *Frontiers in Cell and Developmental Biology*, *10*, 1072716.
31. Tsai, Y. C., Wang, Y. H., Liou, C. C., Lin, Y. C., Huang, H., & Liu, Y. C. (2012). Induction of oxidative DNA damage by flavonoids of propolis: its mechanism and implication about antioxidant capacity. *Chemical research in toxicology*, *25*(1), 191-196.
32. Chien, T. J., Liu, C. Y., Chang, Y. I., Fang, C. J., Pai, J. H., Wu, Y. X., & Chen, S. W. (2022). Therapeutic effects of herbal-medicine combined therapy for COVID-19: A systematic review and meta-analysis of randomized controlled trials. *Frontiers in Pharmacology*, *13*, 950012.
33. Iram, D., Sansi, M. S., Zanab, S., Vij, S., Ashutosh, & Meena, S. (2022). In silico identification of antidiabetic and hypotensive potential bioactive peptides from the sheep milk proteins—A molecular docking study. *Journal of Food Biochemistry*, *46*(11), e14137.
34. Singh, B., Kumar, A., Singh, H., Kaur, S., Kaur, S., Buttar, H. S., & Singh, B. (2020). Zingerone produces antidiabetic effects and attenuates diabetic nephropathy by reducing oxidative stress and overexpression of NF-κB, TNF-α, and COX-2 proteins in rats. *Journal of Functional Foods*, *74*, 104199.
35. Liu, L., Liu, Y., Shin, H. D., Chen, R. R., Wang, N. S., Li, J., & Chen, J. (2013). Developing Bacillus spp. as a cell factory for production of microbial enzymes and industrially important biochemicals in the context of systems and synthetic biology. *Applied Microbiology and Biotechnology*, *97*, 6113-6127.
36. Lal, A., Navarro, F., Maher, C. A., Maliszewski, L. E., Yan, N., O'Day, E., & Lieberman, J. (2009). miR-24 Inhibits cell proliferation by targeting E2F2, MYC, and other cell-cycle genes via binding to "seedless" 3′ UTR microRNA recognition elements. *Molecular cell*, *35*(5), 610-625.
37. Lai, M. K., McNaughton, S., Timperley, H., & Hsiao, S. (2009). Sustaining continued acceleration in reading comprehension achievement following an intervention. *Educational Assessment, Evaluation and Accountability (formerly: Journal of Personnel Evaluation in Education)*, *21*, 81-100.
38. Jayasuriya, W. B., Arawwawala, L. M., Gamage, S., Rathnasekara, H., Dias, B., & Suresh, S. (2023). Pharmacognostic Characterization and Antacid Activity of Aqueous Extract of *Desmodium triflorum* Linn and *Pogostemon heyneanus* Benth. *Oriental Journal of Chemistry*, *39*(1).
39. Wu, C.R., M.Y. Huang, Y.T. Lin, H.Y. Ju & H. Ching. (2007). Antioxidant properties of *Cortex Fraxini* and its simple coumarins. *Food Chem*. 104: 1464–1471.
40. Lai, S. C., Ho, Y. L., Huang, S. C., Huang, T. H., Lai, Z. R., Wu, C. R., ... & Chang, Y. S. (2010). Antioxidant and antiproliferative activities of *Desmodium triflorum* (L.) DC. *The American Journal of Chinese Medicine*, *38*(02), 329-342.
41. Ramkumar, K., Smith, A. A., Vishwanath, B. A., & Natarajan, V. (2020). In-vitro Anti-Diabetic Activity of Ethanolic Extract of the Medicinal Plants *Desmodium triflorum, Allmonia nodiflora* and *Digeria muricata*. *International Journal of Sciences*, *9*(10), 12-16.
42. Sharma, R., Parashar, B., & Kabra, A. (2013). Efficacy of aqueous and methanolic extracts of plant *Desmodium triflorum* for potential antibacterial activity. *International Journal of Pharmaceutical Sciences and Research*, *4*(5), 1975.
43. Lai, S. C., Peng, W. H., Huang, S. C., Ho, Y. L., Huang, T. H., Lai, Z. R., & Chang, Y. S. (2009). Analgesic and anti-inflammatory activities of methanol extract from *Desmodium triflorum* DC in

mice. *The American Journal of Chinese Medicine*, *37*(03), 573-588.
44. Avasthi BK, Tewari JD (1955) A preliminary phytochemical investigation of *Desmodium gangeticum* DC. J Am Pharm Assoc 10:625–627. https://doi. org/10.1002/jps.3030441015
45. Lai, S. C., Ho, Y. L., Huang, S. C., Huang, T. H., Lai, Z. R., Wu, C. R., ... & Chang, Y. S. (2010). Antioxidant and antiproliferative activities of Desmodium triflorum (L.) DC. *The American journal of Chinese medicine*, *38*(02), 329-342. https://doi.org/10.1142/S0192415X1 0007889
46. Chowdhury, K. K., Achinto Saha, A. S., Bachar, S. C., & Kundu, J. K. (2005). Analgesic and anti-inflammatory activities of Desmodium triflorum DC. https://doi.org/10.3923/jbs.2005.581.583
47. MAO, S. C., LI, Z. Y., & LI, C. (2007). Studies on antioxidation activity of three plants of Desmodium. *Journal of Yunnan University: Natural Sciences Edition*, *29*(4), 393-397.
