



## Review Article

### **KANCHNARA (BAUHINIA VARIEGATA LINN.): A CRITICAL REVIEW**

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#### **ABSTRACT**

*Kanchnara* also called Mountain Ebony in English has been used in Ayurvedic system of Medicine since a long period. Different species of *Bauhinia* are known and used as *Kanchnara* in Ayurvedic medicine. It is a moderate sized deciduous tree with greyish colored stem found in Sub Himalayan tract from the Indus eastwards and throughout the forests of India and Burma. Maharishi *Charaka* and *Sushruta* have mentioned the properties of *Kovidara* and *Karbudara* in their *Samhitas* (Treatise). Both flower and bark of *Kanchnara* are used as medicine because of the important chemical constituents present in them which are hentriacontane, octacosanol, b-sitosterol, stigmaterol, lupeol and amino acids. The drug has been described as *Grahi*, *Krimighna*, *Kushtaghna*, *Gandamalanashaka*, *Vranaropaka*, *Mehaghna* and *Raktapittashamak*. Considerable efforts have been made by researchers to study the chemical and biological potential of the plant. 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*, *Gandamala kundana rasa*, *Gulkand Kanchanara* and *Kanchanaradi Kwatha*, *Ushirasava*, *Chandanasava*, *Vidangarishta*, *Kanchanara drava*, *Kanchnara Varuna Kwatha*. So this review paper is an endeavour of the author to provide details of this medicinal plant *Kanchnara* about its classical references, synonyms, botanical description, phytochemicals, pharmacological activity and classical medicinal uses.

**KEYWORDS:** *Kanchnara*, Mountain Ebony, *Bauhinia variegata* Linn., *Gandamalanashaka*

#### **INTRODUCTION**

Different species of *Bauhinia* are known and used as *Kanchnara* in Indian system of Medicine. Watt has described *Bauhinia variegata* Linn. as *Rakta Kanchnar* and *Bauhinia racemosa* Linn. as *Shveta Kanchnar*<sup>1</sup> while in *Bhavaprakash*, besides *Bauhinia variegata* Linn., *Bauhinia purpurea* Linn., *Bauhinia tomentosa* is also mentioned under *Peeta Kanchnar*.<sup>2</sup>

Later Professor Priyavrat Sharma in his *Dravyaguna Vijnanam* has described *Bauhinia variegata* Linn. as *Kanchnar* of *Ayurveda*.<sup>3</sup> *Bauhinia variegata* Linn. is an important medicinal plant belonging to family *Caesalpiniaceae*. It is also known by various names like *Kachanara* (Hindi), *Raktakanchan* (Marathi), Mountain ebony or orchid tree (English) and *Kanchana* means "A glowing beautiful lady" in Sanskrit.<sup>4</sup> The main chemical constituents of plant are

flavonoids, fixedoils, triterpene saponins, tannins, glycosides and polyphenols. Flavonoids like apigenin, rutin, quercetin, and apigenin 7-O-glucoside were isolated from different parts of *Bauhinia variegata* Linn.<sup>5</sup> The bark is alterative, anthelmintic, astringent and tonic. The juice of the bark is used in the treatment of amoebic dysentery, diarrhoea and other stomach disorders. A paste of the bark is useful in the treatment of cuts and wounds, skin diseases, scrofula and ulcers. It can also be used in cough conditions, asthma, abdominal distention, also act as a gargle for sore throats, prevent from skin diseases, or internally as a remedy for diarrhea. It is helpful in managing skin discoloration.<sup>6,7</sup> Its powdered bark is traditionally used for tonic, astrain; ulcers. It is also useful in skin disease.<sup>8</sup>

**BOTANICAL ORIGIN**

*Bauhinia variegata* Linn., *Bauhinia purpurea* Linn.,  
*Bauhinia tomentosa* Linn.

