



PLANTS UTILIZED TO TREAT

LEPROSY

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Abstract

Traditional herbal remedies for leprosy is presented in this report. Twenty three plant species present on Umaga hill of Aurangabad (Bihar), which are used by rural peoples have been mentioned. These plants belongs to eighteen families but mostly belongs to family fabaceae (five species) followed by two species of Apocyanaceae.

Key words: Leprosy, Herbal, Species.

Introduction.

Due to presence of diverse climatic conditions in India, it is a magadiversity region of world having highly variable flora (Kaushik, 1988; Kaushik and Dhiman, 2000; Raychaudhuri, 1998; Rao,1994). More than 2500 plant species, which are utilized for medicinal purposes to treat the various diseases by Ayurvedic, Unani and Siddaha system are present in India.

Leprosy (Hansen's Disease) is a chronic, infectious disease, caused by *Mycobacterium leprae*, a bacillus (Rod shaped) bacteria. It produces severe skin lesions, disfiguring and damage of peripheral nerves in skin, legs hands etc. It is transmitted through droplets from mouth and nose. Intermediate, borderline, lepromatous and tuberculoid are the main types of leprosy. Out of these, lepromatous leprosy is more contagious. Untreated leprosy causes many complications like blindness, loss of hairs, iritis, infertility, failure of kidney, face disfiguration, weakness of muscles and damage of internal side of nose.

Umaga hill is a famous tourist place, located 24 Km. away towards east of Aurangabad town of Bihar. It has many temples. Famous Vaishnava temple located at foothill of Umaga hill is made up of square granite blocks in which Lord Ganesha, God Sun and Lord Shiva present. On the hill Mota Mahadev and Ugama Devi Mandir present. On G.T. Road from Madanpur and Darji Bigha, there is a road to reach the Umaga Hill.

Since primitive period, human and other animal populations dependent on plants and its products for their health care and survival. Ancient literatures like Rig-Veda, Charak-sanhita, Athrava-Veda, etc. describe about the traditional and medicinal importance of plants with its various uses. Though many research and documentations present regarding the plants of Magadh region, there is no information present regarding the plants of Umaga hill. The present paper deals about the medicinal plants of Umaga hill, uses for curing leprosy.

Material and Methods

Surveys were made frequently for collection of plants from Umaga hills. Rural and old knowledgeable peoples, Ojha, Vaidya, Ayurvedic and herbal shop keepers were interviewed to gain the informations regarding medicinal importance of plants which are utilized to cure the leprosy. Information are also gathered from published literatures.

ENUMERATION

Data of plants, utilized in treatment of leprosy are arranged in following sequences, Botanical name, Family, Vernacular name, Availability status, Characteristics and parts utilized.

1. *Plumbago zeylanica* (Plumbaginaceae, Chitrak) Wild, Herb with lanceolate bracts, white coloured heterostylous flowers, capsule fruit with brown seeds. The root paste is mixed with Bhindi (*Hibiscus esculentus*) and applied externally, (Sharma and Kumar,2002).
2. *Trigonella foenum-graceum* Linn.(Fabaceae,Methi) Cultivated, Erect annual herb, compound leaves with three leaflets, Axillary, sessile flowers and pod fruit. Seeds are hot with bitter taste contains many bioactive compounds like flavonoids (Quercetin, Rutin,Vitexin), Amino acids (isoleucine, 4 hydroxy- isoleucine, Histidine, Leucine and Lysine), Saponins (Graecunin, Fenugrin B and Fenugreekine), Alkaloids (Trigonelline, Choline, Carpaine). Seed paste applied to cure Leprosy. (Gupta and Kumar, 2002, Sanghi and Kumar, 2002).
3. *Datura metel* Linn. (Solanaceae,Datura) Wild, Annual shrubby weed with green dark violet stem, petiolated simple leaf,solitary axillary cymose inflorescence, white pentamerous pedicellate flowers and spinous capsule fruit. Alkaloids are Tropane, Scopolamine, Atropine,Hyoscyamine, Daturin. Seed powder with mustard oil, used to cure leprosy. (Shivani and Kumar,2002)
4. *Commelina benghalensis* Linn. (Commelinaceae, Kankawwa) Wild, perennial weed. Herbaceous stem produces chasmogamous (Male, hermaphrodite) and cleistogamous (hermaphrodite) flowers. Blue coloured zygomorphic flowers have six stamens (only 3 fertile stamens), Tricarpellary gynoecium. Ovoid seeds. Decoction of plant used in leprosy (Mondal *et al.*, 1997).
5. *Abutilon indicum* L. (Malvaceae, Kanghi) Wild shrub with cordate leaves. Flowers with golden yellow petals. Schizocarpic globose fruit. The root paste and plant extract (Mondal *et al.* 1997) utilized in leprosy.
6. *Xyris indica* Linn. (Xyridaceae) Wild, Plant extract cures leprosy. (Mondal *et al.* 1997)

