



"UNVEILING THE TAXONOMIC & ETHANO-BOTANICAL POTENTIAL OF *GUILANDINA BONDOC* L. (Fabaceae): A REVIEW OF CURRENT RESEARCH AND FUTURE DIRECTIONS". A New Distributional Report from district Shamli in North- Western Uttar Pradesh, India.

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Abstract

G. bonduc L., (also known as “fever nut” Bonduc nut and Nicker nut belongs to the sub family of Caesalpinaceae), the term Bonducella which is the name of dominant species is derived from an Arabic word Bonduce signifies it as a little ball which denotes the globular shape of the seed, a plant with a history in taxonomic features, is gaining attention for its diverse traditional medicine. This review synthesizes current research on *G. bonduc* L., exploring its ethano-botanical activities. The study highlights the plant's applications in treating various ailments, including cancer, diabetes mellitus, anti-filarial, larvicide effect, antioxidant agent effect as documented in traditional Indian medical systems like Ayurveda and Unani. This comprehensive overview aims to provide insights into the medicinal potential of *G. bonduc* L. and encourage further research to unlock its full medicinal value.

Keywords: *Guilandina bonduc* L., legume, globose, ethano-botanical uses.

Introduction

Shamli is located at 29.45370 N and 77.32 E. It has an average of 248 meters (813) feet. It is around 92 km from Delhi 38 km from Panipat, 66 km from Meerut, 40 km from Karnal (Haryana) and Saharanpur (Uttar Pradesh). Hence, it has been considered worthwhile to study the angiospermic plants of north-west Uttar Pradesh and the results are presented in the Paper. It lies to east of the Yamuna River which marks the borders of two Indian state Haryana and Uttar Pradesh. The district lies in the fertile doab region between the Ganga and Yamuna. Shamli is located along with Delhi - Saharanpur (National highway -709) Meerut – Karnal (National highway - 709A) and Panipat - Khatima (State highway - 12), highway the district lies in the fertile doab region and hence the major occupation is agriculture. The district was carved out from the Muzaffarnagar district on 28 September 2011 as Parbudh Nagar and renamed Shamli in July 2012. At present, district Shamli is divided in three tehsils viz. Shamli, kairana and Oon, and five blocks viz. Thanabhawan, Khandhla, Shamli, Oon, and Kairana. Field surveys were carried out in Shamli, kairana Block Thana Bhawan, Village Gurana that lie between 29.6160° N, 77.3504° E. Geographical coordinates were recorded using Nikon D 5300 HD-SLR Camera with Geo Tag simultaneously plant morphological description arranged with the help of DELTA software.

We examine the identified in *G. bonduc*, such as flavonoids, alkaloids, and terpenoids, and their contribution to its medicinal properties. Furthermore, this review discusses the existing scientific evidence supporting the plant's efficacy, including in vitro and in vivo studies. Finally, it identifies gaps in current research and

suggests future directions, such as the need for more clinical trials, exploration of specific mechanisms of action, and investigation of novel applications.

World Journal of Pharmaceutical Research *G. bonduc* L., commonly referred to as fever nut, nicker bean, bonduc nut, and knicker nut, is a member of the Fabaceae family. This plant can be found in various parts of Asia, Africa, South America, and regions of southern North America. It thrives at altitudes of up to 1000 meters in the Himalayas and is often seen in desolate areas throughout India, where it particularly flourishes in tropical and delta landscapes, especially within evergreen and moist deciduous forests. *G. bonduc* is also commonly utilized as a fencing species in agricultural zones. All parts of this plant—roots, stems, leaves, seeds, and seed pods— have been extensively used in different traditional Indian medical practices, including Ayurveda, Siddha, homeopathy, and folk medicine. In Ayurveda, it is recognized for its use in treating cysts, tumors and cystic fibrosis.

Taxonomic Character:

1. *G. bonduc* L., Sp. Pl.: 381 (1753); *Caesalpinia bonduc* (L.) Roxb. in Fl. Ind. 2: 362 (1824); *Caesalpinia jayabo* var. *cyanosperma* M.Gómez in Anales Soc. Esp. Hist. Nat. 19:234 (1890).

Climbers, prickly, yellowish pubescent throughout. Prickles straight or somewhat recurved. Leaves aerial, 30–50 cm long, rachis with recovered prickles; pinnae 6–8 pairs, opposite, 15–20 cm long; stipules deciduous, large, foliaceous, bifid; leaflets 8–12 pairs, 3–4.5 x 1.5–2 cm, entire, mucronate, apex rounded or acute or mucronate, base oblique. Flowers in axillary or terminal 15–30 cm. long racemes; pedicel 0.5–0.7 cm long, long peduncle. Stamen 10, free declinate. Pods 5–8 x 4.5 – 5.5 cm, coriaceous, dehiscent, oblong-ovoid, covered with sharp, 0.5–0.8 cm long prickles. Ovary hairy. Fruit legume, oblong, apex rounded & with beak. Seed grey, ovoid to globose, shiny. Seeds 2 or 3, large, hard. (Plate no.).

Fl. & Fr.: Jul.-May.

Collection: Block Thana Bhawan, Village Gurana.

Location: 29.6160° N, 77.3504° E

Note: Very common throughout the district in waste lands, place, dry land and fields.

Use: In large doses the plant is believed to be poisonous. Its leaves and bark are considered emmenagogue, febrifuge and anthelmintic. A decoction of the leaves is used to treat sinusitis, and of the roots for fatigue. Seeds yield a bitter, resinous principle, named bonducin. - Fatty oil yields glycerides of palmitic, stearic, lignoceric, oleic, and linoleic acids, two phytosterols and a hydrocarbon similar to heptacosane. In a study of six plants used in traditional medicine for malaria, *C. bonducella* and *Cassia abbreviata* leaf ethanol extracts showed the highest promise for future research.

Investigated the alcohol and aqueous seed extracts (protection against cardiac necrosis), dried seed kernels of *C. bonduc* extract as a learning and memory enhancer. The methanolic extract of *C. bonduc* leaves has considerable antiulcer activity. Seed kernel of *G. bonducella* had substantial antidiabetic and hypoglycemic properties.



Plate no - A



Plate no -B



Plate no - C



Plate no - D



Plate no - E

Plate no: *Guilandina bonduc* L. - Plate no A- Habitat, B- Twig, C- Flowers, D-Fruits, E- Seeds

Guilandina bonduc L.

Synonym: *Caesalpinia bonduc* (L.) Roxb.

Basionym (original name): *Dolichos bonduc* L.

Family: Fabaceae (Leguminosae)

Subfamily: Caesalpinioideae

Classification (Taxonomy)

Kingdom: Plantae

Clade: Angiosperms Clade: Eudicots Clade: Rosids

Order: Fabales

Family: Fabaceae

Genus: *Guilandina*

Species: *Guilandina bonduc*

Common Names

English: Gray Nicker, Bonduc nut Fever Nut Fever-Nut Physic nut Physic-Nut

Hindi: कटकरंज Kat-karanj, कटकलेजी Kat-kaleji, गजगा Gajga.

Tamil: Kazharchikai

Ayurveda: Latakaranja

Reference;

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