PHARMACOGNOSTICAL AND PHYSIOCHEMICAL PROPERTIES
OF HYPERICUM MYSURENSIS WIGHT&ARN

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ABSTRACT
The plant Hypericum mysurensis, (Family Hypericaceae) is a popular shrub about 20 species of Hypericum has been reported in India. The aerial parts of the plant (leaves and Stems) were collected, authenticated and subjected to Pharmacognostical and Physiochemical studies. Pharmacognostical studies include sensory characters, histological studies(Johnsons method) and physiochemical studies include ash values, extractive values (Indian Pharmacopoeia-1996) and florescence analysis(Chase CR and Pratt RJ) were carried out and the findings were reported. The leaves are simple, lanceolate, opposite, entire margin and chief characters in transverse section presence of oil cells in both upper and lower epidermis, anisocytic stomata and covering trichomes were found. The microscopy of stem shows that the presence of cork, phloem fibers, secondary xylem and phloem vessels.

KEYWORDS: Hypericum mysurensis, Pharmacognostical, physiochemical properties.

INTRODUCTION
There are millions of plants have been reported around the world, medicinal plant sources and its medicinal values have been reported in Indian system of medicine by the ancients in Rig veda, Yajur veda and Athervana veda between 3500 and 1800 B.C., later Charaka Samhita(700BC) and the Sushruta Samhita (200BC) described the properties and uses of many medicinal plants. [1]
Plants have curative measures for all the ailments but man has to be discover it out. Ethanomedicinal knowledge are important sources for the development of modern phytomedicine. World Health Organisation (WHO) encourage and promotes the inclusion of herbal drugs in national healthcare programmes also recommends to search new potential medicines from the plant sources. There are acceptant of traditonal and ethanomedical informations globally at the same time negative health consequences also reported due to lack in quality of herbs, presence of heavy metals, wrong identification etc. [2]

Therefore it is need to standardize the raw matterials and finished preparations as per standard protocals as recommended by the World Health Organisation (WHO). The process of standardization is to be carried out stepwise from pharmacognostical, microscopical, physical, chemical and biological methods. The systemic pharmacognostical and physiochemical studies are recognized their morphological, microscopical and physiochemical values, these are essential in tracing, identification and confiramation of right plant species. [3,4]

The plant Hypericum perforatum (Saint John’s Wort) is one among in Hypericum species with posses several health benefits and has been documented in official monographs. [5]

Hypericum mysurensis belongs to family Hypericaceae was selected for the present study it is a small tree or shrubs from the same genus of Hypericum. It consists of many phytoconstituents such as hypericin, pseudohypericin,hyperforin, flavanoids, flavones etc. it posses antianxiety, anti inflammatory, diuretic,woundhealing and anticancer properties. [6]

MATERIALS AND METHODS

Collection and Authentication
The plant Hypericum mysurensis Wight&Arn was collected in and around the Nilgiri district, Tamilnadu. The plant was authenticated by Dr.Rajan, Field Botanist, Bandishola, Ooty, Tamilnadu and the specimen voucher was preserved in the department for further references.

Taxonomical Information [7]

Kingdom : Planate
Sub Kingdom : Tracheobionta
Super division : Spermatophyte
Division : Magnoliophyta
Class : Magnoliopsida
Subclass : Dilleniidae
Order : Malphighiales
Family : Hypericaceae
Genus : Hypericum
Species : mysurensis
Habit : Shrub

Reagents and Chemicals
All reagents and chemicals used for testing were analytical grade obtained from Fisher Chemicals Ltd., Mumbai, SD Fine Chemicals Limited, Mumbai and Qualigens Chemicals, Mumbai.

Pharmacognostical Studies
It is needed to find the morphological and microscopical characters of the crude drugs. All the plants have individual taxanomical characters and most of the individuals are differ from each other. Sometimes exhibit resembles character even if no relationship between the species this leads to misidentification of plants, such error can be minimized from pharmacognostical studies. The fresh and dried leaves and stems of *Hypericum mysurensis* were used for the present study.

Morphological Studies
The morphological studies are used to differentiate closely related species and find the external texture includes sensory characters such as colour, odour, taste, size, shape etc. The fresh leaves and stems of *Hypericum mysurensis* were used and reported. \(^{[8]}\)

Microscopical Studies
Microscopic examination is an important part in pharmacognostical studies, it provides the cellular structure or characters of the respective plant which useful to differentiate and confirmation of the right plant species. The leaves and stems of *Hypericum mysurensis* were boiled and fixed in F.A.A. (Formaldehyde: Acetic acid: Alcohol) and processed for microtomy (Paraffin Method) and sectioned, stained of slides prepared following by Johnson method .The leaves were cleared in chloral hydrate, stained with phloroglucinol and concentrated HCl mounted with glycerin and observed under a compound microscope, the findings were reported. \(^{[9]}\)
The dried fine powdered materials of leaves and stems were used to evaluate the powder analysis by Brain, Turner and Kokate methods, the present characters were found and reported. [10,11]

