

An inventory of potential medicinal plants common in Purba and Paschim Medinipur districts of West Bengal, India to Treat leprosy

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ABSTRACT

Present survey reported 66 species (dicots 56, monocots 9 and pteridophyte 01) of medicinal plants under 63 genera (dicots 55, monocots 7 and pteridophyte 01), 38 families (dicots 30, monocots 7 and pteridophyte 01) from different parts of Purba and Paschim Medinipur districts. In ancient times traditionally drugs were extracted from different parts of the plants like roots, stems, barks, bulbs, seeds, fruits, tubers, wood and as a whole from the all parts of a plant. Besides the above mentioned parts, some drugs are also collected from excretory plant products like gums, seed oil, latex, juice/ plant sap etc. as a novel source of active principles for the preparation of medicine as an antidote for their daily life health care management. *Mycobacterium leprae*, is a bacteria that causes a chronic disease called Leprosy and consequently damages peripheral nervous system and skin. Present investigation recorded 66 plants bearing medicinally active compounds in their different parts ultimately that can be administered for the treatments of leprosy. The botanical name, Bengali name (s), habit, parts used and mode of applications of these compounds under references are also discussed in this paper.

Figure : 01

References : 32

Table : 01

KEY WORDS : Leprosy, Medicinal Plants, *Mycobacterium leprae*, Purba and Paschim Medinipur

Introduction

There are so many diseases we face in our daily life, leprosy is one of them. Leprosy is an age-old disease caused by the bacterium, *Mycobacterium leprae*, identified by the Norwegian doctor Gerhard Hansen. This disease is also called Hansen's disease. The highest number of cases was seen in India followed by Brazil and Burma²⁰. This disease is very much common in tropical, sub-tropical as well as temperate climate also. Nerve damage, disfiguring skin sores and progressive debilitation are some of the characterization of this disease²⁰. Around the world, it was estimated as more than 5 million people were infected by *Mycobacterium leprae* and are mostly seen in Latin America, Asia, Pacific Islands and Africa². The present endeavour summarises the information about the use of medicinal plants that

are used for the treatment of leprosy and consequently that can be evaluated as ready reference or document for the future researchers.

Purba and Paschim Medinipur districts are parts of the southern parts of West Bengal. The physiographic formation, soil formation and climatic set up, the parts of Purba and Paschim Medinipur districts of West Bengal are very much favourable to grow different types of medicinal plants along with other plants species intermingled with indigenous as well as alien species.

Materials and Methods

Present investigation was done during (2019-2022) for the overall documentation of medicinally potent species especially those species have the ability to combat against leprosy and its associated problems. The

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TABLE-1: List of medicinal plants used for the treatment of leprosy, recorded from the Purba and Paschim Medinipur districts of West Bengal, India

Name of the plants	Family	Common Bengali name (s)	Habit	Part (s) used	References
<i>Abrus precatorius</i>	Fabaceae	Kunchphal, Chunhali	Twiner	Seeds	23
<i>Achyranthes aspera</i>	Amaranthaceae	Apang, Chirachiti	Herb	Whole plant	9
<i>Aegel marmelos</i>	Rutaceae	Bael	Tree	Fruits	30
<i>Alangium salvifolium</i>	Cornaceae	Anisa	Tree	Stem bark, Leaves	9
<i>Allium sativum</i>	Amaryllidaceae	Rasun	Herb	Bulb	30
<i>Alstonia scholaris</i>	Apocynaceae	Chhatim	Tree	Bark	5
<i>Amaranthus spinosus</i>	Amaranthaceae	Kanta-notey	Herb	Whole plant	19
<i>Andrographis paniculata</i>	Acanthaceae	Kalmegh	Herb	Paste of leaf	9, 16, 17
<i>Argemone mexicana</i>	Papaveraceae	SialKanta	Herb	Seeds & Yellow gum	23
<i>Asparagus racemosus</i>	Asparagaceae	Satamuli	Twiner	Plant extract	30
<i>Azadirachta indica</i>	Meliaceae	Neem	Tree	Seed, Leaf, Root	20
<i>Bacopa monnieri</i>	Plantaginaceae	Brhami/ Barmishak	Herb	Whole plant	23
<i>Bauhinia variegata</i>	Fabaceae	Kanchan	Shrub	Stem Bark	26
<i>Boerhavia diffusa.</i>	Nyctaginaceae	Punarnova, Sepunnae	Herb	Roots	23
<i>Bombax ceiba</i>	Malvaceae	Shimul	Tree	Roots of young plant, Leaf, Bark, Flower	20, 32

