

Ethnomedicinal Plants of Fabaceae Used by the Primitively Vulnerable Tribal Groups (PVTGs) of Visakhapatnam district, Andhra Pradesh, India

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Abstract: The paper deals with 37 species of plants belonging to 26 genera of the family Fabaceae used by the Primitively Vulnerable Tribal Groups (PVTGs) of Visakhapatnam district, Andhra Pradesh, for curing a variety of ailments ranging from abdominal pain to ulcers. Trees are dominant with 15 species followed by herbs (10), shrubs (9), and others. Root is used in a maximum of 40 practices followed by leaf (18), stem bark (16), and others and 43 practices were found to be new.

Keywords: Ethnomedicine, Gadaba, Khond, Porja, Therapeutic potential

I. INTRODUCTION

Ethnomedicines are integral part of health and well-being of indigenous and local communities for centuries. These practices are deeply rooted in the cultural and spiritual traditions of the people, often passed down through oral history and practice. The integration of ethnomedicinal research into modern healthcare systems has the potential to enhance global health. By validating and standardizing traditional remedies, these practices can be incorporated into primary healthcare, especially in regions where conventional medicine is less accessible. Fabaceae family holds a prominent place in traditional healthcare systems such as Ayurveda and Unani. The economic and social impact of Fabaceae plants in ethnomedicine extends deeply into rural healthcare systems and local economies worldwide.

Visakhapatnam district is situated in the north eastern part of Andhra Pradesh. It lies between 17°-34' and 18°-32' in northern latitude and 81°-51' and 83°-16' in eastern longitude covering 6,298 sq km i.e., 56.4% of the total geographical area of the district. As per 2011 census, its total population is 4,290,589 of which the tribes constitutes 618,500 comprising 14.42 percent of the total population ranking first in the state and the Primitively Vulnerable Tribal Groups (PVTGs) include 146,806 with a percentage of 23.73 among the tribes. The predominant tribes are Bagata, Gadaba, Goudu, Khond, Konda dora, Konda kammara, Kotia,

Mali, Mukha dora, Porja and Valmiki of which Gadaba, Khond, and Porja are classified as PVTGs. Though there are publications on ethnomedicine of tribals of Visakhapatnam district on a particular disease(s) exclusive studies on a family by the PVTGs are not taken up necessitating the present investigation.

II. REVIEW OF LITERATURE

Patel and Jangid (2013) reported 16 species of Mimosaceae used for ethnomedicinal purposes by the folklore and tribals of Sabarkantha district of Gujarat. D'Cruz (2007) reported 23 species of Leguminous plants from Dediapada forests of South Gujarat. 20 species of plants from Panna district of Madhya Pradesh (Gwalwanshi et al. 2014). Tomar (2021) reported 16 genera and 17 species of plants of the family Papilionaceae used as ethnomedicine by the rural people of Meerut Division of Uttar Pradesh. Kumar (2022) reported 9 ethnomedicinal plants of the family Mimosaceae used by Kalbelia, Nats, Bhils, Raika, Bhopas, Banjara, Gadolia-Lohar, Langa and Manganiars communities residing in Barmer district of Rajasthan. Devi et al. (2023) reported a total of 31 medicinal plant species belonging to 24 genera of the Fabaceae family from Narmadapuram District of Madhya Pradesh. Singh and Arjariya (2024) reported the ethnomedicinal significance of Fabaceae in Panna district, Madhya Pradesh emphasizing the need for collaborative efforts between traditional knowledge holders, researchers, and conservationists to document, validate, and integrate the valuable traditional knowledge into modern healthcare systems. A total of 15 plant species of the Fabaceae family have been documented which are used for the treatment of different diseases by the rural people of Alwar district, Rajasthan (Bairwa 2024). Sharma and Alam (2024) studied the ethnobotanical importance of families Apocynaceae, Asteraceae and Fabaceae among tribes of Rajasthan. Bera and Sourabh (2024) documented ethnomedicinally important plant species of Fabaceae used by the Santals, Mundas, Mahishya tribals of the coastal districts of Purba Medinipur (West Bengal) and Balasore (Odisha). Kacholi (2026) revealed that 97 Fabaceae species traditionally treat human ailments in Tanzania.