**Physiochemical Studies**

Physicochemical analyses including determination of moisture content (loss on drying), determination of total ash, acid insoluble ash, water soluble ash, water soluble extractive and alcohol soluble extractive values were carried as per authentic procedures mention in Ayurvedic Pharmacopoeia. [12,13]

**Fluorescence Analysis**

The shade dried leaf and stem powders were treated with various reagents and emitted fluorescence properties or colours were observed under day and UV light. The study was carried out by Chase CR and Pratt RJ method. [14]
**Fig. 5:** Transverse section of stem

**Fig. 6:** Stem enlarged with phloroglucinol

**Fig. 7:** Powder analysis of leaf

**Fig. 8:** Powder analysis of stem

**Table 1: Fluorescence analysis**

<table>
<thead>
<tr>
<th>REAGENT</th>
<th>LEAF</th>
<th>STEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conc. Sulphuric acid</td>
<td>Brownish</td>
<td>Brownish</td>
</tr>
<tr>
<td>Aqueous ferric chloride (5%)</td>
<td>blackish</td>
<td>Reddish</td>
</tr>
<tr>
<td>Iodine solution</td>
<td>Blue</td>
<td>Light Blue</td>
</tr>
<tr>
<td>Picric acid solution</td>
<td>Yellowish</td>
<td>Strong Yellow</td>
</tr>
<tr>
<td>Aqueous mercuric chloride solution</td>
<td>Brownish</td>
<td>Brownish White</td>
</tr>
<tr>
<td>Magnesium hydrochloric acid</td>
<td>No change</td>
<td>Light Blue</td>
</tr>
<tr>
<td>Aqueous silver nitrate solution</td>
<td>No ppt</td>
<td>No ppt</td>
</tr>
<tr>
<td>Ammoniacal solution</td>
<td>No change</td>
<td>No Change</td>
</tr>
<tr>
<td>Aqueous potassium hydroxide</td>
<td>No change</td>
<td>No Change</td>
</tr>
</tbody>
</table>
Table 2: Determination of moisture content

| Loss on drying | 8.3% w/w |

Table 3: Determination of ash values

<table>
<thead>
<tr>
<th>ASH VALUE</th>
<th>LEAF POWDER</th>
<th>STEM POWDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ash value</td>
<td>8.5%</td>
<td>7.2%</td>
</tr>
<tr>
<td>Acid insoluble ash</td>
<td>4.2%</td>
<td>3.7%</td>
</tr>
<tr>
<td>Water soluble ash</td>
<td>2.5%</td>
<td>2.2%</td>
</tr>
</tbody>
</table>

Table 4: Determination of extractive values

<table>
<thead>
<tr>
<th>EXTRACTIVE VALUE</th>
<th>LEAF EXTRACT</th>
<th>STEM EXTRACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>22.5%</td>
<td>21.5%</td>
</tr>
<tr>
<td>Methanol</td>
<td>20.5%</td>
<td>19.0%</td>
</tr>
</tbody>
</table>

RESULTS AND DISCUSSION

Macroscopy

Leaves are lanceolate 20 x 30 x 7mm in size, apex is acute, entire margin, leaves are dark to light green in colour with slight odour, taste mugelage like. The stem bark was found to be externally brownish and internally light reddish brown in color. It occurred in the curved or sometimes flat pieces. It had mucilaginous taste odour was characteristic. The outer surface of bark had got numerous lenticels number of wrinkles and undulations were also seen on the outer surface, while inner surface showed presence of numerous striations. The bark was smooth and had glistening appearance. Overall the bark was compact, hard and lighter in weight.

Microscopy

Transverse Section of Leaf

The transverse section of Hypericum mysurensis leaf was showed that the presence of upper and lower epidermis often contains oil cells, lamina, wide secondary phloem in midrib region, elongated palisade cells, anisocytic stomata, collenchyma, sclerenchyma and vascular bundle which contained protoxylem.

Transverse Section of Stem

The transverses section of stem was showed that the presence of cork, secondary xylem and phloem vessels. Phluroglucinol treated specimen showed the presence of lignified xylem and phloem vessels.
Powder Characteristics of Leaf
The powder analysis of leaf was showed that the presence of brownish epidermal cells, anisocytic stomata, covering trichomes and mesophyll cells.

Powder Characteristics of Stem
Similarly from the stem powder was revealed the presence of anthocyanins, the typical secondary wood bit, and cork and phloem fibers.

CONCLUSION
Till date there is no official standards had been reported for the plant Hypericum mysurensis. The present Pharmacognostical and physiochemical study provides some specific microscopical characters and physical values that useful in identification, evaluation and standardization of the plant Hypericum mysurensis.

REFERENCES
