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**Contemporary Literary Review of *Muchakunda* (*Pterospermum acerifolium*) with special reference to it's Medicinal aspects****Vidyavati Hiremath<sup>1</sup>, B.S.Hiremath<sup>2</sup>, S. Mohapatra<sup>3</sup>, Arun Kumar Das<sup>4</sup>.**<sup>1</sup>Ph.D (Scholar), <sup>2</sup> Ph.D (Scholar) Puri, <sup>3</sup> Gopabandhu Ayurveda Mahavidyalaya Puri  
Lecturer A&U Tibbia College, <sup>4</sup>Professor, Gopabandhu Ayurveda Mahavidyalaya Puri**Abstract**

Muchakunda (*Pterospermum acerifolium*) belonging to Sterculiaceae family, commonly known as Bayur Tree, Dinner-plate tree is well distributed in India, particularly in sub-Himalayan zone and outer Himalayan valleys. It is commonly known as *Kanakchampa* or *Muchukunda*. In traditional medicine, different parts of the tree, in various dosage forms have been used to treat many diseases since thousand years. Mainly it is used for *karna-shula* (ear ache), *chechaka* (small pox), *sweta-pradara* (leucorrhoea), *sotha* (inflammation), *dusta-vrana* (ulcers), *kustha* (leprosy), *prameha* (diabetes syndrome). The descriptions of habitat, morphology, etymology, scientific classification, family and genus characters, vernacular names, pharmacological activities, chemical constituents, ethno-botanical use, therapeutic use cultivation and propagation etc. are richly found in Ayurvedic and contemporary literatures. The review article will help the researchers of Ayurveda as well as in other field of Bio-medical sciences to explore more about the said plant for the larger benefit of society.

**Key words:**Muchukunda, *Pterospermum acerifolium*, Ayurveda, Ethno-botany, herbal drugs**Introduction:**

Medicinal plants are local heritage with global importance. Herbs have always been the very best requirements for the existence of the people of India

and the world at large, as food and medicine. Ancient Acharyas had felt enormous therapeutic potentiality of each and every plant on being their judicious use <sup>[1]</sup>. Among millions of

plants and their different species, *Muchakunda* is having therapeutic predominance in certain disease conditions like *Twak-Roga* (skin disease), *Sotha* (inflammation), *Raktapitta* (bleeding disorder), *Vatarakta* (gout arthritis), *Visarpa* (psoriasis), *Rakta-arsha* (bleeding piles), *Garbhashayagata raktasrava* (uterine bleeding) etc...

*Pterospermum acerifolium* (L) Willd belonging to the family Sterculiaceae is a tall tree having high medicinal value. It is an angiosperm, indigenous to Southeast Asia, from India to Burma. The geographical distribution of the plant extends from North East India to Bangla Desh (Chittagong), Burma and Malayasia; cultivated in Pakistan and North America [2]. Today it is mainly cultivated in Pakistan and North America. Due to it's high therapeutic value now a day it is a matter of interest for research in bio-medical science to explore more accurate therapeutic index, in terms of active principles, that could be the marker compound of the plant. Broad spectrum medical use of the plant and

it's different parts are described in various Ayurvedic literatures. The pharmacognostical studies of drug are also the part of current drug review write up. Details of macroscopic, microscopic characters of discussed plant material with chemical composition may facilitate the interdisciplinary as well as intra-disciplinary research in this regard. Literary review of the said plant will explore the identifying criteria and time tested therapeutic efficacy along with different morphological aspects of the plant.

#### **Different mythological aspects of *Muchukunda*:<sup>[3]</sup>**

In Vedic literatures this plant material is compared with saint *Mahamuni* in many places. In ancient time a famous king Muchakunda who had enmity with lord Vishnu, like this tree very much. Hence it is called *Prati-Vishnuka* (opposite to Lord Vishnu) and *Muchukunda*.

#### **Etymology<sup>[4]</sup>:**

"*Munchati sugandham kundah iva Muchakundah*"- Which gives odor and fragrance like kunda flower is called *Muchukunda*.

#### **Habit and habitat<sup>[5]</sup>:**

*Pterospermum acerifolium* (Willd). (karnikara tree) is an angiosperm, indigenous to Southeast Asia, from India to Burma. Probably it is a native of North East India, Bangla Desh (Chittagong), Burma and Malayasia. Now days it is cultivated in Pakistan and North America. It is a tree belonging to the family Sterculiaceae. It is most likely to grow naturally along forested stream banks. The best growing conditions are a seasonally moist then dry climate with access to full sunlight. It grows up to 40-45' tall and mostly found in soil PH 6.1 to 7.5 with good Sun light. This golden-hued flower has a beautiful tassel-like form which makes it ornamental. It has an intense fragrance, it starts fading the moment it is plucked.

### Description of *Muchakunda* in Different Ayurvedic Literatures:

In different ancient literatures *Muchukunda* is described under different *varga* (group). There are lots of descriptions found about this plant material in all most all reference literatures i.e. Samhita and Nighantu of

Ayurveda regarding the etymology, synonyms, morphological description and therapeutic use.

