

## Some Useful Medicinal Plants Used against Measles from West Bengal

Dr. Sharmistha Gupta<sup>1</sup>, Mithun Mukherjee<sup>2</sup>

<sup>1</sup> West Bengal State Council of Science and Technology

<sup>2</sup> Ramakrishna Vivekananda Mission Institute of Advanced Studies

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**ABSTRACT :** India is known as the botanical garden of the world. The plant kingdom has so many species of Medicinal and Aromatic plants that possess a large number of secondary constituents. Although plants do not use them for their primary needs, they are basically used against adverse conditions. These secondary metabolites are used to treat a wide varieties of human as well as animal diseases, the added advantage of using plants as medicine is that they are cheap and easily available. The present paper deals with seven species of medicinal plants from West Bengal which are used against measles.

**KEY WORDS:** Medicinal plants, measles, West Bengal.

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### I. INTRODUCTION

Measles is a viral illness acute in nature caused by a virus belonging to the family of paramyxovirus, genus *Morbillivirus*. It is characterized by a high fever almost 105°F cough, coryza, malaise, and conjunctivitis, followed by a maculopapular rash<sup>1</sup>. Appearing 14 days after exposure spreading from head to trunk finally to the lower extremities. It is basically a mild or moderately severe illness. Often resulting in complications like pneumonia, encephalitis, and death. The average incubation period for measles infection is 14 days, with a range of 7–21 days<sup>2</sup>, though huge achievements towards global measles, mortality reduction and measles eradication goals have been gained. On a global basis in 2010, there were 3,27,305 measles cases reported and an estimated 1,39,300 measles deaths (i.e., approximately 380 deaths/day)<sup>3-4</sup>. During 2009–2010, measles outbreaks were reported in Europe, including Africa and Asia<sup>5-11</sup>. In countries where measles has been eradicated, import of the disease from other countries remain an important source of infection. Many plant based drugs are used to treat measles like the fine powdered particles prepared from the whole plant of *Allium cepa* L. and *Allium sativum* L. are taken orally with cow's milk to treat measles, powder prepared from the leaves of *Citrus aurantifolia* Swingle and also fine powdered particles obtained from the leaves of *Hibiscus cannabinus* L. are taken orally with cow's milk for a few days to treat measles by the keffi people of Nigeria<sup>12</sup>. In Peru leaves and aerial parts of *Momordica charantia* L. are used to treat measles<sup>13</sup>. Further it has been seen that the succulent ripe fruits of *Nauclea latifolia* Smith are used by the Ibo race of Nigeria in the treatment of measles, it is also used as a prophylactic against measles epidemics. The drug is prepared by roasting the ripe fruits in a pot over a hot firewood flame till the whole fruit is charred<sup>14</sup>. With rapid advances in the field of biotechnology edible vaccines have been produced to treat measles, which are prepared by molecular farming utilising the science of genetic engineering. Researchers have increased the immunity of mice to measles by feeding them a booster vaccine derived from plants<sup>15-16</sup>. The State of West Bengal is on the eastern side of India, stretching from the Himalayas in the north to the Bay of Bengal in the south. The state has a total area of 88,752 square kilometers<sup>17</sup>. It lies between 23° 00' N latitude to 87° 00' E longitude. West Bengal's climate varies from tropical savanna in the southern portions to humid subtropical in the north. The southern part of West Bengal can be divided into two regions: The Gangetic plain and the littoral mangrove forests of the Sundarban. The vegetation of the western part of the state has similarities with the plants of the Chota Nagpur plateau in the adjoining state of Jharkhand with respect to floristic characters<sup>18</sup>. The distribution of vegetation in northern part of West Bengal for example, the foothills of the Himalayas, the Dooars, are densely wooded with Sal and other tropical evergreen trees. However, above an elevation of 1,000 meters, the forest becomes predominantly subtropical. In Darjeeling, which is above 1,500 meters (4,900 ft), temperate-forest trees such as Oaks, Conifers, and Rhododendrons predominate<sup>19</sup>.

### II. METHODOLOGY

Field work was undertaken to collect and identify the seven species of plants in different district of the state of West Bengal. Tribal people along with local Vaidyas, Hakims, and Shamans were consulted regarding the commonly used medicinal plants. Spot identification was carried out for the species which were easily identifiable and growing in the area. The plant species which were not identified were collected and identified with Herbarium from the Central National Herbariums (CNH, BSI) type section of Botanical Survey of India,

West Bengal. A documented Herbarium of the species collected was prepared for further research work, these were then marked and deposited in West Bengal State Council of Science and Technology (WBSCST). The plant species studied here belong to the families of Asteraceae, Lauraceae, Caryophyllaceae, Mimosaceae, Scrophulariaceae and Typhaceae.