**Family:** *Caesalpinaceae*<sup>9</sup>

**TAXONOMY**

Kingdom	: Plantae
Class	: Dicotyledone
Subclass	: Polypetalae
Series	: Calyciflorae
Order	: Rosales
Family	: <i>Caesalpinaceae</i>
Genus	: <i>Bauhinia</i>
Species	: <i>variegata</i> <sup>10</sup>

**VERNACULAR NAMES**

*Kanchnar* is commonly known as *Swalpakesar*, *Gaandira*, *Gandari*, *Chamarika*, *Chamri*, *Kovidara*, *Yugampatraka*, *Kanchana*, *Karbudar*, *Kundal*, *Aasfotak* in Sanskrit.<sup>11</sup>

*Kachnar*, *Koliar* and *Kural* in Hindi; *Kanchavala* in Kannada, *Kalad* in Kashmiri, *Chuvanna Mandharam* in Malayalam, *Champakali* in Gujarati, *Kovidara* in Bombay, *Rakta Kanchan* in Bengali, *Kanchan* in Konkan, *Raktakanchan* in Marathi, *Taki* in Nepali, *Borara* in Oriya, *Kularh* in Punjabi, *Devakanchnamu* in Telugu, *Mountain Ebony* in English.<sup>12</sup>

The plant is commonly known as *Kanchnara* because of having golden yellow coloured flowers. The stamens of this plant are very few and are light orange in colour (*Swalpakesar*) which grows in clusters resembling chowrie (*Chamri*). It bears fruits which open at maturity i.e. Dehiscent fruits (*Aasfotak*), the leaves of *Kanchnara* are bifid or cleft in nature (*Yugampatraka*) and are similar to the skin of the deer (*Chamarika*). The plant *Kanchnara* is an effective drug for *Gandamala* (*Gaandira*) and protects from diseases (*Kundala*). The plant comes out after breaking the ground (*Kovidara*).<sup>13</sup>

**CLASSICAL REFERENCES**

In *Brihatrayi*, there is no mention of *Kanchanara*, *Kovidara* and *Karbudara* have usually been interpreted to be two varieties, what is now known as *Kanchanara*. *Acharya Charak* has mentioned both *Kovidara* and *Karbudara* in *Vamana dravya kalpa sangraha* (C.S. Vi. 8/135)<sup>14</sup> - 786) while *Sushruta* has placed them under *Urdhva bhaagahara dravya* (Su.S. Su. 39/3)<sup>15</sup> - 147) and he has also placed *Kovidara* in *Kashaya Varga* (Su.S. Su. 43/23)<sup>16</sup> - 159). In *Bhava Prakash Nighantu*, *Kanchnara* is mentioned in *Guduchyadi Varga*<sup>17</sup>, In *Kaiyedeve nighantu*, it is mentioned in *Aushadhi varga*<sup>18</sup>; In *Dhanwantari Nighantu*, *Kovidara* is mentioned in *Guduchyadi Varga*<sup>19</sup>; In *Abhidhana ratnamala* (*Shadrassa nigantu*), *Kovidara* is mentioned in *Kashaya dravya skanda*<sup>20</sup> and in *Raja nighantu*, *Kanchnara* is mentioned in *Karviradi varga*<sup>21</sup>.

**BOTANICAL DESCRIPTION**

*Bauhinia variegata* Linn. is a small to medium sized tree with hairy branches. Leaves are 4.5-15cm long, cleft one fourth to one third way down, cordate at base with 11-15 nerves. Flowers are white-purplish, variegated, large and appear on leafless branches. Calyx 2-2.7cm long, pubescent and toothed at apex while petals are 4-5cm long, ovate obovate, the uppermost darker with purple veins. Pod is 15-30 cm long, flat, glabrous and seeds are 10-15 in number. Flowering occurs in February to April and Fruiting in May to August.<sup>22</sup>

Stem bark of *Bauhinia variegata* Linn. is dark brown, sometimes with silvery patches, rough, compact, exfoliating in woody strips and scales, outer surface with small transverse and longitudinal cracks, inner surface is white and astringent in taste.