### Placement of *Muchukunda* under different *varga* (group) by different Scholars:

Observing the morphology, therapeutic effect, habit and habitat different scholars have placed *Parijata* under different *varga* (group) for convenient of study.

Table-01 shows the position of *Muchukunda* in different literature <sup>[6]</sup>

| Sl. No. | Name of Literature     | Name of <i>varga</i> (group) | Reference    |
|---------|------------------------|------------------------------|--------------|
| 1       | HrudayadeepikaNighantu | Dwinama <i>varga</i>         | Page No: 10  |
| 2       | Raja-Nighantu          | Karaveeradhi <i>varga</i>    | Page No: 318 |
| 3       | Kaiyadeva-Nighantu     | Oushadi <i>varga</i>         | Page No: 627 |
| 4       | Bhavaprakasha Nighantu | Puspa <i>varga</i>           | Page No: 504 |
| 5       | Nighantu Aadarsha      | Muchakundadi- <i>varga</i>   | Page No: 185 |
| 6       | Priya-Nighantu         | Hartiakyadi- <i>varga</i>    | Page No: 48  |

### Synonyms of *Muchukunda* <sup>[7]</sup>:

*Muchukunda* is identified by different names in different literatures called synonyms, according to it's physical properties like colour, fragrance as well as use of flower and leaves. Different



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synonyms are etc. *Raktaprasava*,  
*Sudala*, *Harivallabha*, *Dheergapuspa*,  
*Karnikara*, *Kshatravruksha*,  
*Prativishnuka*, *Chatravruksha*,  
*Supushpa*, *Bahupatra* etc.

**Vernacular names:** [8]

Latin name: *Pterospermum acerifolium*  
(L) Willd.

English : Kanaka Champa flower

Hindi : Muchukund, Kanaka  
Champa, Kaniar, Kathachampa,

Kannada : Muchaakunda, Toddagiringa

Malayalam: uchakundam, Chittilaplavu

Tamil : Vennangu, cittelapolavu,  
vattapolavu

Telugu : Matsakanda, Lolagu,  
Marudu, Tadu

Marathi : Muchakunda

**Classifications:** [9]

In contemporary way of classification it  
is described as follows

|             |   |               |
|-------------|---|---------------|
| Class       | : | Eukaryota     |
| Kingdom     | : | Plant         |
| Subdivision | : | Angiosperm    |
| Class       | : | Eudicots      |
| Sub-Class   | : | Eurosids II   |
| Order       | : | Malvales      |
| Family      | : | Sterculiaceae |
| Sub-Family  | : | Dombeyoideae  |
| Genus       | : | Pterospermum  |
| Species     | : | acerifolium   |

Flower, leaf and/or bark of the plant are  
used for medicinal purpose in different  
dosage form or as an ingredient in a  
compound formulation. (R.Nighantu,  
Indian Medicinal Plant, Indian Metria  
Medica, Bhavaprakasha Nighantu)

**Therapeutic use of  
Muchukunda in different  
Ancient literatures:** [11]

Muchakunda is described for different  
therapeutic use in different literatures  
such as Muchakunda flower is made into  
paste with Kanji and applied on head to  
cure head ache. It is also applied as  
*lepa* in *Raktarsha* (bleeding piles), *Daha*  
(burning sensation), *Shirashoola* (head  
ache), *Ardavabhedaka* (migraine), *Vrana*  
(wound) and *Visarpa* (erysipelas).

Internally it is used in *Twak -Roga* (skin  
diseases), *Shotha* (inflammation),  
*Raktapitta* (bleeding disorder),  
*Vatarakta* (gout arthritis), *Raktarsha*  
(bleeding piles), *kasa* (cough), *Atyartava*  
(metrorrhagia), *Garbhashayagata-  
raktasrava* (uterine bleeding) etc..

Flowers are also used as general tonic.

The medicinal uses in different  
literatures are given below in tabular  
format.

**Useful parts of the Plant** [10]:

**Table No: 2 Medicinal use of Muchakunda mentioned in Different classics.**

| Karma<br>s<br>(Medicinal<br>use) | Raj<br>.Ni<br>g | Kai<br>.Ni<br>g | Bp<br>n.N<br>ig | Sal<br>i.Ni<br>g | P.<br>Ni<br>g | Dg.<br>Ha<br>st |
|----------------------------------|-----------------|-----------------|-----------------|------------------|---------------|-----------------|
| Vedha<br>nahara                  | -               | -               | +               | -                | -             | +               |
| Shotha<br>shama<br>ka            | +               | -               | -               | -                | -             | +               |
| Shirash<br>oolaha<br>ra          | -               | +               | +               | +                | +             | +               |
| Kapha<br>hara                    | +               | -               | +               | +                | -             | -               |
| Vishag<br>na                     | -               | +               | +               | -                | -             | +               |
| Vranag<br>na                     | +               | -               | -               | -                | -             | -               |
| Kasaha<br>ra                     | +               | -               | -               | +                | -             | -               |
| Kantad<br>oshagn<br>a            | -               | -               | -               | +                | -             | -               |
| Twakro<br>gahara                 | -               | -               | -               | +                | -             | -               |
| Raktap<br>ittahar<br>a           | -               | -               | -               | +                | -             | -               |

|               |   |   |   |   |   |   |
|---------------|---|---|---|---|---|---|
| Shofah<br>ara | - | - | - | + | - | - |
| Vranah<br>ara | - | - | - | + | - | - |
| Pamah<br>ara  | - | - | - | + | - | - |

### Dose of Muchakunda: <sup>[12]</sup>

According to Raja Nighantu

*Pushpa Kwatha* - 50-100 ml

*Pushpa Churna* - 0.5-1.5 gm

*Pushpa Churna* - 1-2 gm.