III. MATERIALS AND METHODS

The ethnomedicinal data presented here are the outcome of a series of intensive field studies conducted during 2009-2011 in 42 interior tribal pockets with good forest cover and 62 *vaidyas* were consulted. Each field trip was of 5-8 days duration covering all seasons of the year. After establishing good rapport with the tribals, the utility of plants, detailed methods of uses were documented and cross-checked for authenticity. Voucher specimens were prepared and

deposited in the Herbarium of the Department of Botany, Andhra University, Visakhapatnam (AUV).

IV. ENUMERATION

The plants are arranged in an alphabetical order with botanical name followed by vernacular name, English name, locality, collector, voucher specimen number, method, mode and duration of the treatment. Plants and practices marked with an asterisk (*) are considered to be new or less known.

Abrus precatorius L. VN: Gurivinda, E: Crab's eye, Gurupalli (Paderu), JKR 9257

Arthritis: Root paste mixed with half tea glass of water is administered twice a day till cure.

Dandruff: Leaf paste is applied externally before going to head bath till cure.

***Easy delivery:** Bark paste mixed with 50 ml of water is given.

Paralysis: Root paste mixed with water is administered in two tea spoonful once a day till cure.

Acacia nilotica (L.) P.J.H Hurter & Mabb. VN: Nalla Thumma, E: Black babul, Kusumagaruvu (Pedabayalu), JKR 9126

Piles: Stem bark paste mixed with half tea glass of water is administered once a day till cure.

***Swelling of eyes:** Boiled stem bark paste is applied on the eyebrows.

Bauhinia purpurea L. VN: Goddu koora, E: Pink bauhinia, Thotalagondi (G Madugula), JKR 9065

***Asthma:** Stem bark paste mixed with half tea glass of water is administered twice a day for 5 days.

Dysentery: Stem bark paste mixed with half tea glass of water is administered twice a day till cure.

Bauhinia vahlii (Wight & Arn.) Benth. VN: Addaku, E: Camel's foot climber, Pilliputtu (Paderu), JKR 9224

Amenorrhoea: Tender leaves along with tender leaves of *Artemisia vulgaris*, *Ricinus communis* and roots of *Rubus ellipticus* are ground and administered twice a day for 2 days.

Stomach pain: Seed paste mixed with 50 ml of water is administered twice a day for 2 days.

Butea monosperma (Lam.) Kuntze VN: Modhuga, E: Flame of the forest, Dandaguda (Dumbriguda), JKR 9418

***Headache:** Root paste is applied on the forehead twice a day for 3 days.

Jaundice: Half tea glass of leaf juice is given orally once a day till cure.

Butea superba Roxb. ex Willd. VN: Osso, E: Red Kwao Krua, Boddumamidi (Koyyuru), JKR 9004

***Cough:** Root paste mixed with half tea glass of water is administered twice a day till cure.

Cajanus cajan L.) Huth VN: Kandulu, E: Pigeon pea, Edulagaruvu (Hukumpeta), JKR 9113

Dysentery: Root paste mixed with half tea glass of water is administered twice a day for 3 days.

Cajanus scarabaeoides (L.) Thouars VN: Adaviulava, E: Peanut grass, Boddaputtu (G. Madugula), JKR 9309

Contraceptive: Root paste along with roots paste of *Cassia absus* and *Desmodium gangeticum* mixed with half tea glass of water is administered 3 times on half-moon followed by full-moon and half-moon days.

Dysentery: Root paste mixed with half tea glass of water is administered twice a day for 3 days.

Cassia fistula L. VN: Rela, E: Indian laburnum, Gurupalli (Paderu), JKR 9251

Laxative/Purgative: Three leaves are plucked from the plant without aspiration and made into paste. It is administered with water three times for one day only.

***Tumors in stomach:** Tender leaves, *Baliospermum montanum* seed oil, one chilli fruit and a pinch of salt cooked with country liquor of rice is administered thrice a day for 5 days.

Clitoria ternatea L. VN: Sanku pusphalu, E: Butter fly pea, Pittalapadu (Koyyuru), JKR 9323

***Anaemia:** Fifty gm of root paste mixed with half tea glass of water is administered twice a day for 2 days.

Crotalaria laburnifolia L. VN: Pedda giligicha, E: Rattle pod, Edulagaruvu (Hukumpeta), 9249

***Burning sensation:** Leaf paste mixed with coconut oil is applied on the effected parts.

***Epilepsy:** Root paste mixed with half tea glass of water is administered daily twice till cure.

***Rheumatism:** Root paste mixed with 50 ml of water is administered daily once till cure.

Crotalaria pallida Aiton VN: Billa chettu, E: Smooth rattlebox, Labbangi (Chintapalli), JKR 9111

***Evil spirit:** Root paste is given with half tea glass of water once a day for 2 days.

Root is directed towards the patient and blown with air from mouth.