*Bauhinia purpurea* L. is a medium sized tree with greyish to dark brown bark and pink red blaze. Leaves are 9-11 nerved, cleft about half way down into two acute or rounded lobes. Flowers are narrow, purple, pink and lavender petals arranged closely to resemble an orchid. These flowers appear on the tree from September through November. Pods are flat, slightly falcate and seeds are 12-15mm, flattened roundish and dark brown. The petals of *Bauhinia purpurea* L. are narrower and do not overlap while in *Bauhinia variegata*, the petals are broad and overlap.

*Bauhinia racemosa* Linn. is a small tree with spreading crown and its bark is grayish black with vertical cracks. Leaves are broader than long and divided one third to half way down into two halves. Flowers are white, in terminal, long racemes. Pods are 10 - 25 cm long, falcate; seeds are 10 - 20, oblong, compressed black. Flowering and fruiting from April to August.<sup>23,24</sup>

**MICROSCOPIC CHARACTERS**

A freshly cut bark is grayish brown externally and cream colored internally. The internal surface, however, gradually turns red and on drying becomes brown and smooth. The external surface remain greyish brown and rough due to large number of exfoliations and transverse cracks and fissures. A few longitudinal ridges are also seen here and there. On drying, the bark becomes curved and channelled. The fracture is short outside and fibrous within.<sup>25</sup>

**DRUG SUBSTITUTED IN THE NAME OF KANCHNAR**

Different species of *Bauhinia* viz. *B. variegata*, *B. purpurea*, *B. malabarica*, *B. racemosa*, *B. tomentosa* resemble morphologically as well as in their medicinal properties. The bark of other species are also sold in the market under the name of *Kanchnara*.<sup>26,27</sup>

**DIAGNOSTIC CHARACTERS**

Bark is grayish brown externally and cream colored internally, channelled or curved. Fracture is short outside and fibrous within. Microscopically, the

stem shows four ridges. Glandular and non glandular trichomes are present. Stem bark is of 3-4mm. Thickness shows 10-20 layers of cork cells, a wide zone of phelloderm, pericycle and phloem regions. Lignified fibres and stone cells are scattered in the phelloderm region. Phloem consists of Ceratenchyma, strands of fibres and a few stone cells. The stone cells are distributed in radial rows and tangential bands are relatively more in the inner region. Stone cells are also present in the medullary rays. Associated within the fibres are frequently found crystal fibres of 10-25 chambers, each filled with a prism of Calcium oxalate. Tannin, starch grains, resinous mass, sterols, reducing sugars and glycosides are present.<sup>28</sup>

### DISTRIBUTION

The tree is found in Sub Himalayan tract from the Indus eastward and throughout the forests of India and Burma. It is common everywhere preferring the low hills of India but largely cultivated as ornamental tree throughout the plains. So, it occurs almost throughout India ascending to about 5000 ft. elevation.<sup>29</sup> This is a very popular ornamental tree in subtropical and tropical climates, grown for its scented flowers and also used as food item in South Asian cuisine. In the Neotropics, it can be used to attract hummingbirds.<sup>30</sup>

### CONTROVERSY

Two types of *Kanchnara* have been described in *Bhavaprakash Nighantu: Kanchnar* and *Kovidar*. Different Sanskrit names have been given to them such as *Kanchanaka*, *Gandari* and *Shonapuspaka* for *Kanchanara* and *Marika*, *Kuddala*, *Yugapatraka*, *Kundali*, *Tamrapushpa*, *Asmantaka* and *Swalapakesari* for *Kovidar*. Both the drugs resemble morphologically and have similar medicinal properties. Narhari of *Raj Nighantu* and Mahendra Bhogik of *Dhanvantari Nighantu* have mentioned that *Kanchnar* and *Kovidar* both are synonyms of each other. *Raj Nighantu* has also given *Peetapushpa*, *Girija* and *Mahapushpa* as synonyms for it.<sup>31</sup>

In *Nighantu Ratnakar*, three types of *Kanchnara* have been described viz. yellow, red and white flowered, all having similar properties. *Bauhinia variegata* Linn. has been considered as *Kanchnara* by many modern workers and *Bauhinia purpurea* Linn. has been regarded as *Kovidara*.<sup>32</sup>