**A. *Artemisia dubia* Wall. ex Besser-** *Artemisia dubia* Wall. ex Besser this plant in the local language is known as Titepati and the common English name is Mugwort belonging to the family of Asteraceae. The plant is a perennial shrub, erect, growing to a height of 130-160 centimeters, with minutely appressed pubescent. Lower inflorescence leaves are pinnatisect, sparsely pubescent above, lateral segments 4-6, lanceolate, 2-4x0.6-0.8cm, acuminate, entire, terminal segment 4-6cm, linear lanceolate. Fruit achenes, minute, ellipsoid oblong;



***Artemisia dubia* Wall. ex Besser**

pappus is absent. Flowering starts from September to November and fruiting from November to February. It is found in the region of Bong Busty, Samalbong Busty, Suruk, Jalpahar, Kalimpong, Tonglu, Rammam, Lava, Senchel of Darjeeling district, growing at an altitude of 1900-2500 meters with a temperate climate. It is commonly available in these areas and found abundantly. A decoction of the leaves and flowering tops are used to treat measles in children.

**B. *Cinnamomum camphora* Nees -** *Cinnamomum camphora* Nees known as Karpur in the local language and its English name is Camphor family being Lauraceae. This plant is a perennial tree, erect that grows to a height of about 5-5.5 feet. Leaves are alternate, long, and petiolate, ovate or oblong or lanceolate-oblong, 3-nerved, shining, uniformly coloured on both sides. Panicles are axillary, peduncle is thin, branching at the apex, branches 1-3 flowered; calyx is yellow, slightly longer than the pedicel, lobes inside slightly camo-tomentose. In Spring it produces bright green foliage with masses of small white flowers. It produces clusters of blackberry-like fruit around one centimeter in diameter. It has a pale bark that is very rough and fissured vertically. It is found sparsely in Canning, Nimpith, Falta, Jaynagar, Kakdwip growing at an altitude of 1500-2000 meters, a tropical favours its growth. Camphor which is a deposit in the oil cells are used to treat measles.



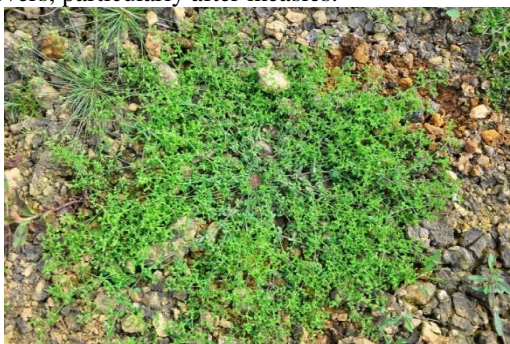
***Cinnamomum camphora* Nees**

**C. *Elephantopus scaber* L. -** *Elephantopus scaber* L. Gojealata, Shamdulum or Hastipod is what it is known as locally in West Bengal coming from the family of Asteraceae, in English it is called as Elephants Foot is a small annual herb which is terrestrial and frequently found in open ground and partial shade as well, the plant is erect and grows to a height of 30-60 centimeters. In the district of Burdwan it covers areas which include Boikunthopur, Bamunia, Hatgobindapur, Hutkalna, Hijalna and Debipur apart from certain other districts in the state. It grows well in a tropical climate from sea level to an altitude of 2,000 meters. It has a creeping rhizomatous rock stock. Stem is terete, dichotomously branched at the top. Leaves are radical, ovate oblong, ciliate; glabrescent above, gland punctate beneath, cauline leaves are shorter and sessile. Glomerules of heads terminal, 2 - 3cm across. Head is homogamous. Phyllaries whitish hirsute. Corolla is pale, violet, lobes are linear lanceolate achenes 3 - 4mm long, obovoid, slightly flattened. 10 ribbed, hair in between the ribs. Pappus bristles are dilated at base. Its fresh root extracts about 5 ml is administered to children to treat fever due to measles.



*Elephantopus scaber* L.

**D. *Polycarpon prostratum* (Forsk.) Aschers. & Schwein f.**—*Polycarpon prostratum* (Forsk.) Aschers. & Schwein f. In local language this plant is known as Gima, in English this genus is called Manyseed plants, belongs to the family of Caryophyllaceae, by habit it is an annual herb and it is erect growing to a height of about 15-25 centimeters, this plant is found in the Medinipur district of West Bengal, growing favorably at an altitude of 800-1800 meters. Characteristically it is a Spreading herb with sub-woody root-stock. Stem is erect and prostrate, pubescent. Leaves are ovate, lanceolate, and sessile; bracts are membranous. Flowers are greenish-white in terminal dichotomous cymes. Petals are white, lanceolate and truncated. Stamens are 3. The fruit is a capsule. Seeds are numerous brown in colour, subcylindrical, and rough. Infusion of the roasted leaves are given for cough following fevers, particularly after measles.