7. *Centella asiatica* Linn. (Apiaceae, Brahmbuti) Wild, perennial, creeper herb present along river or canal sides, plants trails on ground and its creeping stems bears adventitious roots on nodes, kidney shaped leaves with toothed margin, umbel inflorescence. Flowers-pinkish red, born in cluster, stamens-5 carpel-2, fruit-coccos. Chemical compositions are Vellarine, Tannic acid, Asiaticosid A&B, Saponin, Madecassoside, Madasiatic acid, Brahmoside, Brahminoside. Decoction prepared from dried leaves and stem is used in treatment of leprosy (Roy and Kumari, 2004, Kumari *et al.*, 2018, Jha, 1999). Dried leaves powder mixed with coconut oil applied externally to treat leprosy (Singh *et al.*, 1998)
8. *Psoralea corylifolia* L. (Fabaceae, Bakuchi) Wild, small erect annual herb with simple leaves, clothed with white hairs on both surfaces, covered with numerous black dots, flowers- dense, 10-30 flowered racemes, corolla-yellow, fruit- one seeded pod, seeds: brownish black, oblong, flattend, kidney shaped, ex-abuminous with straw coloured testa. Seed paste applied in leprosy (Singh and Singh, 2001.)
9. *Tinospora cordifolia* (Willd)M. (Menispermaceae, Guruch)Wild, deciduous, climbing shrub. Flowers: Greenish yellow, In raceme panicles, male flower are clustered around solitary female flowers, Chemicals: Alkaloids, steroids, diterpenoid, lactones, aliphatics and glycosides. Fresh stem juice used to cure leprosy (Singh and Singh, 2001)
10. *Calotropis procera* (Apocynaceae, Madar/Akawan): Wild , shrub. Fruits – green have toxic milky gummy sap, Chemicals: Calotopin, Calotropagin. Flower buds used to cure leprosy (Singh and Singh 2001).
11. *Aeschynomene indica* L. (Fabaceae). Wild, Annual/perennial herb, stem-thin, stipulated compound leaf with many narrow leaflets, stipules are spurred. Fruit- pod with upto thirteen chambers, Seeds- Black brown. Leaf paste applied in leprosy (Natarajan and Manichkam, 2003)
12. *Nerium indicum* Mill (Apocynaceae, Kaner): Wild, perennial shrub with erect stem, thick leathery, dark green, narrow, lanceolate leaves present in whorls of three with entire margin and reticulate venation. Flowers grow in cluster, Fruit – follicle. Sap is viscous and gummy. Chemicals: Phenolics, Glycosides, Flavonoid, Alkaloids, Tannin etc. Root is poisonous and useful in leprosy (Joshi *et al.*, 2003).
13. *Bauhinia variegata* L. (Fabaceae, Kachanar): Wild, deciduous, small tree, leaves – obcordate shaped, bilobed at base and apex, flowers- bright pink, fruit- pod with several seeds. Decoction of Bark is applied in leprosy (Gupta *et al.*, 1999)
14. *Costus speciosus* (Koem). (Zingiberaceae, Keo kand) Wild, Rhizome are slightly slimy, astringent in taste, white flowers present in clusters, Chemicals: Costusosides, Saponins (Dioscin, Gracillin, Beta Sitosterol, Beta –D glucoside. Rhizome juice used to cure leprosy. (Gupta *et al.*, 1999.)
15. *Albizia procera* (Roxb.)Willd. (Fabaceae, White Siris) Wild, medium sized fast growing semi- deciduous tree with bisexual sessile flowers and pod fruit. Chemicals: triterpenoids, glycosides, phytosterols, tannins, flavonoids, phenolic compounds, saponins. Leaf Paste utilized in leprosy.