Dalbergia lanceolaria Moon VN: Saki chettu, E: Bastard Rosewood, Edulagaruvu (Hukumpeta), JKR 9399

Jaundice: Stem bark paste along with *Mirabilis jalapa* tuber paste is administered twice a day for 2 days.

***Toothache:** Stem bark paste is applied on effected teeth and brush the teeth with tender shoots once day for 3 days.

Dalbergia volubilis Roxb. VN: Maredu tivva, E: Cinnamon, Kunukuru (Koyyuru), JKR 9364

Blood dysentery: Stem bark paste mixed with half tea glass of water is administered thrice a day for 2 days.

***Heart pain:** Fifty gm of root paste is given once a day till cure.

Menorrhagia: Stem bark paste mixed with half tea glass of water is administered twice a day till cure.

Post-partum problem (Body swelling after delivery): Leaves are boiled in water and the fumes are fomented on the body to reduce the swelling in post-partum women.

Endosamara racemosa (Roxb.) R. Geesink VN: Naga visam chettu, E: Karanja Rajupakalu (Chintapalli), JKR 9266

***Snakebite:** Root paste mixed with half tea glass of water is administered soon after bite.

Erythrina suberosa Roxb. VN: Mullu moduga, E: Corky coral tree, Rallaputtu (G. Madugula), JKR 9294

Fever: Leaf paste mixed with half tea glass of water is administered twice a day for 3 days.

Erythrina variegata L. VN: Baditha chettu, E: Indian coral tree, Rajupakalu (Chintapalli), JKR 9175

Menorrhagia: Root paste and *Jatropha curcas* root paste mixed in half tea glass of water is administered daily twice till cure.

****Grona heterophylla*** (Willd.) H. Ohashi & K. Ohash VN: Muntamandu, E: Three-flower beggar weed, Gadaparai (Chintapalli), JKR 9314

Migraine: Whole plant paste is instilled in the fruit of *Capsicum frutescens* and inhaled twice a day.

Scabies: Leaf paste along with seed paste of pepper is applied on effected parts.

Ulcer in the mouth of child: Root paste mixed with half tea glass of water is administered once a day. Leaf paste mixed with a pinch of salt is applied on the mouth.

Indigofera glabra L. VN: Pulichinthaku, E: Five-leaf Indigo, Dabbalapadu (Ananthagiri), JKR 9222

***Ulcers in mouth:** Root paste is applied on the effected parts.

Indigofera tinctoria L. VN: Neeli mandhu mokka, E: Indian indigo, Allivara (Paderu), JKR 9118

***Dysentery:** Root paste mixed with *Hemidesmus indicus* root paste is administered with half tea glass water twice a day for 3 days.

***Fever:** Bark paste mixed with half tea glass of water is administered twice a day.

***Mimosa pudica* L.** VN: Kunukurodda, E: Touch-me-not, Chinthaveedhi (Paderu), JKR 9338

Insomnia: Leaf paste is applied to scalp.

Jaundice: Root paste along with root paste of *Achyranthes aspera* mixed with 25 gm of curd is administered thrice a day for 2 days.

Menorrhagia: Root paste mixed with half tea glass of water is administered twice a day till cure.

***Reeling sensation:** Root paste mixed with half tea glass of water is administered once a day till cure.

Snakebite: Root and leaf paste mixed with water is administered twice a day and also applied on the bitten area immediately after bite.

Leaf paste of 7 leaves is administered with water in one tea spoonful per day.

***Tympanites:** Leaf paste is applied on the affected part and root paste mixed with half tea glass of water is administered twice a day.

***Mucuna pruriens* (L.) DC.** VN: Dulagondi, E: Cowitch, Pisirimamidi (Chintapalli), JKR 9379

***Allergy:** Roots and seeds of black pepper are grounded and applied on the affected parts.

***Helminthiasis:** Root paste mixed with half tea glass of water is administered twice a day.

***Paracalyx scariosus* (Rox.) Ali** VN: Osso, E: Indian husk-pea, Pilliputtu (Paderu), JKR 9363

***Dysentery:** Root paste mixed with half tea glass of water is administered twice a day for 3 days.

***Phyllodium pulchellum* (L.) Desv.** VN: Konda anteetha, E: Showy Desmodium, Pilliputtu (Paderu), JKR 9018

Dysentery: Root paste is administered with water twice a day for 3 days.