### CHEMICAL CONSTITUENTS

**Root:** Flavanone. dihydrodibenzoxepin. flavanol glycoside-5. 7. 3'. 4' - tetrahydroxy-3-methoxy-7-O-alpha-L-rhamnopyranosyl (1 → 3)-O-beta-galactopyranoside (Mopuru *et al.*, 2003). (2S)-5,7-dimethoxy-3',4'-methylenedioxyflavanone. dihydrodibenzoxepin. 5,6-dihydro-1,7-dihydroxy-

3,4-dimethoxy-2-methyldibenz [b,f]oxepin (Reddy *et al.*, 2003).

**Stem:** 5, 7-Dihydroxy flavanone - 4'-O-a-L-rhamnopyranosyl b-D- glucopyranoside (Gupta *et al.*, 1979), 5, 7 - dihydroxy and 5,7 dimethoxy flavanone-4-O-a-L-rhamnopyranosyl-b-D-glucopyranosides (Gupta *et al.*, 1979), hentriacontane, octacosanol, sitosterol. Stigmasterol (Prakash and Khosa. 1978), neringenin-5,7-dimethylether-4'-rhamnoglucoside, lupeol (Gupta *et al.*, 1980), 5,7,3',4'-tetrahydroxy-3-methoxy-7-O-alpha-L-rhamnopyranosyl (1 → 3)-O-beta-galactopyranoside (Yadava *et al.*, 2003), 2,7-dimethoxy-3-methyl-9,10-dihydrophenanthrene -1,4-dione named as bauginione (Zhao *et al.*, 2005).

**Flowers:** Quercitroside. Isoquercitroside, rutoside, taxifoline rhamnoside, kaempferol-3-glucoside, myricitol glycoside (Duret and Paris, 1977), apigenin-7-O-glucoside, quercetin, rutin, quercetrin (Abd-El-Wahab *et al.*, 1987), apigenin, ascorbic, aspartic, glutamic, octadecanoic acid, keto acids, amino acid, tannins (Chowdhury *et al.*, 1984), cyaniding-3-glucoside, malvidin-3-glucoside, malvidin-3-diglucoside, peonidin-3-glucoside, peonidin-3-diglucoside, 3-galactoside and 3-rhamnoglucoside of kaempferol (Saleh and Ishak. 1976).

**Seed:** Carbohydrates, proteins, amino acids, ascorbic acid, flavonoids, alkaloids, leucoanthocyanines, (Niranjan *et al.*, 1985), aspartic acid, glutamic acid, arginine, glycine, alanine, histidine, isoleucine, lysine, methionine, phenylalanine, proline, serine, threonine, tyrosine, valine (Wassel *et al.*, 1989), 5-hydroxy-7,3',4',5'-tetra-methoxyflavone 5-O-beta-D-xylopyranosyl- (1 → 2)-alpha-L-rhamnopyranoside (Yadava and Reddy, 2001)<sup>33</sup>

### PHARMACOLOGICAL ACTIVITY

**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.<sup>34</sup>

**Hypolipidemic effects:** The ethanolic and aqueous extracts of the root of *B. variegata* (200 and 400 mg/kg body weight) in rats, showed significant reduction ( $P \geq 0.01$ ) in cholesterol and significant reduction ( $P \geq 0.01$ ) in triglyceride level. The VLDL level was also significantly ( $P \geq 0.05$ ) reduced, with a significant increase in HDL.<sup>35</sup>

**Antioxidant effects:** The crude extracts and fractions of *B. variegata* were evaluated for their antioxidant potential. The antioxidant activity was performed by DPPH radical scavenging assay. Generally the lowest antioxidant activity was found in chloroform fraction. The ethyl acetate, methanol and n-hexane fractions showed moderate scavenging activity as compared to standard quercetin.<sup>36</sup>

**Antiulcer effects:** In gastric ulcer induced by pyloric ligation and in aspirin induced ulcer model in rats, the ethanolic extract of *B. variegata* decrease the volume of gastric secretion, total free acidity and ulcer index<sup>37</sup>.