48. Girish Gowda, G. G., Kuntal Das, K. D., Vaibhav Bhosle, V. B., Einstein, J. W., & Mathai, K. B. (2012). Evaluation of anticonvulsant activity of ethanolic leaves extract of Desmodium triflorum in mice. https://doi.org/10.1590/S0102-695X2012005000019
49. Sharma, R., Parashar, B., & Kabra, A. (2013). Efficacy of aqueous and methanolic extracts of plant Desmodium triflorum for potential antibacterial activity. *International Journal of Pharmaceutical Sciences and Research*, *4*(5), 1975.
50. Bhosle, V. (2013). Anticonvulsant and antioxidant activity of aqueous leaves extract of Desmodium triflorum in mice against pentylenetetrazole and maximal electroshock induced convulsion. *Revista Brasileira de Farmacognosia*, *23*(4), 692-698. https://doi.org/10.1590/S0102-695X2013005000047
51. Gavalapu, V. R., Kolli, P., Korra, S. K., Kavuri, M. K., Avagadda, C., Singam, V., ... & Kudirella, H. (2013). Preliminary phytochemical screening and anthelmintic activity of Desmodium Triflorum (L.) DC leaf and root extracts. *International Journal of Pharma Sciences*, *3*(1), 156-158.
52. Bahtiar, A., Vichitphan, K., & Han, J. (2017). Leguminous plants in the Indonesian archipelago: traditional uses and secondary metabolites. *Natural Product Communications*, *12*(3), 1934578X1701200338. https://doi.org/10.1177/1934578X1701200338
53. Revanasiddappa, B. C., Kumar, M. V., Shanmukha, I., Kumar, H., & Aishwarya, T. C. (2019). IN VITRO ANTIUROLITHIATIC ACTIVITY OF ETHANOLIC EXTRACT OF DESMODIUM TRIFLORUM. *Indian Drugs*, *56*(7).
54. Chien, Y. Y., Tan, C. M., Kung, Y. C., Lee, Y. C., Chiu, Y. C., & Yang, J. Y. (2021). Threeflower Tickclover (Desmodium triflorum) Is a New Host for Peanut Witches' Broom Phytoplasma, a 16SrII-V Subgroup Strain, in Taiwan. *Plant Disease*, *105*(1), 209. https://doi.org/10.1094/PDIS-06-20-1303-PDN
55. Apu, A. S., Bhuyan, S. H., Prova, S. S., & Muhit, M. A. (2012). Anti-inflammatory activity of medicinal plants native to Bangladesh: A review. *Journal of Applied Pharmaceutical Science*, (Issue), 07-10.
56. Sundarrajan, S., & Arumugam, M. (2017). Documentation of traditional Siddha medicines for skin diseases from Katpadi taluk, Vellore District, Tamil Nadu, India. *European Journal of Integrative Medicine*, *9*, 52-62. https://doi.org/10.1016/j.eujim.2016.08.163
57. Gavalapu, V. R., Kolli, P., Korra, S. K., Kavuri, M. K., Avagadda, C., Singam, V., ... & Kudirella, H. (2013). Preliminary phytochemical screening and anthelmintic activity of Desmodium Triflorum (L.) DC leaf and root extracts. *International Journal of Pharma Sciences*, *3*(1), 156-158.
