**Medicinal Plant Wealth of India**

**Bhumyamalaki Complex**
(Herbaceous Phyllanthus)

'Bhumyamalaki', widely used in Indian systems of medicine for a wide range of diseases, particularly jaundice, refers to a complex group of herbaceous species of the genus Phyllanthus. Bhumyamalaki, literally means a miniature 'amla' or 'gooseberry' and derives this name due to the similarity of this group of species to the 'amla' or 'gooseberry' fruits. Other popular names i.e. Keelakanti (Tamil), Keel Theli (Malayalam), Nelangoli (Kannada) and Nelambirki (Telugu) also refers to the herbaceous nature of this plant with fruits on the underside of leaves.

The genus Phyllanthus L. belongs to the family Euphorbiaceae and includes about 800 species worldwide. In India, the genus is represented by about 40 species, out of which 12 species form a herbaceous species group. These species are P. amarus Chaudhary & Rao, P. amarus Schum., P. debilis Klein ex Willd., P. flavidus Webster, P. kozhikondianus Sivadasan & Man, P. madraspatenensis L., P. mediopunctatus Hitchcock, P. reniformis Hook. F., P. scabiolis Hook. F. and P. virgatus F. The

**Identification issues**
Even though Bhumyamalaki is now correlated to P. amarus, yet the apparent similarity between different species of this complex makes it difficult to identify P. amarus from its closely related species. Therefore, the raw material traded as Bhumyamalaki is in fact an inseparable mix of more than one species of this complex.

**Distinguishing features**
All the 12 species of this group display a range of characteristic features that can help in their identification. Some of such features are the nature of stem, presence and thickening of cataphylls, shape and thickening of stipules, shape of leaves, nature of stipules and male disk, number, shape and thickening of female perianth lobes, shape of female disk and style and tufted nature of fruits. Illustrations with photographs & line drawings of main distinguishing features like cataphylls, stipules, leaves and female perianth lobes of each species are provided here for easy identification of this complex group.

**Chemical components and uses**
The genus Phyllanthus contains Phyllanthine and Hypophyllanthine as major chemical components, useful in treating Hepatitis-B. Recent studies show that P. amarus has the highest percent of Phyllanthine and Hypophyllanthine in this complex and is most effective in treating various types of Jaundice. Similarly, studies on P. amarus show that the bioactivity of this species is better than others.

A recent study on Bhumyamalaki (JNAPS, 28, 2006) shows the following list of Phyllanthine and Hypophyllanthine in different Phyllanthus species:

<table>
<thead>
<tr>
<th>Species</th>
<th>Phyllanthine (%)</th>
<th>Hypophyllanthine (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. amarus</td>
<td>0.8</td>
<td>0.18</td>
</tr>
<tr>
<td>P. debilis</td>
<td>0.0006</td>
<td>0.009</td>
</tr>
<tr>
<td>P. patens</td>
<td>0.0003</td>
<td>0.005</td>
</tr>
<tr>
<td>P. urinaria</td>
<td>0.0001</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Phyllanthus niruri V. = Phyllanthus amarus
There has been confusion about the botanical nomenclature of Bhumyamalaki due to its wrong linkage to Phyllanthus niruri L., a plant found only in the West Indies. The recent studies show that it actually refers to P. amarus, a common weed in India. Sometimes it is also correlated to other species of herbaceous Phyllanthus complex.

**Trade**
It is estimated that the annual consumption of Bhumyamalaki in India is about 2000 metric tons.
Yielding medicinal plants

The immemorial dyes of plant origin rendered color to the world. The Indian tradition dyes play a significant role in religion, culture, and social fabric. Yellow is associated with sanctity, prosperity and good fortune. No religion ceremony is complete in India without Haldi or turmeric. Similarly Red is a color of awakening, activity and sacrifice and the king of yellow, Rubia cordifolia – Madder.

A comprehensive database on medicinal plants of India has more than 6000 medicinal plants and of it more than 325 species known to be source of different colors.

Medicinal dyes are used prominently for medicinal purposes, as colorants, dying textiles, paintings, mural paintings, toys (safe for children), and in festivals and culture and cosmetics etc. All dyes require a preservative which are the nature of inorganic material.