**Immunomodulatory effect:** The ethanolic extract of the stem bark of *B. variegata* showed immunomodulatory activity on the primary and secondary antibody responses. It was also increased phagocytic index and percentage neutrophil adhesion.<sup>38</sup>

**Antimicrobial effects:** The antibacterial (against *Escherichia coli* MTCC 64, *Enterobacter aerogenes* MTCC 111, *Klebsiella pneumoniae* MTCC 39, *Pseudomonas aeruginosa* MTCC 424, *Salmonella typhi*, *Bacillus subtilis* MTCC 121), of the ethanolic extracts of *Bauhinia variegata* were investigated in vitro. It appeared that the extracts were more effective against gram positive compared to gram negative bacteria.<sup>39</sup>

**Anti-inflammatory effects:** Phytochemical analysis of non woody aerial parts of *Bauhinia variegata* yielded 6 flavonoids with one triterpene caffeate. These seven compounds showed anti-inflammatory activity, they inhibited the lipopolysaccharides and interferon  $\gamma$  induced nitric oxide (NO) and cytokines.<sup>40</sup>

**Nephroprotective effect:** The antioxidant and nephroprotective effect in gentamicin-induced nephrotoxicity of the ethanolic and aqueous extracts of root of *Bauhinia variegata* Linn (200 and 400 mg/kg bw, orally) was examined in rats. Both ethanolic and aqueous root extracts of *Bauhinia variegata* produced significant free radical scavenging activity. Both extracts produced significant nephroprotective activity in gentamicin induced nephrotoxicity model as evident by decrease in elevated serum creatinine, serum urea, urine creatinine and BUN levels, which was further confirmed by histopathological study.<sup>41</sup>

**Hepatoprotective effect:** The ethanolic extract of the stem of *B. variegata* showed chemoprevention against N-nitrosodiethylamine induced experimental liver tumor in rats. Ethanolic extract suppressed liver tumor induced by N nitrosodiethylamine as revealed by decrease in N-nitrosodiethylamine induced elevated level of serum glutamate pyruvate transaminase, serum glutamate oxaloacetate transaminase, alkaline phosphatase, total bilirubin, gamma glutamate transpeptidase, lipid peroxidase, glutathione peroxidase and glutathione-S-transferase. The ethanolic extract of the stem bark of *B. variegata* (at the dose of 100 and 200 mg/kg orally) showed hepatoprotective activity against carbon tetrachloride induced hepatotoxicity in rats, it decreased the level of AST, ALT, ALP and GGTP.<sup>42</sup>

**Effect on wound healing:** Excision and incision wound models in albino Wistar rats, were used to evaluate the wound healing activity of the ethanolic and aqueous extracts of root of *Bauhinia variegata* at dose of 200 and 400 mg/kg bw. Both aqueous and ethanolic extracts of root of *Bauhinia variegata* at both doses produced significant wound healing by excision and incision wound models, which was comparable to that of standard (framycetin) in excision wound model.<sup>43</sup>

**Molluscicidal effects:** The molluscicidal activity of *Bauhinia variegata* leaf was studied against vector snail *Lymnaea acuminata*. The toxicity of the plant was time and concentration-dependent. Among organic extracts, ethanol extracts of the plant were more toxic. The toxicity of *B. variegata* leaf ethanolic extract was (96h LC3TR 50R3T- 14.4 mg/L). The 24h LC3TR 50R 3T of column purified fraction of *B. variegata* was 20.3 mg/L. Saponin and quercetin were characterized and identified as active molluscicidal component.<sup>44,45</sup>

**Anti-diabetic action:** Oral administration of ethanolic, aqueous and hydro-alcoholic extract of leaves and stem bark of *Bauhinia variegata* at different doses i.e 200 and 400 mg/kg in streptozotocin (STZ) and alloxan-induced diabetic rats reduced the elevated blood glucose level by increasing glucose metabolism.<sup>46</sup>

