



## Rationale behind Uses of Medicinal Plants by Gond Tribe of Sironcha Tehsil, District- Gadchiroli, M.S., India

H. Kumar and P. Totawar

Department of Botany, Dr. C. V.Raman Science College Sironcha 442504, M.S.  
totawarharish@gmail.com

**Abstract:** Ethno medicinal study of Gond tribe inhabiting in Sironcha Tehsil reveals the medicinal uses of twelve plants. The enumeration of medicinal uses of these plant species is supplemented with phytochemical and pharmacological data wherever available, an attempt is made to establish a rationale behind tribal use of these plant species. The tribal uses are corroborated with chemical and biological activity and if corroboration exist then comments are made.

**Keywords:** *ethnomedicinal plants, lesser known Species.*

### Introduction

The district is divided into twelve tehsils viz., Sironcha, Aheri, Bhamragad, Etapalli, Mulchera, Chamorshi, Dhanora, Gadchiroli, Armori, Kurkheda, Wadsa, Korchi. The district is identified by the presence of abundance Teak Trees. Frequently many tourist visit to Sironcha to Nandanvan Botanical Garden Situated at Assaralli Road National Highway No.16

Many tourist visits to Gadchiroli district for jungle safari tours. The district is adorn with beautiful Dense Forest and river. The forest of the district is dry deciduous type wherein teak and bamboo is the predominant elements. Gond tribes of Sirkonda region are still using various medicinal plants to cure ailments. The medicine man is known as Vaidu/Bhumka who prescribes herbal medicine to cure various diseases. The main objective behind this study was to record the uses of medicinal plants through field visits, enquiries and interviews. Literature survey reveals about earlier work by Chute and Tiwari (1999). These plant species are included by Kirtikar and Basu (1935) and Nadkarni (1954).

### Method:

During vacations and holidays field visits were conducted in the tribal villages of the district. The botanical exploration was carried out to collect herbarium specimens. Interviews, enquiries and cross questioning session was held with tribal medicine man to confirm identity and uses of medicinal plants. Good rapport was established with medicine men (Vaidus) during visits. Help of interpreter was sought for conversation and understanding of Gondi language. The method of administration of herbal drug was personally observed and the ethno botanical information was noted in the field books Herbarium specimens were identified in the department by using floras and monographs The main objective was to collect only lesser known medicinal plants. A detail literature survey on phytochemical and pharmacological data on these plant species is conducted in order to know about rationale and validity behind medicinal uses. The compendium, glossary, dictionary and text books on medicinal plants were referred to search out chemical and biological activities on these plants.





## Result:

The ethnomedicinal plants are alphabetically arranged in the following order: Botanical names, family, local name, medicinal Uses, phytochemical and pharmacological data.

- 1) *Bryonia laciniosa* (L.) Naud., Syn., *Diplocyclos palmatus* Jeff., Cucurbitaceae, Shivlingi; (Figure. 1)

Seed powder used as a aphrodisiac and profertility agent.

Chemical Studies have resulted in isolation of compounds goniotalamin, bryonin, punicic acid and lipids. Antioxident and antitumor role of methanolic extract. An analgesic and antipyretic activity in animal models.

The goniotalamin isolated has been shown antimicrobial and antifungal activity. antihyperglycemic and antihyperlipidemic activity of seeds in Streptozotocin induced Diabetes. Anti-inflammatory activity of chloroform extract of herb. It is mentioned that Arabinoglucomannan, a polysaccharide is present in the fruit which is mainly used for anti-microbial activity. It has been reported that the plant contains anti-inflammatory, analgesic, anticonvulsant, anti microbial and cytotoxic properties.

- 2) *Chrozophora prostrata* Dalz., Euphorbiaceae, Munderi (Figure. 2)

Plant extract applied on ringworm and eczema

Glycosides of two Xanthenes and Chromone. isolated from root. Stem yields Diterpene, Dipolic Acid and seed contain fatty acid composition rich in Linoleate. Ethanolic extract exhibit spasmolytic activity. Herb extract dose 1200 mg/kg given intraperitoneal LD50 Dose kills 50% Rodents –Mouse. its folkloric reputation as a purgative drug. Gum given as antihelminthic

Gum yields five flavones and stem bark yields oleanonic aldehyde, sitosterol, erythrodiol, and its 19 alpha-OH derivative, isolated Cycloartanes from the gum resin of plant.

- 3) *Lindernia ciliata* (Colsm) Pennell., Scrophulariaceae, Dahirpa, (Figure. 3)

Herb powder mixed with honey, taken daily to cure rheumatism and arthritis.

Seeds are roasted and edible as a brain tonic.. Fruit contain 5-hydroxytryptamine, Histamine and L-Dopamine. The neurobiological and antihelminthic, Anticataleptic and Antiepileptic activities of ethanolic extract of leaves. neuroprotective its antidiabetic, aphrodisiac, antineoplastic, antimicrobial, learning and memory enhancing property with antivenom activities. The plant contains alkaloids like mucunine, mucunadine, prurienine and prurienine, which is responsible for its activities. Bulbs are poisonous. The crushed bulb is applied on skin tumors, injuries and wounds.