(According to Dravyaguna Hastamalaka)

### Morphology: <sup>[13]</sup>

*Pterospermum acerifolium*, commonly known as Bayur Tree, Dinner-plate tree, is a tree of Indian origin, which reaches a height of 50-70 ft. The bark of the tree is grey in color and fairly soft. Small twigs and new growth seem feathery and are commonly more of a rusty-brown color. Leaves have grown in alternate insertion arrangement. Leaf shape can range from Oblong, broadly Obviate to ovate. Leaf edges are commonly dentate (toothed) or irregularly lobed. Many leaves tend to droop downward, giving the tree the appearance that it is wilting. The top side of the leaves is a

dark green color. The leaves are rough and rubbery, to limit the loss of moisture in a hot climate. Stipules linear; petiole robust, striate; leaf blade nearly Orbicular or Oblong, sometimes leathery. Base cordate margin entire. It has large fragrant nocturnal white flowers, occurring in axillary fascicles. Sepals linear-oblong, petals white, linear-oblong, slightly shorter than sepals. Ovary oblong, 5-angular; ovules many. Fruit is a capsule woody, angled, furfuraceous, cylindrical, reddish brown velutinous, glabrescent, base tapering, and apex rounded. Seeds many per locule, obliquely ovate, flat, wing large and thin, brown, smooth.

#### **Chemical constituents: - [14]**

It contains Kaempferol a natural flavonoid. It is a yellow crystalline solid with a melting point of 276-278 °C and slightly soluble in water but soluble in hot ethanol and diethyl ether. Luteolin is another flavonoid is thought to play an important role in the human body as an antioxidant, a free radical scavenger, an agent in the prevention of inflammation, a promoter of carbohydrate metabolism, and an

immune system modulator. Betulin is an abundant naturally occurring triterpene. It is commonly isolated from the bark. Other than this Beta-Sitosterol, Volatile oils and glycines, galactoses are also present in Muchakunda.

#### **Ethno-Botanical use [15] :-**

The *Pterospermum acerifolium* is beneficial in the following conditions:

Antiseptic, Depurative, Eruption, Fever, Fumitory, Inflammation, Leprosy, Menorrhagia, Puerperium, Repellant (insect), Smallpox, Sore tonic, Tumor, Laxative, Anthelmintic, Stomachache, Blood disorders, Ulcers.

#### **Other uses:**

The wood of this plant has been used in traditional fabric dyeing. In Malaysia it is used specifically for dyeing. Orange-red is the most typical color produced by this species.

#### **Current research on Muchakunda: -**

Different research projects explores many medical use of muchakunda like Chronic effect of *pterospermum acerifolium* bark on glycemic and lipidemic status of type 2 diabetic model rats Diabetes Research and Clinical



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Anti-hyperglycemic effect of *Pterospermum acerifolium* Willd. and *Pterospermum semisagittatum* Ham. Department of Chemistry, University of Dhaka, Bangladesh, Research Division, Bangladesh Institute of Research & Rehabilitation in Diabetes, Endocrine & Metabolic Disorders (Birdem), Dhaka, Bangladesh. Mamun M. I. R., Rokeya B, Chowdhury N. S., Muniruzzaman M. Nahar N, Ahmed M. U, Mosihuzzaman M., Ali L., Azad Khan A. K. and Khan S. H.

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### **Discussion:-**

Contemporary Literary Review of Muchakunda (*Pterospermum acerifolium*) with special reference to it's Medicinal aspects highlights different therapeutic use it. In this review article the habit habitat, morphology, identification criteria of the plant are given in ancient as well as in ethno-



botanical way. This drug is described in most of the Nighantus (ancient pharmacopeal literatures) with it's morphology, traditional pharmacology and therapeutic use. Different used parts of the muchakunda along with it's suitable dosage form are also mentioned in many literatures. It is mostly used externally as lepa (paste) of flower in *Raktarsha*, *Daha*, *Shirashoola*, *Ardavabhedaka*, *Vrana* and *Visarpa*. Internally it is also used in *Twak Roga* (skin diseases), *Shotha* (inflammation), *Raktapitta* (bleeding disorder), *Vatarakta* (gout arthritis), *Raktarsha* (bleeding piles), *kasa* (cough), *Atyartava* (metrorrhagia), *Garbhashayagata-raktasrava* (uterine bleeding) etc.. Flowers are also used as general tonic. Over all this literary work may help the herbal researchers to explore more medicinal effect of the said drug in validated experimental and clinical models.

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