*Polycarpon prostratum* (Forsk.)Aschers. & Schweinf

**E. *Prosopis juliflora* DC.** -*Prosopis juliflora* DC. In Bengali is known as Rohini and its common English name is Velvet Mesquite belonging to the family of Mimosaceae. It is a perennial shrub,erect growing to a height of about 800-900 centimeters, available in the wild occuring from sea level to 1500 meters; deciduous, thorny, bark is thick, leaves are compound, leaflet is linear and oblong in shape with rounded apex. The plant has stipular spines, flowers are greenish yellow in colour with a sweet fragrance and spike like, corolla is deeply lobed, pods are several seeded, seeds are compressed and oval or elliptic in shape. It grows abundantly in the sonakhali area of south 24 parganas district. In the tribal areas of this district its fruit and bark extracts are used in the treatment of measles.



*Prosopis juliflora* DC.

**F. *Scoparia dulcis* L.** - *Scoparia dulcis* L. the common English name of this plant is Sweet Broomweed and local name is Mithapata, belonging to the family of Scrophulariaceae. The plant is an annual herb growing to a height of about 20-90 centimeters and grows erect, found at an altitude of 750 meters from the sea level. Stem is green angled. Leaves are opposite or ternate, whorled, ovate, ovate-lanceolate or elliptic in shape, acute or obtuse at apex, crenate-serrate base. Inflorescence is axillary, solitary cyme. Flower is white, actinomorphic, bisexual, hypogynous, pentamerous. Sepals are numbered 4 to 5 partite, imbricate, persistent, and green in colour. Petals are 4, gamopetalous. Stamens are 4 in number, epipetalous, filaments are filiform. Carpels are 2 in number, syncarpous. Fruit is small in size, globose or ovoid shaped, septicidal capsule many seeded; seeds are minute and pale brown in colour. Flowering and fruiting occur almost throughout the year. The Root is a tap root. It is found in the districts of Malda, Nadia, Darjeeling, Jalpaiguri, Birbhum, Medinipur, North 24 Parganas, Dinajpur and Murshidabad. It grows abundantly in all these areas. Ayurvedic preparations of this plant including its leaves are used for the treatment of measles.



***Scoparia dulcis* L.**

**G. *Typha elephantina* Roxb.**-*Typha elephantina* Roxb. also called Hogla in the local language and narrow leaf Cat's Tail is its English name and its family is Typhaceae, it is an annual erectly growing shrub, found at an altitude between 1700-1800 meters, growing to a height of 180-360 centimeters. Leaves are erect and ribbon-like in shape, somewhat convex dorsally and concave ventrally becoming narrower keeled and trigonous towards sheath. Flowering stem embraced at base by leaf-sheaths and spongy forming a rachis of female spikes. Lower female spike is brown in colour and deciduous. Spathe embraces whole inflorescence when young. Male spike pale coloured with basal spathe. Bracts numerous, filiform, 2-3 cleft. It grows in the wild and is commonly found in the district of Medinipur grows well at an altitude of. Rhizomes and fruits of this plant has been effectively utilised for the treatment of measles.



***Typha elephantina* Roxb.**

### III. RESULTS AND DISCUSSION

Although in the present investigation we have dealt with seven important species of plants that are useful in the treatment of measles of which. Leaves and the roots are used in most of the cases apart from this rhizomes, fruits, whole plants are also used for treating measles, this disease is prevalent globally, the developed countries may be producing biotechnologically engineered products to tackle the issue of measles and many other infectious diseases but to treat the disease in the developing countries we require the necessary skills to develop products from our own indigenous sources and we have so many potential medicinal plants at our disposal that we can use them to produce medicines cost effectively thereby reducing the economic burden of the patients and help them lead a better life.

#### IV. CONCLUSION

There is no dearth in the availability of medicinal and aromatic plants in the state of West Bengal; the above discussed plants are only a few of many such useful medicinal plants which are used to treat serious diseases like measles amongst others. We further need to carry out the phytochemical evaluation of these plants to gain knowledge about the phytoconstituents responsible for curing measles and the knowledges gained from the tribal sources has to be documented meticulously and preserved for research activities to find valuable informations regarding the various potentially useful medicinal plants available in our vast country.

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