**Anti-cancer activity:** An in vitro study revealed that *Bauhinia variegata* extract showed anti-cancer activity by inhibiting the growth of these cell lines<sup>47</sup>. Another study found that 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.<sup>48</sup>

**Anti tubercular activity:** The clinical studies have revealed that preparation of stem bark of *Bauhinia* enhance the effect of Anti-tubercular drugs used in case of Tubercular Cervical Lymphadenitis.<sup>49</sup>

**Other activities:** The alcoholic extract of stem bark showed CNS activity. Besides producing hypothermia in mice, it also responded to amphetamine hyperactivity test.<sup>50</sup> Its use in the treatment of experimental goiter in rats have been reported.<sup>51</sup>

## AYURVEDIC PROPERTIES AND PHARMACOLOGICAL EFFECT

According to Ayurveda Literature, *Kanchnara* is *Kashaya* (astringent) in taste (*Rasa*), light (*Laghu*), dry (*Ruksha*) in properties (*Guna*), pungent (*Katu*) in metabolism (*Vipaka*); cold (*Sheeta*) in potency (*Veerya*); *Gandamala naashak* in Specific action (*Prabhava*). Due to these properties, it pacify *Kapha* and *Pitta dosha* while aggravate *vata dosha*.<sup>52</sup> *Twak of Kanchanara* is highly beneficial in curing ailments like *Gandamala*, *Krimi*, *Kushtha*, *Kasa*, *Vranavikara*, *Atisara*, *Apachi* and its *Pushpa* are useful in *Pradara*, *Raktapitta*, *Kasa* and *Shwasa*.<sup>53</sup> *Charak* has mentioned about the use of flower of both *Kovidara* and *Karbudara* as *Grahi* and *Raktapitta shamaka* (*C.S. Su. 27/104*)<sup>54</sup>

*Sushruta* mentioned about the properties of *Kovidara pushpa* as they are sweet (*Madhura*) in taste (*Rasa*) and metabolism (*Vipaka*) and can cure bleeding disorders (*Raktapitta shamaka*) (*Su.S. Su. 46/ 281*)<sup>55</sup> while the *Karbudara* is sweet (*Madhura*) in taste (*Rasa*) and metabolism (*Vipaka*) and *Vata pitta shamaka* (*Su.S. Su. 45/120*)<sup>56</sup>

