DATABASE STUDY OF KANCHANARA (Bauhinia Variegata Linn) WITH SPECIAL REFERENCE TO CONTROVERSIAL ASPECT

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ABSTRACT
Kanchanara is known for its glory of scented and aesthetic flowers and also used as a food ingredient in Indian cuisine. Though different species of Bauhinia are known and used as Kanchanara but in specific Kanchanara is botanically identified as Bauhinia variegata. It is a moderate sized deciduous tree with greyish coloured stem found in sub Himalayan tract from the Indus eastwards and throughout the forests of India and Burma. The Flower and Bark of Kanchanara are used as medicine. The drug has been described as Grahi, Krimighna, Kushtaghna, Gandamalanashaka, Vranaropaka, Mehaghna and Raktapittashamak. Though the drug is mainly used in the name of Kanchanara, there is no usage of this term in the Samhitas, instead terms like Kovidara and Karbudara are used, in later periods of Nighantus the word Kanchanara was thrown light upon. Hence it is considered as a controversial drug. This review paper gives details about the medicinal plant Kanchanaraits Ayurvedic literature review, Pharmacognosy and Controversy.

KEYWORDS: Kanchanara, Bauhinia variegata, Kovidara,Controversy

INTRODUCTION
Kanchanara commonly called as “orchid tree” or “mountain ebony”, frequently cultivated in gardens throughout the country. It has important chemical constituents like Lupeol, Hentriacontane, Stigmasterol, Octacosanol, b-sitasterol, Amino acids. The reported pharmacological activities of Bauhinia variegata Linn. are anti-diabetic, anti-ulcer, anti-oxidant, nephroprotective, anti-cancer, hepatoprotective, anti-inflammatory, immunomodulatory, anti-microbial, anti-bacterial. Kanchanara is one of the major ingredient of many important formulations used in Ayurveda system of medicine such as Kanchanara Guggulu, Kanchan gutika, Gammadala kundan rasa, Kanchanaradi Kwatha, Ushirasava, Chandanasava, Vidangarishta, Kanchnara Varuna Kwatha It is having multifold uses in Medicinal, Ethnomedicinal, Culinary,Fibre and Dye Industry etc. Kanchanara has some controversies based on usage of synonyms given by different Teekakaras and Nighantukaras. The terms involved with controversy of Kanchanara are Kovidara, Karbudara, Uddalaka, Ashmantaka, Sleshmataka and different species of
Bauhinia are known and used as Kanchanara in ayurvedic medicine.

**Literary Review**

**Onomatology:**
The word Kanchanara means *Kanchanamta varnamruchyatipushpaih* (its flowers are golden yellow in colour).
The word Bauhinia was named in honour of Jean and Caspar Bauhin, who were 16th century Swiss botanists. The two lobes of the leaf exemplify the two brothers. The specific name Variegata refers to the variegation of the flowers.

**Synonyms of Kanchanara**

**Based on morphology:**
Bhramareshta, Kanakaprabha, Kanchana, Kanchanaha, Kanchanala, Kantara, Karbudaraha, Manohara, Raktapushpa, Shonapushpaka, Shwetha, Varalaghva, Yugmapatra.

**Based on guna karma:**
Gandari, sitaha, Paakaari Yugmapatra (Leaves are emarginated).
Gandari (It’s effectively cures lymph node disorders / swelling).

**Gana/Varga:**

<table>
<thead>
<tr>
<th>Classica I Text</th>
<th>Gana/Varga</th>
</tr>
</thead>
<tbody>
<tr>
<td>CharakaSamhita</td>
<td>Shaka varga, Kashaya skandha, Vamanopaga</td>
</tr>
<tr>
<td>Nighantu shesa</td>
<td>Vriksha khanda</td>
</tr>
<tr>
<td>Shodala Nighantu</td>
<td>Guduchyadi varga, Lakshmanadi varga</td>
</tr>
<tr>
<td>Madhava dravya guna Nighantu</td>
<td>Oshadhi varga</td>
</tr>
<tr>
<td>Madanapala Nighantu</td>
<td>Abhayadidhi varga</td>
</tr>
<tr>
<td>Kalyyadeva Nighantu</td>
<td>Oushadi varga</td>
</tr>
<tr>
<td>Bhavaprakasha Nighantu</td>
<td>Guduchyadi varga</td>
</tr>
<tr>
<td>Priya Nighantu</td>
<td>Haritakyadi varga</td>
</tr>
</tbody>
</table>