- 4) *Wattakaka volubilis* (L.f.) Stapf., syn. *Dregea volubilis* Benth ex Hook. f. syn. *Marsdenia volubilis* (L.f.) Cook., Asclepiadaceae. (Figure. 4 and 5)



Aqueous extract taken to cure piles and fissures.

Five new glycosides present and Dregeosides are active against Ehrlich carcinoma and melanoma In vitro and vivo antitumor activity and anti-inflammatory activities of methanolic extract of leaves. isolated of steroid like  $\beta$ -sitosterol; a triterpenoid aglyconedrevogenin A; fatty acid 9, 12 – octadecadienoic acid; a phenolic compound quinic acid; aromatic ester 1, 2 – benzenedicarboxylic acid diisooctyl ester; a flavonoid 5, 7 – dihydroxy – 6, 8 – dimethoxyflavone; an alkaloid N-[4-bromo-n-butyl]-2-piperidinone and a desoxy sugar digitoxose. Antioxidant and free radical scavenging effects. Fruit decoction drink to cure anemia Latex of fruit is proteolytic and Amyrins. Sterols, dyes. Phytosterols. Antifungal, Topical applicaion of serine proteases from latex of this plant found to be useful in induced excision wounds, antibacterial property.



Figure. 1



Figure. 2



Figure. 3



Figure. 4



Figure. 5

## Conclusion:

Literature survey on ethnomedicinal plants reveals that these plant species are lesser known. The method of herbal drug administration is new. The phytochemical and pharmacological work on these species is inadequate to establish a rationale between uses and chemical data. The author feels that due to paucity of research work it is difficult to make any statement about validity of medicinal use. Further research work is urgently required to corroborate the medicinal uses with relevant chemical data. The corroboration exist only in case of use of roasted seeds of *Mucuna pruriens* as a brain tonic because phytochemical analysis reveals the presence of L-Dopamine. The neurobiological property as a



stimulant is reported by Kumar et al (2012) and Kasture et al (2009). This supports the view that the tribals at large are well aware of the medicinal value of this plant.

### Acknowledgement:

Author is thankful to Dr. Dr. S. H. Shende, HOD Botany Dr.C.V. Raman College Sironcha., for providing basic infrastructure to carryout the research work. I extend my deep sense of gratitude to Mr. Patil, Library In charge for necessary help.

### References:

**Asolkar LV, Kakkar KK, Chakre OJ (1992)** Second Supplement to Glossary of Indian Medicinal Plants With Active Principles, Vol.I,II,III CSIR Publ., New Delhi

**Balraj P, Nagrajan S (1982)** Apigenin-7-o-glucuronide from flowers of *Asteracantha longifolia* Nees., Indian Drugs 19, 150-152.

**Bhaskar A, Nithya V, Vidhya VG (2011)** Phytochemical Evaluation by GC-MS and Antihyperglycaemic activity of *Mucuna pruriens* on streptozotocin induced diabetes in rats., J Chem. Pharm. Res. 3(5), 689-696

**Biswas M, Halder PK, Ghosh AK (2011)** Antioxidant and free radical scavenging effects of fruits of *Dregea volubilis*. Journal of natural science, Biology and Medicine., 2011, 1 (1), 29-34.

**Champatisingh D, Sahu PK, Pal A, Nanda GS (2011)** Anticatalytic and Antiepileptic Activity of ethanolic extract of leaves of *Mucuna pruriens*. A study on role of Dopaminergic system in epilepsy in albino rats., Ind. Jour.Pharmacol 43(2)197-199 doi., 10.4103/0253-7613.77368

**Chauhan, NS, Dixit VK (2010)** Effect of *Bryonia laciniosa* seeds on sexual behaviour of male Rats., Int. Jour. Impot. Res., May-June 22 (3), pp. 190-195

**Chute GS, Tiwari VJ (1999)** Indigenous Ethnomedicinal Plants Use by Tribal People of Bhandara and Gadchiroli Districts of Maharashtra State., Indian Jour. Natural Products 15 (1) No.3, pp. 1 - 6

**Gandhe S, Lakavath S, Palatheeya S, Schuehly W, Amancha K, Reddy K, Nallamaddi R, Palepu A, Thakur Y, Rao ARBV, Kumar BR, Narsimha ARAV, Kunert O (2013)** Cycloartanes from the Gum Resin of *Gardenia gummifera* L.f., Chem.Biodivers., 10 (9), 1613 - 1622

**Gayathri M, Kannabiran K (2012)** Effect of 2-hydroxy-4-methoxy benzoic acid isolated from *Hemidesmus indicus* on erythrocyte membrane bound enzymes and antioxidant status in streptozotocin induced diabetes rats., Ind.Jour.Pharmaceut.Sci 74 (5), 474-478

**Gupta M, Mazumdar UK, Sivakumar T, Vamsi ML, Karki SS, Sambatkumar R, Manikandan L. (2003)** Evaluation of anti-inflammatory activity of chloroform Extract of *Bryonia laciniosa* in Experimental Animal Models., Bio.Pharm.Bull.26(9), pp. 1342-1344