16. *Anthocephalus cadamba* (Rubiaceae, Kadam) Wild, large, evergreen tree with simple opposite leaves and Bisexual yellow flowers. Capsule fruit. Chemicals: Saponins, Terpenes, Sesquiterpenes, Glycosides, Alkaloids, Fruit used in leprosy (Oraon and Kumar, 2001)
17. *Celastrus peviculatus* Wild (Celastraceae, Mal-Kangani Wild, large, woody, deciduous, climbing shrub, Broad simple leaves with toothed margins. Seeds used in treatment for leprosy.
18. *Terminalia bellirica* Roxb. (Combretaceae, Barre/Bahera) Wild, large deciduous tree, leaves crowded towards branch ends, seeds-nut. Fruit used to cure leprosy (Jha, 1999).
19. *Lawsonia inermis* Linn. (Lythraceae, Mehandi) Wild/Cultivated, Tall, multibranched shrub with spine-tipped branchlets, leaves are opposite, glabrous, subsessile and lanceolate. Flowers with four sepals, petals ovate, stamens in pairs. Ovary Fourcelled, Fruit-multiseeded capsule. Chemicals: Lawsonine, Essential oil, fatty oil. Bark used in leprosy (Pathak *et al.* 2006, Patel *et al.* 2020)
20. *Ricinus communis* (Euphorbiaceae, Arandi) Wild/Cultivated, woody shrub, perennial flowering plant, Fruit-capsule with dark brown seeds. Seeds have lipolytic enzymes. Chemicals: Flavonoids, Phenolic Compounds, fatty acid, Aminoacids, Terpenoids, Phytosterol, Ricinoleic acid. Seed oil is used in treatment of leprosy.
21. *Asparagus racemosus* (Liliaceae, Sataver): Wild, Adventitious tuberous root, leaves-needle like green phylloclades, stem spiky, flower- Minute, white, Fruit –Blackish, purple, globular berries. Chemicals: Anthocyanin, Malvin, Asparagine. Useful in leprosy (Rani, *et al.*, 2006).
22. *Argemone mexicana* L. (Papaveraceae, Kataila), Wild herb with pickled leaves and yellow flowers. Chemicals: Protopine, Berberidine, Dihydro- sanguinarine, Argemone oil, Sanguinarine, Chelerythrine, Argemixicaines A and B, Cryptopine, Allocryptopine, Leaf juice grind with turmeric and externally applied for curing leprosy wounds. (Rajaram, 2004, Prasad *et al.*, 1998).
23. *Bacopa mannieri* (L) Pannell (Scrophulariaceae, Brahmi) Wild, perennial, creeping, non-aromatic herb with succulent, oblong, opposite leaves, Small actinomorphic, white flowers with 4-5 petals. Chemicals: Glucosides, Baccoside A, Baccoside B. Alkaloids (Herpestine, Brahmine.) Juice of whole plant applied in leprosy (Satpathy, 2003).

Discussion

Twenty three plant species have been identified from the Umaga hill. located near Madanpur of Aurangabad District of Bihar, used to treat the chronic infections bacterial disease ‘‘ leprosy. ‘‘ caused by bacillus bacteria *Mycobacterium leprae* These plants belongs to eighteen families named as Plumbaginaceae, Fabaceae, Solanaceae, Commelinaceae, Malvaceae, Xyridaceae, Apiaceae, Menispermaceae, Apocynaceae, Zingiberaceae, Rubiaceae, Celastraceae, Combretaceae, Lythraceae, Euphorbiaceae,

Liliaceae, Papaveraceae and Scrophulariaceae. Out of twenty three, five species of plants belongs to family fabaceae and two species from family Apocyanaceae.

Rapid developmental works in this area leads to uncontrolled increase in human interference in nature, which has been resulted into cutting trees in vast quantity and a considerable decline of habitats. Many medicinal plants grows in wild condition on Umaga hill. But due to overexploitation of these plants, they already threatened for existence. So, it is the demand of the situation to protect plants from becoming extinct for availability for future generations.

References.

1. Gupta, A.K, Mishra, S.K.and Khan, A.A. (1999): Ethnobotanical studies on Medicinal plants of Amarkantak Forest, Shahdol District, Madhya Pradesh. Ad. Plant sci 12 (II): 451-456.
2. Gupta, Ritu and Kumar Ashwani (2002): Ethnobotanical and Ayurvedic applications of Methi- *Trigonella foenum – graceum* Linn. Int. J.Mendel. Vol. 19 (3),124.
3. Jha, Radha Krishna (1999): Ethnobotanical values of some common home remedies herbal plants for human welfare in Chotanagpur, Bihar, India,Int. J.Mendel,Vol.16 (3-4), 113-114.
4. Joshi, P.N.,Bhatt, D.C.,Mitaliya, K.D., Patel, S.K. and Lashkari, P.I.(2003): Religious trees and their Economic Importance of Kutchchh District, Gujarat, India. Ad. Plant. Sci. 16 (11) 399-402.
5. Kaushik, P. (1988): Indigenous medicinal plants including Microbes and Fungi, Tommorrow's Printers and Pulishers, New Delhi.
6. Kaushik, P. and Dhiman, A.K.,(2000): Medicinal plants and Raw Drugs of India. Bishen Singh Mahendra pal Singh, Dehradun.
7. Kumari, Chandresh., Choudhary Bimla and Choudhary, R.K. (2018): Ethnobotanical Studies of some Medicinal Plants of Barabar Hills. Int. J. Mendel,Vol.35(1-2), 2018 & 36 (1-2) 2019, 41-46.
8. Mishra, D.N.,Mishara, AK., and Upadhyaya, P.S.(1989): Ethno- medicinal uses of some plants by the Tharus of Bahraich District. U.P. Mendel 6 (1) 143-145.
9. Mondal , Nityananda.,Bhattacharya, Ashoke and Mandal, Sudhendu (1997): Ethnobotanical studies on some aquatic plants of the lateritic belt of west Bengal Int. J. Mendel, Vol. 14 (3&4),79-80.
10. Natarajan, K and Manichkam, V.S., (2003): Noteworthy Medicinal plants of Vallanadu Black-Buck Sanctuary in Tamilnadu, India. Ad. Plant Sci 16(11),389-394.
11. Oraon, Vidyani and Kumar, Arvind (2001): Eco-status of Medicinal Flora and their curative symptoms with special reference to Importance Value Index of Forests of Jharkhand. Indian J. Environ & Ecoplan. 5 (2): 407-411.
12. Patel, Timir,B., Golwala, Dharmesh. K., and Vaidya, Santosh Kumar (2020): Assessment of Potential Antiurolithiatic activities of Methanolic Extracts of *Lawsonia inermis* Linn. Aegaeum Journal (ISSN: 0776-3808), Volume:8,Issue:4,95-99.