**Bhedha:**

According to Kaideva Nighantu and Nighantu ratnakara:

3 types of kanchanara based on flowers:
- a) Raktapushpa
- b) Pita pushpa
- c) Shweta pushpa

**Rasapanchaka**

Rasa – Kashaya
Guna – Laghu, ruksha
Veerya – Sheeta
Vipaka- katu
Karma – Sangrahi, vranaropana.
Doshagnata-Kaphapittashamaka

**Vernacular Names:**

<table>
<thead>
<tr>
<th>Language</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Mountain ebony, Camel’s foot tree, Orchid tree.</td>
</tr>
<tr>
<td>Hindi</td>
<td>Kachnan, Kachanal</td>
</tr>
<tr>
<td>Kannada</td>
<td>Kanchavala, Keyumandara, Ualie</td>
</tr>
<tr>
<td>Marathi</td>
<td>Koral</td>
</tr>
<tr>
<td>Tamil</td>
<td>Segapumanchori, Segapumunthari</td>
</tr>
<tr>
<td>Malayalam</td>
<td>Chuvannamandaram</td>
</tr>
<tr>
<td>Telugu</td>
<td>Devakanchanamu</td>
</tr>
</tbody>
</table>
Properties of Different Parts of Kanchanara:

_**Kanchanara twak**_- Kashaya rasa, sheetaveerya, malavarodaka, kapha pitta hara, krimi, kusta, Gandamala hara, gudabramsha, vrana hara.

_**Kanchanara pushpa**_- Laghu, ruksha, sangrahi, pitta-raktapradara, kshaya, Kasahara.

_**Kanchanara mula**_- Gandamalahara

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Plantae</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phylum</td>
<td>Tracheophyta</td>
</tr>
<tr>
<td>Class</td>
<td>EquisetopsidaC.Agardh</td>
</tr>
<tr>
<td>Order</td>
<td>Fabales</td>
</tr>
<tr>
<td>Family</td>
<td>Fabaceae</td>
</tr>
<tr>
<td>Subfamily</td>
<td>Caesalpiniacea</td>
</tr>
<tr>
<td>Genus</td>
<td>Bauhinia</td>
</tr>
<tr>
<td>Species</td>
<td>Variegata L.</td>
</tr>
<tr>
<td>Scientific Name</td>
<td>Bauhinia Variegata L.</td>
</tr>
</tbody>
</table>

**Taxonomy**:  
**Botanical Description of Bauhinia Variegata Linn**  
**Habit**- A medium sized deciduous tree.  
**Bark**- Bark, dark brown, sometimes with silvery patches, rough, compact, exfoliating in woody strips and scales, outer surface with small transverse and longitudinal cracks, internal surface white, taste, astringent.  
**Leaves**- 10-15 cm. long, as broad as or rather broader than long, cleft ¼ to 1/3 of the way down into 2 obtuse lobes, pubescent beneath when young, the pubescence persisting along and in the axils of the nerves, subcoriaceous, base usually deeply cordate, 11-15 nerved; petiole 2.5- 3.8 cm. long.  
**Flowers**- large, fragrant, white or purplish, appearing when the tree is leafless, in short axillary or terminal, few flowered, grey-pubescent racemes, pedicels short or 0; bracts and bracteoles minute, tomentose, deltoid  
**Calyx**-grey- tomentose, tube slender, 1.3-2.5 cm. long, limb spathaceous, as long as the tube, 5- toothed at the apex  
**Corolla**- Petals 5-6.3 cm long, obovate with long rather broad claws, all white or 4 petals pale purple and the 5th darker with purple veins  
**Androecium**- Stamens 5, fertile, no staminodes  
**Gynoecium**- Ovary pubescent along the sutures, long- stalked, style long; stigma capitate.  
**Fruit**- Pod 15-30 by 1.8-2.5 cm hard, flat, dehiscent, on a glabrous stipe 2.5 cm long.
Pharmacognosy:
Macroscopic characters:
Bark, dark brown, sometimes with silvery patches, rough, compact, exfoliating in woody strips and scales, outer surface with small transverse and longitudinal cracks, internal surface white, taste, astringent.