**Hussain MS, Sheeba F, Ali M (2010)** *Hygrophila auriculata* (K. Schum) Heine: Ethnobotany, phytochemistry and pharmacology Asian Journal of Traditional Medicines, 2010, 5 (4), pp. 122 - 131

**Hossain E, Chakraborty S, Milan A, Chatopadhyay P, Mandal SC, Gupta JK (2012)** In *Vitro* and *Vivo* antitumor activity of methanol extract of *Dregea volubilis* leaves with its antioxidant effect., Pharm. Biol., March 50(3), 338-343 doi: 10.3019/13880209.2011.600.320





**Husain A, Virmani OP, Popli SP, Misra LN, Gupta MM, Srivastava GN, Abrham Z, Singh AK (1992)** *Dictionary of Indian Medicinal Plants.*, CIMAP Publ., Lucknow Joshi AB, Anvekar PK, Bhoje MP (2013) Phytochemical investigation of the roots of *Wattakaka volubilis* Der Pharma Chemica, 2013, 5(3):112-115

**Karimulla SK, Kumar BP (2012)** Evaluation of anti-ulcer activity of *Ochna obtusata* in various experimental models Vol 3 | Issue 1 | 2012 | 14-19. International Journal of Preclinical and Pharmaceutical Vol 3, Issue 1 pp 14-19.

**Kasture S, Pontis S, Pinna A, Schintu N, Spina L, Longoni R, Simola N, Ballero M, Morelli M (2009)** Assessment of Symptomatic and Neuroprotective efficacy of *Mucuna pruriens* seed extract in rodent model of Parkinson's Disease. Neurotox.Res., Feb., 15(2)pp. 11-112 doi., 10.1007/s 12640-009-9011-7

**Keshri G, Kumar S, Kulshreshta DK, Rajendra SM, Singh, MM (2008)** Postcoital Interceptive Activity of *Wrightia tinctoria* in Sprague-Dawley Rats: A Preliminary Study., Contraception, 2008 Sept., 78(3), 266-270

**Khyade M S, Vaikos, NP (2011)** Comparative phytochemical and antibacterial studies on the bark of *Wrightia tinctoria* and *Wrightia arborea.*, International Journal of Pharma and Bio Sciences., Vol.2 (1) pp.176-181

**Mehta A, Sethiya NK, Mehta C, Saha GB (2012)** Anti-arthritis Activity of Roots of *Hemidesmus indicus* R.Br., (Anantamul) in Rats., Asian Pac. Jour. Trop.Med 2012, 5(2) 130-135

**Moghe AS, Gangal SG, Shilkar PR (2011)** In vitro Cytotoxicity of *Bryonia laciniosa* (L.)Naud. On Cancer Cell Lines Vol. 2(3) Sept., 2011 pp. 322-329

**Pawar RS, Jain, AP, Lodhi S, Singhai AK (2010)** Erythropoietic Activity of *Astercantha longifolia* (Nees) in Rats., J Ethnopharmacol., 129(2) 280-282

**Ponnusamy K, Petchiammal C, Mohankumar R, Hopper, W (2010)** In Vitro Antifungal Activity of Indirubin isolated from a Indian Ethnomedicinal Plant *Wrightia tinctoria* R.Br., J Ethnopharmacol., Oct. 28, 132(1) 349-354 Doi., 10.1016/j.jep.2010.07.050

**Subramanian S, Abarna A, Thamizhiniyan V (2012)** Antihyperglycemic, Antioxidant and Antidyslipidemic Properties of *Hemidesmus indicus* Root Extract studied in Alloxan-Induced Experimental Diabetes in Rats Int.Jour.Pharmaceutical Sciences and Res, Vol. 3(1) 227-234.

**Sridhar S (2011)** Studies on Antimicrobial activity, physio-chemical and phytochemical Analysis of *Wrightia tinctoria* R.Br., Int.Jour.Pharmaceutical Res. and Dev., Vol. 3(8), pp. 139 – 144.

**Udhayashankar MR, Arumugasamy UDK (2010)** Phytochemistry and free radical Scavenging activity of *Wattakaka volubilis* (L.f.) Benth ex.Hook f.(Asclepiadaceae) A rare and threatened medicinal plant., Int.Jour.Pharm.Tech.Res.Vol.4,No.3 pp. 1025 – 1032.

**Verbiscar AJ, Patel J, Banigan TF, Schatz RA (1986)** Scilliroside and other *Scilla* Compounds in Red Squill *Scilla.*, Jour.Agric.Food Chem 43, 973-979

**Yariswamy M, Shivaprasad HV, Joshi V, Nanjaraj Urs AN, Nataraju, A., Vishwanath BS (2013)** Topical Application of Serine Proteases from *Wrightia tinctoria* R.Br.,(Apocynaceae) latex augments healing of experimentally induced excision wounds in mice.

**Yoshimura S, Narita H, Hayashi K, Mitsuhashi H (1985)** Studies on Constituents of Asclepiadaceae Plants LIX. The St