**MEDICINAL USES**

1. *Charak* has indicated powder of its flower to be licked with honey to check bleeding disorders. (C.S. Chi. 4/39,70)<sup>57</sup>
2. *Charak* has mentioned about use of *Kovidara* as *Vamana karaka* (C.S. Ka. 1/16)1082, (C.S. Ka. 5/8)<sup>58</sup>.
3. *Charak* has indicated use of *Kovidara* along with other drugs in the form of *Khad yusha* for curing bleeding piles (C.S. Chi. 14/202)<sup>59</sup>
4. *Acharya Charak* has also mentioned about the use of *Karbudara* and other drugs like *Yava*, *Tila*, *Upodika* in the form of *Niruha Vasti* to cure *Parisrava* (C.S. Si. 7/61)<sup>60</sup>
5. *Acharya Charak* has also mentioned about the use of *Karbudara* and other drugs like *Aadhki*, *Kadam* and *Vidula* in the form of *Vasti* to cure *Parikartika* (C.S. Si.10/34)<sup>61</sup>
6. *Sushrut* told to ingest *Kovidara* along with *Shirish*, *Arka* and *Katbhi* in case of snake bite (Su.S. Ka. 5/17)<sup>62</sup>
7. *Sushruta* has also suggested the use of powder of *Madhuka*, *Shobhanjan*, *Kovidara* and *Priyangu* for curing bleeding disorders (*Raktapitta*) (Su.S. U. 45/19)<sup>63</sup>
8. *Sushruta* has also mentioned use of *Karbudara* with other drugs like *Varshabu*, *Mulethi*, *Twaka*, *Jeeraka* along with milk for curing *Madaatya* (Su. S. U. 47/46)<sup>64</sup>
9. Powder of root bark of *Kovidara* along with butter milk with suitable diet is also a good remedy to cure Haemorrhoids (A.H.Chi. 8/31)<sup>65</sup>
10. According to *Sharangdhar*, one should regularly take bark of *Kanchnara* stem and *Shunthi* to cure *Gandamala* (lymphadenitis) (Sha. S. 2/2/124)<sup>66</sup>
11. In case of measles (*Masurika*), decoction prepared with bark of *Bauhinia* should be given with *Swarna makshik bhasma* (B.P. Chi. 60/49)<sup>67</sup>
12. Decoction of the bark of *Kanchnara* with powder of *Shunthi* added with lot of honey can cure scrofula (*Gandamala*) which is persisting from a long time. (B.P. Chi. 44/36)
13. Bark of *Kanchnara*, one pala (40gm.) or half *Pala* (20gm.) macerated with rice wash and consumed cures scrofula (*Gandamala*) (B.P. Chi. 44/37)<sup>68</sup>
14. The fresh bark of *Kanchnara* mixed with *Shunthi* is pounded with sour gruel and given in *Gandmala* (Chakradutta 41/18)<sup>69</sup>
15. Soup of flowers of *Kovidara* and *Karbudara* along with flowers of *Sana*, *Shalmali*, *Dhatki*, *Padma* is cooked with *Dadima* without oil and is given in *Asrigdara*, *Raktapitta*, *Daha* and diseases of eye and abdomen. (Ka. S. Khi. 4/48)<sup>70</sup>
16. A gargle made from the bark with the addition of extract of *Acacia* Pods and *Pomegranate* flowers is a remedy in salivation and sore throat and decoction of buds in cough, bleeding piles, haematuria and menorrhagia. Dried buds are also useful in diarrhoea, worms, piles and dysentery.<sup>71</sup>

17. *Kanchnara* bark added with three myrobalans or *Triphala* and *Pippali churna* is recommended in *Gandamala* as well as *Galganda* (Goitre). *Kanchnara* bark pounded in rice water can also be given for curing *Gandamala*. *Kanchnara guggul* is also a prominent formulation in Indian medicine which is frequently administered for treatment of *Galaganda*, *Gandamala*, *Granthi* and other allied diseases<sup>72</sup>. In *Siddha* medicine, one of its important pharmaceutical preparation is *Mantharai Kudineer* and it is used for *Vata* disorders and Skin diseases.<sup>73</sup>

**PART USED**

Stem bark, flower bud, flower, tender pod<sup>74</sup>; roots and bark<sup>75</sup>.

**FORMULATIONS**

*Kanchanara Guggulu*, *Kanchan gutika*, *Gandamala kundan rasa*, *Gulkand Kanchanara* and *Kanchanaradi Kwatha*.<sup>76</sup> *Ushirasava*, *Chandanasaava*, *Vidangarishta*, *Kanchanara drava*, *Kanchnara Varuna Kwatha*<sup>77</sup>

**DOSAGE**

Bark powder: 3-6 gm, Decoction: 40-80ml, Flower juice: 10-20ml<sup>78</sup>.

**CONCLUSION**

This paper is an attempt of the author to give a detail review on this important medicinal plant used in Indian system of medicine - *Kanchnara* (*Bauhinia variegata* Linn.). In this article, we had discussed about the classical references, phytochemicals, pharmacognostical and pharmacological properties of *Bauhinia variegata*. The various phytochemical present in it are flavonoids, glycosides, alkaloids, tannins and terpenoids which act as active biological constituents and are responsible for different pharmacological actions of *Bauhinia variegata* Linn. The present paper also revealed that *Bauhinia variegata* Linn. act as anti-diabetic, anti-oxidant, anti-ulcer, immunomodulator, nephroprotective, anti-microbial, anti-bacterial, anti-cancer and hepatoprotective agent.

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