Microscopic:
Transverse section of mature stem bark shows a wide stratified cork, outer cork composed of thin-walled, slightly compressed, yellow brown cells followed by a number of layers of brown coloured cells, inner cork composed of transversely elongated orange brown cells, cork interrupted at certain places due to formation of rhytidoma, some secondary cortex composed or 15 or more rows or transversely elongated to circular, thin-walled, parenchymatous cells groups of stone cells found scattered in this region occasionally arranged in 1-7 or more tangential rows, pericyclic fibres, thick-walled with narrow lumen, scattered in secondary cortex in singles or in groups, secondary phloem consists of sieve tubes, companion cells, phloem parenchyma and fibres traversed by funnel shaped medullary rays, phloem fibres arranged in radial rows throughout phloem region, prismatic and rhomboidal crystals or calciumoxalate abundantly found in phloem and secondary.
cortex regions, very rarely found in cork cells, cluster crystals also present in secondary cortex and secondary phloem.

**Powder Microscopy:**
Pinkish, under microscope showing abundant crystals of calcium oxalate, sclereids in singles or in groups with wide lumen, bits of fibres, cork and secondary cortex cells, containing coloured content, and numerous crystal fibres.
Kanchanara Controversy

1) Kovidara and Kanchanara
   i) Samhita Kala
      Charaka: Mentioned kovidara as totally a different drug other than kanchanara.
      Sushruta: Mentioned the drug as kovidara.
   ii) Sangraha Kala
      Chakrapani: Kovidara an well identified drug, comments it as ‘swanamaprasiddha’
      Dalhana: comments kovidara as kanchanara in some contexts of sutrasthana where reference of Kovidara pushpa, one among urdhva bhaga dosha hara dravya, kashaya varga drugs, shaka varga, pushpa varga are mentioned.
      Shashilekha (InduKrit): Kovidara as Kanchanara.
   iii) Nighantu Kala
      As Synonyms: According to Dhanvantari Nighantu, Raja Nighantu, and Shabdha Chandrika.
      As Bheda: According to Madanapalanighantu, Bhavaprakasha Nighantu.
      As Separate Drugs: According to Shodala Nighantu and Kaiyyadeva Nighantu.

2) Kovidara and Uddalaka
   i) Samhita Kala
      Uddalaka As ShashtikaVishesha.
      Shashilekha: Comments it as bahuvara meaning shleshmataka.
   ii) Sangraha Kala
      Dalhana: As Synonym: According to Soushrutha Nighantu and Kaiyyadeva Nighantu.
      As Separate Drug: According to Shodala, Nighantu, Nighantu shesha, Bhavaprakasha.

3) Kovidara and Ashmantaka
   i) Sangraha Kala
      Dalhana: Ashmantaka is refered to as kovidara (kovidara sadrushapatra) inmaasanumaasikagarbherdhi, Ashmari chikitsa.
      Shashilekha: Ashmantaka as indraka, bhalauparana, Malukaparna.
   ii) Nighantu Kala
      As Synonym: According to Bhavaprakasha Nighantu.
      As Separate Drug: According to Shodala, Dhanvantari, Madanapala, Shodala, Kaiyyadeva, and Raja Nighantu.

4) Karbudara And Shleshmataka
   i) Sangraha Kala
      Dalhana: In some contexts comments karbudara as shleshmataka, shleshmatakabheda.
      Shashilekha: Kachudara as shleshmataka.
   ii) Nighantu Kala
      As Synonym: In Kaiyyadeva Nighantu, Dhanvantari, Madanapala, Shodala, and Raja Nighantu.

Quantitative Standards of Bauhinia Variegata Linn

Physicochemical components-Standardar values

Foreign matter - NIL
Total Ash - Not more than 14.5 per cent,
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Acid-insoluble ash - Not more than 0.8 per cent, Alcohol-soluble extractive - Not less than 11%, Water soluble extractives - Not less than 15%.