<i>Brassica nigra</i>	Brassicaceae	KaloSorse	Herb	Leaf	14
<i>Butea monosperma</i>	Fabaceae	Palash	Tree	Flowers	32
<i>Cajanus cajan</i>	Fabaceae	Arahar	Herb	Whole plant	23
<i>Calophyllum inophyllum</i>	Clusiaceae (Guttiferae)		Sultan Champa		23
<i>Calotropis procera</i>	Asclepiadaceae	Akanda	Shrub	Roots	16, 52
<i>Ceiba pentandra</i>	Malvaceae	Swetsimul	Tree	Leaves	23
<i>Celastrus paniculatus</i>	Celastraceae	Jayotismot	Twiner	Seeds	23
<i>Centella asiatica</i>	Apiaceae	Thankuni	Rambler	Whole plant	4
<i>Centratherum anthelminiticum</i>	Asteraceae	Somraj, Kaloigi	Herb	Seeds	28
<i>Coccinia grandis</i>	Cucurbitaceae	Telakucha	Tendrill climber	Fruits	23
<i>Commelina benghalensis</i>	Commelinaceae	Kanchira	Herb	Leaf, Root, Latex	8, 26
<i>Coriandrum sativum</i>	Apiaceae	Dhane	Herb	Seeds	14
<i>Crotalaria retusa</i>	Fabaceae	Atasi	Herb	Whole plant	23
<i>Cymbopogon citratus</i>	Poaceae	Gandhabena	Herb	Roots	23
<i>Cymbopogon flexuosus</i>	Poaceae	Lemon grass	Herb	Leaves	23
<i>Cynodon dactylon</i>	Poaceae	Durba	Herb	Whole plant	23
<i>Dalbergia sissoo</i>	Fabaceae	Sisoo	Tree	Decoction of Bark & leaf wood	3
<i>Dioscorea alata</i>	Dioscoreaceae	Kham alu	Twiner	Tubers	23
<i>Eclipta alba</i>	Asteraceae	Kesut	Herb	Whole plant	8
<i>Euphorbia tirucalli</i>	Euphorbiaceae	Lanka sij	Shrub	Wood decoction	9
<i>Ficus hispida</i>	Moraceae	Damur	Tree	Fruits	32
<i>Holarrhena pubescens</i>	Apocynaceae	Kurchi	Tree	Bark, Seeds	24

<i>Ipomoea aquatica</i>	Convolvulaceae	Kalmishak	Twiner	Whole plant	23
<i>Ipomoea paniculata</i>	Convolvulaceae	Bhukumra	Twiner	Roots	23
<i>Jatropha curcas</i>	Euphorbiaceae	SadaVerenda	Shrub	Whole plant	27
<i>Jatropha gossypifolia</i>	Euphorbiaceae	Lal Veranda	Shrub	Latex, Leaf juice	6
<i>Kaempferia galangal</i>	Zingiberaceae	Bhuichampa	Herb	Rhizome, root stock & Leaves	23
<i>Lannea coromandelica</i>	Anacardiaceae	Jiyal	Tree	Bark	23
<i>Luffa cylindrical</i>	Cucurbitaceae	Dhundul	Tendrill climber	Fruits	23
<i>Lycopersicum esculentum</i>	Solanaceae	Tomato	Herb	Leaf along with castor oil	7
<i>Marsilea quadrifolia</i>	Marsileaceae	Sushni	Herb	Whole plant	28
<i>Mimosa pudica</i>	Fabaceae	Lajjabati	Scrambler	Roots	1
<i>Mimusops elengi</i>	Sapotaceae	Bakul	Tree	Seeds	28
<i>Momordica charantia</i> L.	Cucurbitaceae	Ghikalla	Tendrill climber	Fruits	8
<i>Musa paradisiaca</i>	Musaceae	Pakakala	Herb	Plant sap	21
<i>Nerium odorum</i>	Apocynaceae	Karabi	Shrub	Roots	23
<i>Ocimum basilicum</i>	Lamiaceae	Babuitulsi	Herb	Dried stem bark	16
<i>Pergularia daemia</i>	Asclepiadaceae	Chagalbati	Twiner	Whole plant	23
<i>Piper betle</i>	Piperaceae	Pan	Root climber	Whole plant	23
<i>Pistia stratiotes</i>	Araceae	Topapana	Herb	Leaf extract	12
<i>Pithecellobium dulce</i>	Fabaceae	Bengri	Tree	Paste of Bark	26
<i>Plumbago indica</i>	Plumbaginaceae	Raktachita	Shrub	Roots	23
<i>Plumeria rubra</i>	Apocynaceae	Kath Gulancha	Tree	Leaves	24

