



Bauhinia Variegata & Hypothyroidism—An Evidence Based Literary Review

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ABSTRACT: *In today's era, the horizon of the Ayurvedic treatment in regard to disorders related to stress and lifestyle has increased extremely. For almost all ailments that demand regular and long-term drug intake, patients are turning to the Ayurvedic treatment modality for an alternative to those synthetic pills. Hormonal imbalance is an outcome of lifestyle modification, where the incidence of hypothyroidism is commoner in females than males which is 2-8 times higher. The prevalence of Thyroid is reported in three to five percent of the population which accounts for one case in a thousand. The management of the disease in other systems of medicine is limited to lifelong intake of drugs which have adverse effects on population over long term ingestion. Presently, there is an urgent need to offer a cure which is safer and sufficiently effective so that the patients can be safe from the hazards of the adverse effects of available treatment modalities. The Ayurveda system of medicine has a vast literature including diverse flora which have significant medicinal properties. Kanchanar is one among them which carries the potential to offer significant results in hypothyroidism which is highlighted in the present work which aims to generate the evidence base to substantiate the same.*

KEYWORDS: *Ayurveda, Kanchanar, Agni, Hypothyroidism, Lifestyle Disorder.*

INTRODUCTION

Modern tech-savvy generation is now days under the clutches of so-called lifestyle disorders rather better termed as the diseases of civilization. Metabolic Disorders like Diabetes Mellitus, Thyroid Dysfunctions etc. are getting commoner day by day as the newer generations are heading towards technology and stress. The largest endocrine gland, Thyroid plays vital role in metabolism through its hormones. Hypothyroidism refers to any state which results from under secretion of thyroid hormone from the gland. The incidence of thyroid disorders & hypothyroidism is increasing many folds' day by day to which India too, is no exception. The prediction from various studies estimated the hypothyroidism prevalence in India as 11%, compared with only 2% in the UK and 4-6% in the USA [1]. An epidemiological study conducted at eight sites in India established that the hypothyroidism affected 1 in 10 adults in the study population [2]. In the United States, the commonest reason of primary hypothyroidism is chronic autoimmune thyroiditis (Hashimoto's disease).

Other responsible factors related to the thyroid gland include surgical elimination, ablation with radioactive iodine or replacement by tumor (lymphoma). External irradiation, biosynthetic defect in iodine organification and drugs such as lithium or interferon also contribute to the primary causes while Secondary causes involve pituitary and hypothalamic disease [3]. Thyroid hormone is essential for the physiological events of the body tissues. Not enough iodine, or TSH, can affect the thyroid hormones synthesis [4].

Even with the present-day advances, the management of Hypothyroidism remains insufficient, as the medicines recommended require lifelong consumption with undesired repercussions, hence there is a need to look for an effective drug with greater safety. The etiopathogenesis and consequences of hypothyroidism predict that there is a need for a systemic and radical therapy where Ayurveda can offer a ray of hope. Though Hypothyroidism is not mentioned under a specific disease in Bruhatrayee (Classical texts of Ayurveda), yet multiple scattered references are available throughout the texts. Nindita Purushas (people who are not accepted well by the society due to their appearance), disorders of Agni and Avarana (various manifestations of vata disorders) can be understood well on the grounds of various hormonal disorders including Hypothyroidism in particular [5]. On a keen insight to the pathogenesis of hypothyroidism as per the principles of Ayurveda, it can be stated that it is resultant of dysfunction of the Agni. Jatharagni Mandata (Hypo functioning of digestive fire), which further affects Dhatvagni and eventually, brings out pathological cascade leading to the disease. The Ayurvedic pathogenesis can be understood as the Margavarana causing Vitiation of Vayu which along with the Kapha associated Pitta Dushti at Annavaha, Rasavaha and Medovaha Srotas predominantly [6].

Aim and Objectives

The present work aims to highlight the potential of Kanchnar (*Bauhinia variegata*) in treatment of Hypothyroidism with an objective to offer a safer yet potent drug for the management of Hypothyroidism. The classical texts of Ayurveda along with the published previous research works were analyzed extensively to generate the evidence base to substantiate the hypothesis that kanchnar (*Bauhinia variegata*) is a potent drug of great importance in the management of Hypothyroidism.

KANCHANAR (*Bauhinia variegata*)

Kanchnar has been described as *Grahi*, *Krimighn*, *Kushthaghn*, *Vranapaha*, *Gandmalanashaka*, *Shleshm-Pitta Hrit* in classical texts of Ayurveda [7]. The synonym of Kanchnar as “*gandari*” itself indicates its property as anti-goiter drug.

Table 1: Shows Properties of Kanchnar

Drug	Botanical name	Family	Rasa	Guna	Virya	Vipaka	Karma
Kanchnar twak (Stem Bark)	Bauhinia variegata Blume	Leguminosae	Kashaya	Ruksha; Laghu	Sheeta	Katu	<i>Grahi</i> ; <i>Shlesham- Pittnut</i> ; <i>Gandmala- Vranapah</i> ; <i>Krimi- Kushth- Gudbhranshn ashak</i>

The action of *Kanchanar* in cases of goiter is most probably by its *Gandmalanashak prabhava* (*specific action*), not merely by *rasa, guna, veerya or vipaka*. As per the classics of Ayurveda, *Kanchanar* is categorized as *Vamanopaga* (helps in emesis) [8]. The properties of *Kanchanar* as mentioned in the classical texts of *Ayurveda* are listed in Table 1.