***Pongamia pinnata* (L.) Pierre** VN: Ganuga, E: Indian beech tree, Edulagaruvu (Hukumpeta), JKR 9170

Contraceptive: Stem bark along with stem bark *Cipadessa baccifera* and a pinch of salt is grounded and administered with three spoonfuls of water thrice a day.

Scabies: Seed oil is applied on affected parts.

***Pseudarthria viscida* (L.) Wight & Arn.** VN: Batantu aaku, E: Sticky desmodium, Modhaputtu (Paderu), JKR 9100

***Prolapse of uterus:** Root paste along with root paste of *Cryptolepis buchananii* mixed with half tea glass of water is administered twice a day for 3 days.

***Pterocarpus marsupium* Roxb.** VN: Yegisa, E: Kino tree, K. Kudasingi (G.K. Veedhi), JKR 9054

***Harshness of voice:** Latex is applied on epiglottis.

Dysentery: Bark paste mixed with *Punica granatum* tender leaf paste is administered with half tea glass of water twice a day.

***Jaundice:** Bark mixed with roots of *Rubia cordifolia* and *Rauvolfia serpentina* and tubers of *Colocasia esculenta* and *Nelumbo nucifera* are grounded with water and administered in half tea glass of water once a day for 3 days.

Menorrhagia: Stem bark along with stem barks of *Bauhinia vahlii*, *Ficus religiosa* and tender leaves of tomato are grounded and mixed with half tea glass of rice washed water is administered thrice a day till cure.

Pueraria tuberosa (Roxb. ex Willd.) DC. VN: Dharigummadi, E: Indian kudzu, Rallaputtu (G. Madugula), JKR 9130

***Headache:** Leaf paste is applied on the forehead once a day till cure.

***Heart pain:** Two spoonful of tuber paste is administered once a day for 5 days.

***Blood pressure:** Two spoonful of tuber paste is administered once a day for 5 days.

Cuts and wounds: Tuber paste is administered twice a day till cure and the paste is also applied on the affected parts.

Senegalia rugata (Lam.) Britton & Rose VN: Sheekaya, E: Soap pod tree, Labbangi (Chintapalli), JKR 9361

***Cough:** Root paste mixed with half tea glass of water is administered twice a day for 3 days.

Senna auriculata L. (Roxb.) VN: Thangedu, E: Tanner's cassia, Dekurai (Koyyuru), JKR 9331

Bone fractures: Leaves paste is tied around the fractured areas with a fine cloth.

Senna hirsuta (L.) H.S. Irwin & Barneby VN: Pedda tentemu, E: Hairy senna, Ellipalem (Pedabayalu), JKR 9247

***Rib muscle pain:** Root paste mixed with 50 ml of water is given twice a day.

***Stomach pain:** Root paste mixed with half tea glass of water is administered daily twice.

Senna obtusifolia (L.) H.S. Irwin & Barneby VN: Thantemu, E: Sick pod Edulagaruvu (Hukumpeta) JKR 9192

***Dysentery:** Root paste mixed with *Jatropha curcas* root paste mixed with half tea glass of water is administered daily twice for 3 days.

***Sudden crying in children:** Dry root along with 7 rice grains are grounded into powder, and blown towards the newly born baby to stop sudden crying. The powder kept in cloth is tied around the waist.

Senna sophora (L.) Roxb. VN: Kasitha, E: Stinking weed, Ellipalem (Pedabayalu), JKR 9409

***Abdominal pain:** Root paste mixed with water is administered thrice a day.

***Helminthiasis:** Roots ground into paste is taken along with water twice a day for 3 days.

***Jaundice:** Leaf soup mixed with cow milk is administered in half tea glassful for 3 times. Two drops of leaf soup is instilled into the eyes.

***Loosening of heart:** Root paste mixed with half tea glass of water is administered twice for 3 days.

***Stomach pain:** Root paste mixed with half tea glass of water is administered twice a day till cure.

***Throat ulcers:** Root paste mixed with neem juice is administered twice a day for 3 days.

Senna tora (L.) Roxb. VN: Thantepumokka, E: Foetid cassia, Marriputtu (Munchingput), JKR 9212

Menorrhagia: Root paste mixed with half tea glass of water is administered twice a day for 3 days.