<i>Ricinus communis</i>	Euphorbiaceae	Rehri	Shrub	Whole plant, Seeds	8, 16
<i>Sesbania grandiflora</i>	Fabaceae	Bok-phul	Tree	Whole plant	23
<i>Sphaeranthus indsicus</i>	Asteraceae	Bhuikadam	Herb	Whole plant	18
<i>Terminalia chebula</i>	Combretaceae	Haritaki	Tree	Fruit	28
<i>Tinospora cordifolia</i>	Menispermaceae	Gulanca, Gurchhi, Gola	Twiner	Stem Bark	18, 28
<i>Vachellia nilotica tomentosa</i>	Fabaceae	Babla	Tree	Gum	23
<i>Vitex negundo</i>	Verbenaceae	Nishinda	Tree	Seeds	23
<i>Withania somnifera</i>	Solanaceae	Aswagandha	Shrub	Leaves, Roots	8

specimens were collected from, different parts of the Purba and Paschim Medinipur districts of West Bengal in the different seasons of the year. Preparation of herbarium specimens followed standard methods¹¹. Proper identification was made in the CAL herbarium. The accepted name of the listed specimens was followed as per The WFO Plant List³⁰ [<https://wfoplantlist.org>] and finally the voucher specimens were deposited as documents at the Herbarium of Botany Department, Ramnagar College for future studies.

Results and Discussions

Previously many botanists, researchers have done their works in these regions for taxonomic as well as in general medicinal point of view^{21-27,29}.

The present investigation intended to the documentation of medicinally potential plants collected from Purba and Paschim Medinipur districts of West Bengal that can be utilized to resist or complete cure of the leprosy from our daily life. In connection with this, data were collected by surveying present and past published literatures / treatises^{1-10,12-19,26,29,31-32}.

Present survey reported 66 species (dicots 56, monocots 9 and pteridophyte 01) of medicinal plants under 63 genera (dicots 55, monocots 7 and pteridophyte 01), 38 families (dicots 30, monocots 7 and pteridophyte 01) from different parts of Purba and Paschim Medinipur districts. The recorded 66 plants are potentially active for the treatment of leprosy. Out of 66 recorded species of which 24 species are herbs; 19 species are trees; 9 species are shrubs; 8 species are twiner; 3 species are

tendrils, 1 species of each climber, root climber and scrambler.

The lists of 66 such selected species (Table-1) which can resist / control or completely cure the ailments like leprosy and its associated problems that we are suffering from in our daily life. Although we are very much accustomed to the use of modern medicine for controlling diseases / ailments which we are facing in our daily life whereas the people of very interior places, they do not know the ways and means of the formulation of modern medicine. So more than 80% villagers are very much habituated to use conventional phyto-medicines without side effects and economically affordable for them.

Regarding the preparations of the medicines following plant parts like seeds (8 species); roots (8 species); seed oil & bark (1 species); root-stock (1 species); whole plants (16 species); seeds & yellow gum (1 species); stem bark (2 species); leaves (7 species); decoction of barks & leaf wood (1 species); wood decoction (1 species); bark & seeds (1 species); bark (3 species); leaf along with castor oil (1 species); leaf & seed (1 species); fruits (6 species); tubers (1 species); rhizome, root-stock & leaf (1 species) etc. are considered here as shown in Table-1.

Conclusion

Plants are the major sources for the preparations of traditional medicines. These medicines act as life sustaining substances. During investigation of plant specimens, it was found that some species under study