**Ethnobotanical Uses:**

<table>
<thead>
<tr>
<th>FOLK</th>
<th>PART USED</th>
<th>DOSAGE</th>
<th>CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LODHAS</td>
<td>Root bark decoction</td>
<td>15 ml</td>
<td>obesity</td>
</tr>
<tr>
<td></td>
<td>Stem bark paste</td>
<td></td>
<td>leucoderma</td>
</tr>
<tr>
<td></td>
<td>Fresh flower with sugar</td>
<td>(2:1)</td>
<td>As laxative</td>
</tr>
<tr>
<td>MUNDAS</td>
<td>Flower decoction</td>
<td>20 ml</td>
<td>To women as galactogogue</td>
</tr>
<tr>
<td></td>
<td>Dried flower bud with water</td>
<td>(1:3)</td>
<td>Vermifuge</td>
</tr>
<tr>
<td>SANTHALS</td>
<td>Flower bud powder with paste of black peppers</td>
<td>(5:3)</td>
<td>Regulate vaginal discharge</td>
</tr>
<tr>
<td>ANDH AND BHIL</td>
<td>Leaf</td>
<td></td>
<td>Laxative</td>
</tr>
<tr>
<td>CHAKMA</td>
<td>Flower</td>
<td></td>
<td>Disorders of women</td>
</tr>
<tr>
<td>BHOXAS OF UP</td>
<td>Flower</td>
<td></td>
<td>Diarrhoea and dysentery</td>
</tr>
<tr>
<td></td>
<td>Bark</td>
<td></td>
<td>Malaria and bleeding piles, tumors.</td>
</tr>
<tr>
<td>KONKAN</td>
<td>Bark juice</td>
<td></td>
<td>As expectorant</td>
</tr>
<tr>
<td>INDO CHINA and PHILIPPINE ISLANDS</td>
<td>Flower kwatha</td>
<td></td>
<td>Dysentry</td>
</tr>
</tbody>
</table>

**Research Profile**

<table>
<thead>
<tr>
<th>Research Title</th>
<th>Part Used</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunomodulatory effect</td>
<td>Stem bark</td>
<td>The ethanolic extract of the stem bark of B. variegata showed immunomodulatory activity on the primary and secondary antibody responses.</td>
</tr>
</tbody>
</table>
Isolation of Phytochemicals from *Bauhinia variegata* L. Bark and Their in Vitro Antioxidant and Cytotoxic Potential

<table>
<thead>
<tr>
<th>Compound</th>
<th>Source</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>The compounds were found to have significant antioxidant and cytotoxic activity due to presence of (kaempferol, stigmasterol, protocatechuic acid methyl ester and protocatechuic acid) in the bark</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Rajkapoor B; Jaykar B; Murugesan N (2003a); Anti tumour activity of Bauhinia variegata on Dalton’s Ascitic Lymphoma, J Ethnopharmacol. 89(1): 107-100.**

<table>
<thead>
<tr>
<th>Compound</th>
<th>Source</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-tumour activity: Ethanolic extract of the stem bark of Bauhinia variegata has been evaluated against the Dalton’s Ascitic Lymphoma (DAL) on Swiss Albino mice. This ethanolic treatment enhance the peritoneal cell counts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Compound</th>
<th>Source</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>The methanolic extract of Bauhinia variegata leaves at dose of 300, 600 and 900 mg/kg in cyclophosphamide-induced mutagenesis in bone marrow cells of mice showed antimutagenic action by preventing the formation of micronucleus and chromosomal aberrations.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DISCUSSION AND CONCLUSION**

Kanchanara a fast growing tree, with high importance in terms of its therapeutic utility, culinary use and its aesthetic look has to be well explored regarding the research potential among its varieties in different aspects. Kanchanara is not mentioned in Samhita kala, Karbudara is the early name given to it. Kovidara is considered to be the bheda of Kanchanara. Karbudara/ Kanchanara- *Bauhinia variegatalinn*. Kovidara- *Bauhinia purpurea linn*. Ashmantaka- *Ficus rumphii*. Sleshmataka- *Cordia dichotoma*. Uddalaka- *Bauhinia variegata* (A Variety).

As concerned to Dhanyaparakarana uddalaka is (Paspalum scrobiculatum var. commersonistapf.) 23. Bauhinia purpurea, Bauhinia tomentosa, Bauhinia racemosa are considered as substitutes and adulterants due to similarities in morphology and pharmacological activities. Bauhinablakeana is the hybrid variety of Bauhinia variegata and Bauhinia purpurea.

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