In addition to this *kanchanar* is also thyroid stimulating drug. Its bark is described as alternative tonic astringent and is useful in skin diseases and ulcers. It is also used to remove intestinal worms and to prevent the decomposition of the blood. It has been found a useful remedy in asthma, wounds and tubercular glands. Various medicinal properties of the drug can be substantiated through the research works listed in Table 2.

Table 2: Various medicinal properties

Plant Part	Leaves, Roots, Bark & Flowers
Physio-chemical properties:	The oils of <i>B. variegata</i> show a refractive index of 1.4589 ± 0.001 at 40 °C & iodine value of 84.5 ± 1.6 (g of I ₂ /100g of oil) Extractive values of the leaves account for 11.5% Methanol, 17.6% Alcohol, 5.84% benzene, 0.45% Petroleum ether & 1.10% of Chloroform while that of the bark are 13.2% Methanol, 19% Alcohol, 5.70% benzene, 0.52% Petroleum ether & 1.25% of Chloroform [9].
Anti-inflammatory effect:	Ali Esmail et.al. reported six flavonoids along with one triterpene caffeate from the non woody aerial parts of <i>Bauhinia variegata</i> which depicted anti-inflammatory activity. ¹⁰
Immuno-modulatory effect:	Ghaisas MM et.al found that the ethanolic extract of the stem bark of <i>B. variegata</i> showed immunomodulatory activity on the primary and secondary antibody responses, increased phagocytic index and percentage neutrophil adhesion [11].
Hypo-lipidemic:	Balamurgan G et. al. reported that the ethanolic and aqueous extracts of the root of <i>B. variegata</i> in rats, showed significant reduction in cholesterol, triglyceride and VLDL level with a significant increase in HDL. The treatment of obese animals with the methanolic extract of <i>B. variegata</i> exhibited an increased brain serotonin level and high-density lipoprotein with concomitant decrease in total cholesterol, triglycerides and low-density lipoprotein [12].
Wound healing:	Irchhaiya et. al. reported the Aqueous and ethanolic extracts of root of <i>Bauhinia variegata</i> show significant wound healing by excision and incision wound models, in comparison to the standard (framycetin) in excision wound model [13].
Hepatoprotective:	Bodakhe SH reported that in carbon tetrachloride induced hepatotoxicity in rats, the ethanolic extract of the stem bark of <i>B. variegata</i> showed hepatoprotective activity at the dose of 100 and 200 mg/kg orally and decreased the levels of AST, ALT, ALP and GGT [14].
Antiulcer effects:	The ethanolic extract of <i>B.variegata</i> decreased the volume of gastric secretion, total free acidity and ulcer index in gastric ulcer induced by pyloric ligation and aspirin in rat models [15].
Clinical report:	Recent clinical reports highlight the role of <i>B. variegata</i> in the treatment of experimental goiter in rats [16].

Kanchanar is classically used in simplest form as *Kanchanar Twak Churna*. *Churna* is a fine powder of drug or drugs. Any dried substance when grinded into fine powder and then sieved is defined as *churna* [17]. *Kanchanar* stem bark is finely powdered and sieved after cleaning

and drying properly for the preparation of Kanchanar Twak Churna. Various other preparations of Kanchanar are available which can be used according to the condition & availability.

DISCUSSION

Kapha Dosh & *Agni* vitiation forms the base of the Aetiopathogenesis of Hypothyroidism which can be expurgated through *Kanchnaar* based on its *Katu vipaka*, and *kapha pittahara* properties. *Kanchnaar* also known as “*gandari*” which itself indicates its antigoiter property. It has *Gandmalanashak* (curative effect in swollen lymph nodes, cervical adenitis, scrophularia or swollen glands) *Prabhava* (specific action). *Kanchnaar* preparations are useful in the treatment of hypothyroidism. *Chakradatta* recommends *Kanchnaar* for a condition called *gandamala* (a disorder of thyroid gland dysfunction). This property makes it work directly at the level of the thyroid gland. *Kanchnaar* reduces the inflammation of the lymph nodes. In menorrhagia, *Kanchnaar* acts as a haemostatic by astringent property and hence relieves the patient symptomatically too. The common cause of hypothyroidism is autoimmunity. The ethanolic extract of the stem bark of *B. variegata* showed immunomodulatory activity on research. The iodine component present in the drug is also suggestive of its anti-hypothyroid activity.

CONCLUSION

It can be concluded that Hypothyroidism is not mentioned in the classics as a separate chapter. *Kaphaja Grahani* [18], *Kaphaja Pandu* [19], *Bahudoshavastha* [20] described in the classics depict a resemblance with the same. As per the Ayurveda principles of Diagnosis of any disease, Hypothyroidism can be deduced as *Agni* Dysfunction at the level of *Dhatvagni*. It is evident that Kanchanar Twak Churna possess various properties & active components which can effectively manage the hypothyroidism in patients and this can be a potent drug against the disease.

Competing Interests

Authors declare that no competing interests exist.

Authors' contributions

The present work was carried out by all the authors in collaboration. All authors have read and approved the final manuscript.

Consent: Not applicable.

Ethical approval: Not applicable.

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