13. Pathak, Pranita., Rani, Neetu and Kumar, Kamini (2006): Survey and study of Medicinal Plants curing different diseases in and around Birsa Agricultural University, Kanke, Ranchi.
14. Prasad, A.N., Singh, Binay Kr. and Dangi, M.K. (1998): Ethnomedicinal plants of Hazaribagh Forest Mines Region (Series-1): *Int.J.Mendel*, Vol.15(1-2),47-48.
15. Rajaram, N., (2004): Tribal Medicines of Velliankadu and Paalamalai of Coimbatore District, Tamil Nadu. *Ad. Plant. Sci.* 17 (11) 389-393.(2006): Medicinal Plants used to cure various ailments in the rural areas of Coimbatore District, Tamil Nadu, *Ad. Plant sci.* 19 (1) 197-202.
16. Rani, Neetu: Pathak, Pranita and Kumar, Kamini (2006): Medicinal Plants in and around Birsa Agricultural University, Kanke, Ranchi. *Int. J. Mendel*, Vol. 23 (1-2), 21-22.
17. Rao, R.R.,(1994): Biodiversity of India (Floristic aspects). Bishen Singh Mahendra Pal Singh, Dehradun.
18. Raychaudhuri, S.P., (1998): Medicinal Plants from forests: Need of a judicial approach to sustainable forest management. In *Proceeding of the Second South & East Asian countries NTFP Network (SEANN) workshop*. Surya publications, Dehradun, India.
19. Roy Jnanabrata., (2001): Some common Medicinal Plants of Birbhum District. *Int. J. Mendel.* 18 (4),141-142.
20. Roy, Dinesh Chandra and Kumari, Indu (2004): Ethno- botanical studies on some medicinal plants of Gaya and Adjoining Areas. *Int. J. Mendel*, Vol. 21 (1-2), 23-24.
21. Sanghi, Sapna and Kumar, Ashwani (2002): Characterization of the some of Ayurvedic Medicinal Plants of family Fabaceae used for Leprosy. *Int. J. Mendel.* Vol. 19 (3), 109-110.
22. Satpathy, Binapani: (2003): Ethno-Botanical note on Plants used for skin diseases in some rural areas of Bargarh District, Orissa, India. *Indian J. Environ & Ecoplan.* 7 (3): 671-673.
23. Sharma, Santosh and Kumar, Ashwani; (2002): Ethnobotanical studies on Medicinal Plant: Chitrak. *Int. J. Mendel*, Vol. 19 (3), 129.
24. Shivani and Kumar Ashwani; (2002): Some important Medicinal plants of family Solanaceae used in Ayurvedic system of Medicines *Int.J.Mendel*, Vol. 19 (3),97-98.
25. Singh, D. and Dhakre, J.S. (1989): Some Medicinal plants of Mathura District (U.P.), *Mendel*, 6 (1), 60-66.
26. Singh, R.B.and Singh, Yogendra (2001): Preliminary observations on the Ethnomedicinal Plants on Indo-Nepal Border (Champaran). Bihar. *Int.J. Mendel*, Vol.87-89.
.....(2001): Plants at the Neck. A Tribal Myths and Belief. *Int. J. Mendel.* Vol. 18 (3). 90.
27. Singh, S.K. Das, P.K. and Das, M.N. (1998): Ethnomedicinal studies on some medicinal plants of Rajgir, Bihar. *Int. J. mendel*, Vol. 15 (3-4), 145-148.