Paints and ancient architectures such as Mural paintings at Ajanta, wooden arts, vegetable fibres, paddy husk, grass, other organic material and plants in their paintings. Vegetables and fruits such as onion skins, mango, walnut, grape juice, strawberries, beet root juice are used to create hues used in coloring food, textiles and wools.

Medicinal dyes yielding medicinal plants are also having therapeutic potential. The good colors from plant materials is intensively researched today and recommended in medicines and dietary supplements. The plants have been used from time immemorial and surprisingly the color of Turmeric, Indigofera tinctoria, Bixa orellana, Caesalpinia inermis, Tagetes erecta, are not of Indian origin but exotic.

The list of both exotic and indigenous yielding plants are listed below:

- Present species with medicinal dyes and till recent past used to yield colors of dye.

Join hands to conserve hidden colors of our Nature
Medicinal Plant Wealth of India

GOKSURA

[Description and information about Goksura plant]

[Table and additional details]

[Images of different stages of Goksura plant]
Today there is a definite trend to lean back to nature and dental care is one step in that direction. Toothbrush was used by the Babylonians some 7000 years ago; it was later used throughout the Greek and Roman empires, and has also been used by ancient Egyptians and Muslims. People have used chewing stick for oral hygiene, religious and social purposes. It is used not only to clean teeth but also gums. Indian medicine Ayurveda has used Neem as an important tree to create toothbrushes. Misvak is usually obtained from the roots of *Sawadara oleoides* known as “Miswak” or “Arak” or “tooth brush tree”. At times some sticks are made from its branches and bark. It was widely used since the time of Prophet Mohamed who himself used it and appreciated its use in 570-632 AD.

The beneficial effects of toothbrush in respect of oral hygiene and dental health are partly due to its mechanical action and partly due to pharmacological actions.

Herbal toothbrush is known to prevent tooth decay, eliminate toothaches and halt the increase of tooth decay that has already set in. Furthermore it is known to eliminate bad breath, improve sense of taste and cause the teeth to glow and shine. Teeth cleaning twigs can be obtained from a variety of plant species.

Few examples of the plants along with their part used and uses across the country are given below:

**Acacia nilotica (Mimosaceae)**
Young stem - Tooth ache & Gum disorders

**Rhamnos pubescens (Rutaceae)**
Young stem - Tooth ache & Gum disorders & Gingivitis

**Bacopa monniera (Euphorbiaceae)**
Young stem - Tooth ache & Dental ulcer

**Juglandis nigra (Juglandaceae)**
Stem bark - Tooth ache & Dentifrice

**Vitex pseudophylla (Fabaceae)**
Young stem - Strengthening gums & Dentifrice

**Piper longum (Myrtaceae)**
Young stem - Bleeding gum & Dentifrice

**Sawadara oleoides (Sawaderacaeae)**
Young stem - Pyorrhea, Foul breath & Dentifrice

**Thamopsis populnea (Malvaceae)**
Young stem - Tooth ache

**Wrighta tinctoria (Aposyngacaeae)**
Young stem - Tooth ache

**Zanthoxylum armatum (Rutaceae)**
Young stem - Tooth ache

*Let us all join hands in conserving our nature's wealth for human health*
Medicinal Plant Wealth of India

PASHANABHEDA

In Ayurveda, "Pashanabheda" (pashana = stone; bheda = to break) is used to disintegrate the stones or calculi in kidney as it possesses lithotriptic property.

Uses
The drug is reported to possess lithotriptic, astringent, tonic, antiscorbutic and laxative properties. It is reported to be used for the treatment of pulmonary affection, dysentery, ulcers, dysuria, spleen enlargement, cough and fever.

Plants correlated
Different plants are used as Pashanabheda in different parts of India. The classical texts and ethno-botanical literature in the past 100 years correlate 8 medicinal plant species, which are illustrated below:

1. Aerva lanata (Amaranthaceae)
2. Ammannia baccifera (Lythraceae)
3. Bergenia ciliata (Saxifragaceae)
4. Bridelia montana (Euphorbiaceae)
5. Homolos riparia (Euphorbiaceae)
6. Kalanchee pinnata (Crassulaceae)
7. Ocimum basilicum (Lamiaceae)
8. Rotala aquatic (Bonginaceae)

Let us appreciate and conserve this nature’s gift to mankind!