58. Shanmugam, S., Rajendran, K., & Suresh, K. (2012). Traditional uses of medicinal plants among the rural people in Sivagangai district of Tamil Nadu, Southern India. *Asian Pacific Journal of Tropical Biomedicine*, *2*(1), S429-S434. https://doi.org/10.1016/s2221-1691(12)60201-9
59. Gairola, S., Sharma, J., & Bedi, Y. S. (2014). A cross-cultural analysis of Jammu, Kashmir and Ladakh (India) medicinal plant use. *Journal of Ethnopharmacology*, *155*(2), 925-986. https://doi.org/10.1016/j.jep.2014.06.029
60. Dey, A., & De, J. N. (2012). Ethnobotanical survey of Purulia district, West Bengal, India for medicinal plants used against gastrointestinal disorders. *Journal of ethnopharmacology*, *143*(1), 68-80. https://doi.org/10.1016/j.jep.2012.05.064
61. Li, D. L., Zheng, X. L., Duan, L., Deng, S. W., Ye, W., Wang, A. H., & Xing, F. W. (2017). Ethnobotanical survey of herbal tea plants from the traditional markets in Chaoshan, China. *Journal of ethnopharmacology*, *205*, 195-206. https://doi.org/10.1016/j.jep.2017.02.040
62. Kumar, A., Pandey, V. C., Singh, A. G., & Tewari, D. D. (2013). Traditional uses of medicinal plants for dermatological healthcare management practices by the Tharu tribal community of Uttar Pradesh, India. *Genetic resources and crop evolution*, *60*, 203-224. https://doi.org/10.1007/s10722-012-9826-6
63. Bhosle, V. (2013). Anticonvulsant and antioxidant activity of aqueous leaves extract of Desmodium triflorum in mice against pentylenetetrazole and maximal electroshock induced convulsion. *Revista Brasileira de Farmacognosia*, *23*(4), 692-698. https://doi.org/10.1590/S0102-695X2013005000047
64. Sambandan, K., & Dhatchanamoorthy, N. (2012). Studies on the phytodiversity of a sacred grove and its traditional uses in Karaikal district, UT Puducherry. *Journal of Phytology*, *4*(2).
65. Neamsuvan, O., & Bunmee, P. (2016). A survey of herbal weeds for treating skin disorders from

Southern Thailand: Songkhla and Krabi Province. *Journal of Ethnopharmacology*, *193*, 574-585. https://doi.org/10.1016/j.jep.2016.09.048

66. Neamsuvan, O., & Ruangrit, T. (2017). A survey of herbal weeds that are used to treat gastrointestinal disorders from southern Thailand: Krabi and Songkhla provinces. *Journal of ethnopharmacology*, *196*, 84-93. https://doi.org/10.1016/j.jep.2016.11.033
67. Sureshkumar, J., Silambarasan, R., & Ayyanar, M. (2017). An ethnopharmacological analysis of medicinal plants used by the Adiyan community in Wayanad district of Kerala, India. *European Journal of Integrative Medicine*, *12*, 60-73. https://doi.org/10.1016/j.eujim.2017.04.006
68. Chander, M. P., Kartick, C., Gangadhar, J., & Vijayachari, P. (2014). Ethno medicine and healthcare practices among Nicobarese of Car Nicobar–An indigenous tribe of Andaman and Nicobar Islands. *Journal of ethnopharmacology*, *158*, 18-24. https://doi.org/10.1016/j.jep.2014.09.046
69. Samoisy, A. K., & Mahomoodally, F. (2016). Ethnopharmacological appraisal of culturally important medicinal plants and polyherbal formulas used against communicable diseases in Rodrigues Island. *Journal of Ethnopharmacology*, *194*, 803-818. https://doi.org/10.1016/j.jep.2016.10.041
70. Dharmadasa, R. M., Akalanka, G. C., Muthukumarana, P. R. M., & Wijesekara, R. G. S. (2016). Ethnopharmacological survey on medicinal plants used in snakebite treatments in Western and Sabaragamuwa provinces in Sri Lanka. *Journal of Ethnopharmacology*, *179*, 110-127. https://doi.org/10.1016/j.jep.2015.12.041
71. Paniagua-Zambrana, N. Y., Bussmann, R. W., & Romero, C. (2020). Desmodium molliculum (Kunth) DC. Desmodium triflorum (L.) DC. Fabaceae. *Ethnobotany of the Andes*, 1-8. https://doi.org/10.1007/978-3-030-28933-1_97
72. Suroowan, S., Pynee, K. B., & Mahomoodally, M. F. (2019). A comprehensive review of ethnopharmacologically important medicinal plant species from Mauritius. *South African Journal of Botany*, *122*, 189-213. https://doi.org/10.1016/j.sajb.2019.03.024
73. Bhosle, V. (2011). Evaluation of the anticonvulsant activity of the ethanol and aqueous extracts of *Desmodium triflorum* DC in mice. Thesis, Rajiv Gandhi University of Health Sciences, India.
74. Singh, N., Tailang, M., & Mehta, S. C. (2016). Pharmacognostic and phytochemical screening of Desmodium triflorum Linn. *Int J Pharmacogn*, *3*(1), 43-49. https://doi.org/10.13040/IJPSR.0975-8232.IJP.3(1).43-49
75. Gao, L., Wei, N., Yang, G., Zhang, Z., Liu, G., & Cai, C. (2019). Ethnomedicine study on traditional medicinal plants in the Wuliang Mountains of Jingdong, Yunnan, China. *Journal of ethnobiology and ethnomedicine*, *15*, 1-20. https://doi.org/10.1186/s13002-019-0316-1
76. Sharma, S., & Kumar, R. (2021). Sacred groves of India: repositories of a rich heritage and tools for biodiversity conservation. *Journal of Forestry Research*, *32*(3), 899-916. https://doi.org/10.1007/s11676-020-01183-x

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