Sesbania grandiflora (L.) Poir., VN: Tella sumintha, E: Swamp pea, Labbangi (Chintapalli), JKR 9476

Dysentery: Stem bark paste is administered along with half tea glass of hot water twice a day till cure.

Tamarindus indica L. VN: Chintha chettu, E: Tamarind tree, Gurupalli (Paderu), JKR 9082

Boils: The ash obtained from burning of bark is applied on the affected parts.

Bone fracture: Tender leaves along with tender leaves of *Datura metel* and *Ricinus communis* are ground and applied on fractured bones and bandaged.

***Sores:** Root bark paste is applied on affected parts.

Tephrosia purpurea (L.) Pers. VN: Vempali, E: Wild indigo, Mettapalem (Ananthagiri), JKR 9446

***Epilepsy:** Five gm of root paste is mixed with *Zingiber officinalis* and *Allium sativum*. Soup is extracted, boiled and cooled. Serve the soup once a day for 15 days.

***Helminthiasis:** Root paste mixed with 50 ml of water is given twice a day till cure.

Piles: Root paste mixed with *Allium sativum* bulb paste is administered twice a day till cure.

Stomach pain: Root paste mixed with half tea glass of water is administered twice a day.

***Tumors in stomach:** Root and leaf paste mixed with water is administered thrice a day.

V. RESULTS AND DISCUSSION

The paper deals with 37 species of plants belonging to 26 genera of the family Fabaceae used by the Primitively Vulnerable Tribes (PVTGs) of Visakhapatnam district, Andhra Pradesh, for ethnomedicinal purposes curing a variety of diseases viz., abdominal pain, allergy, amenorrhoea, anaemia, arthritis, asthma, blood dysentery, blood pressure, boils, bone fracture, burning sensation, contraceptive, cough, cuts and wounds, dandruff, dysentery, easy delivery, epilepsy, evil spirit, fever, harshness of voice, headache, heart pain, helminthiasis, insomnia, jaundice, laxative, loosening of heart, menorrhagia, paralysis, piles, post-partum problem, prolapse of uterus, reeling sensation, rheumatism, rib muscle pain, scabies, sores, snake bite, stomach pain, sudden crying in children, swelling of eyes, throat ulcers, toothache, tumors in stomach, tympanites, and ulcers in mouth. Habit-wise analysis showed the dominance of trees with 15 species followed by herbs (10 spp.), shrubs (9 spp.), creepers/stragglers (3 spp.). Morphological analysis showed the maximum utilization of root in 40 practices followed by leaf (18), stem bark (16), tuber and seed (3 each) and whole plant, root bark and latex in one practice each. They are administered either in the form of powder, paste, soup along with either water, rice washed water, cow milk, coconut oil or salt. Of the total 81 practices 43 were found to be new or less known (Jain, 1991; Kirtikar and Basu, 2003; Jain and Jain, 2016). Plants used for similar purpose in different parts of India are *Butea monosperma*, *Erythrina suberosa*, *Pterocarpus marsupium*, *Tephrosia purpurea* by the folklore of Dediapada forests of South Gujarat (D'Cruz, 2007); *Acacia nilotica* by folklore and tribals of Sabarkantha district, Gujarat (Patel and Jangid, 2013), Panna district, Madhya Pradesh (Singh and Arjariya, 2024); *Mimosa pudica* by people of Panna district of Madhya Pradesh (Gwalwanshi, et al. 2014); *Cassia fistula* by the rural people of Alwar district, Rajasthan (Bairwa, 2024); *Bauhinia purpurea*, *Mimosa pudica*, *Mucuna pruriens* by the Santals, Mundas, Mahishya tribals of districts of Purba Medinipur (West Bengal) and Balasore (Odisha) (Bera and Sourabh, 2024).

VI. CONCLUSIONS

The Fabaceae family contributes significantly to healthcare of PVTGs of Visakhapatnam district, Andhra Pradesh with 37 medicinal taxa offering notable therapeutic potential. To ensure safe integration into public health systems, urgent action is required to establish evidence-based regulatory frameworks and standardized toxicological protocols. Moreover, aligning ethnomedicine with modern research will strengthen cultural continuity, improve health outcomes, and create pathways for innovation of new medicines. The district with rich

medicinal plant diversity, offer insights into local healthcare practices deeply rooted in their environment. Ethnomedicinal studies here preserve and scientifically validate traditional plant uses, contributing to their potential future medicinal applications.

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