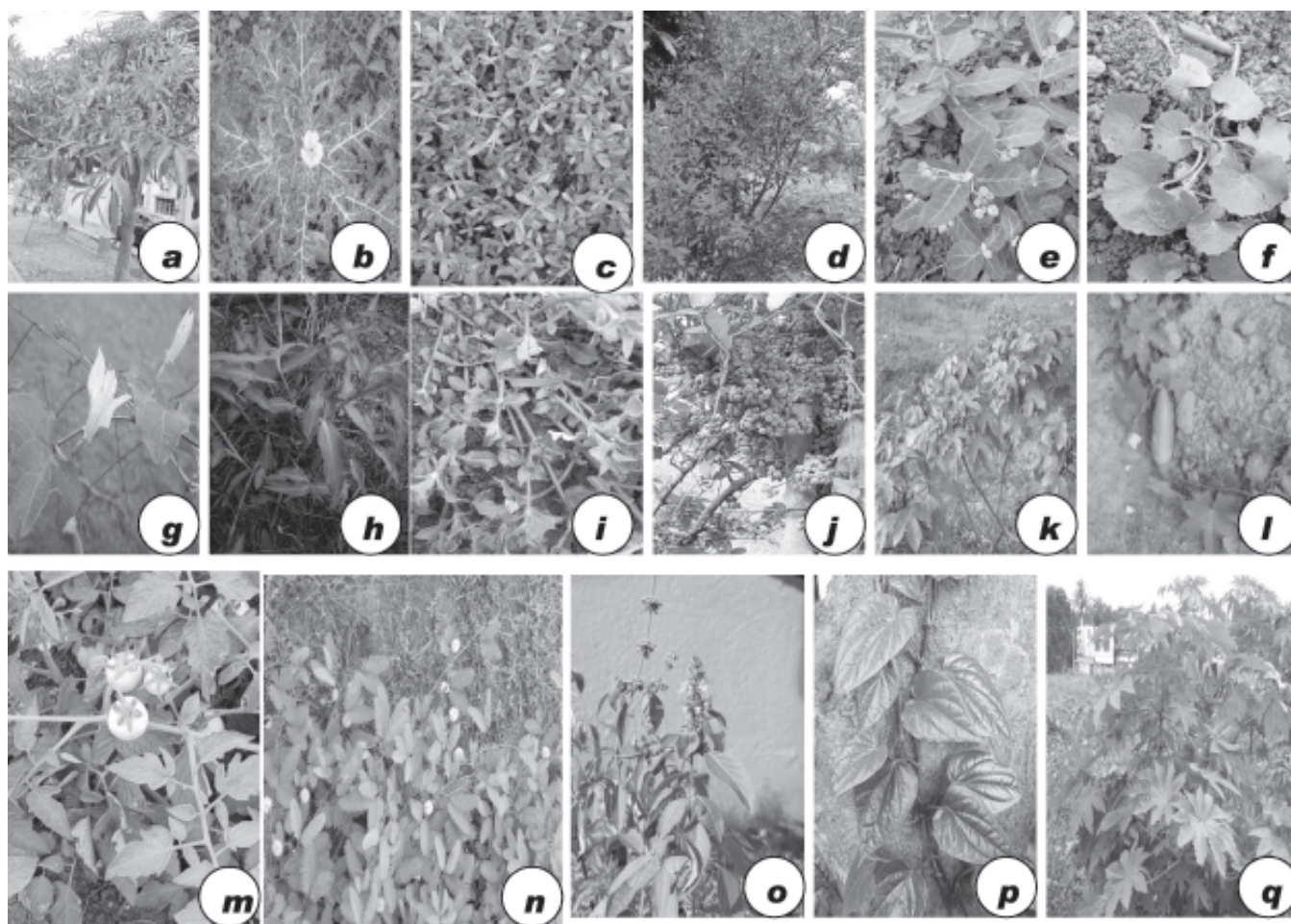


Fig. 1 : a. *Alstonia scholaris*, b. *Argemone mexicana*, c. *Bacopa monnieri*, d. *Cajanus cajan*, e. *Calotropis procera*, f. *Centella asiatica*, g. *Coccinia grandis*, h. *Commelina benghalensis*, i. *Eclipta alba*, j. *Ficus hispida*, k. *Jatropha gossypifolia*, l. *Luffa cylindrica*, m. *Lycopersicum esculentum*, n. *Mimosa pudica*, o. *Ocimum basilicum*, p. *Piper betle*, q. *Ricinus communis*

are gradually depleted from the different parts of the study areas possibly due to over exploitation, rapid urbanisation through industrialisation, construction of high rising buildings, grazing, wanton clearance of forest covers, poaching and also by the gradual climate changes may be the prime causes of the extermination of such plants from these areas. At recent time another problem arises due to the less application of traditional

knowledge over the modern knowledge of medicine. So it is the crucial time for us to conserve these medicinally potent plants from these areas by the proper implementations of conservational strategies (*i.e. ex-situ* and *in-situ*) as well as raising consciousness among the local people to stop undue collection of biological resources. In the long run we can easily stop their depletion from their natural habitats.

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