



“A Review on Pharmacognostic study of Aparajita”

Harshada Hanumant Bhosale,¹ Priyanka Shivaji Lokare,² Dnyaneshwari Monohar Bhagat,³ Gayatri Ashok Gadade⁴, Sonali Ganpat Bhosale⁵, Khade Priyanka Maruti.⁶

¹Lecturer, Anusaya institute of pharmacy,

²Student, Dattakala college of pharmacy,

³Assistant professor, Anusaya institute of pharmacy,

⁴Anusaya institute of pharmacy,

⁵ Student, Institute of pharmaceutical science and research for girls,

⁶ Lecturer, Dattakala Institute of pharmacy

ABSTRACT :

Aparajita is listed as a significant herb in all of the Ayurvedic old texts. This attractive twining herb is a typical garden flower plant found across India, particularly in the southern regions. *Clitoria ternatea* is the scientific name for Aparajita, and it is a member of the Fabaceae (Papilionaceae) family. India's *C. ternatea* is a garden plant that has been utilised for many ailments in traditional and folklore medicine.

Common names for *Clitoria ternatea* L. (Fabaceae) include Aparajita, Shankapushpi, and Butterfly Pea. The initial histochemical and phytochemical analyses revealed the presence of flavonoids, terpenoids, alkaloids, saponins, and anthraquinone glycosides, among other compounds.

This plant is a trailing creeper that produces both the uncommon white flowers, which are more like pale cream with a trace of green around the edges, and the common indigo blue flowers. With its front open, it really does look like a cute little Snapdragon flower. Insect bites, skin conditions, asthma, burning sensation, ascites, inflammation, leucoderma, leprosy, hemiparesis, dementia, and pulmonary tuberculosis were among the many pharmacological effects that the plant demonstrated. Other pharmacological effects included antimicrobial, antioxidant, anticancer, hypolipidemic, cardiovascular, central nervous system, respiratory, immunological, anti-inflammatory, analgesic, and antipyretic effects.

Keyword: *Clitoria ternatea*, Aparajita, Shankapushpi, anticancer.

Introduction :

Clitoria ternatea L., also referred to as Gokarna, Shankapushpi, or Aparajita, is a climber. It is a member of the Fabaceae family.^[1]

Synonyms:

Clitoria albiflora Mattei, *Clitoria bracteata* Poir., *Clitoria mearnsii* De Wild., *Clitoria tanganicensis* Micheli, *Clitoria zanzibarensis* Vatke^[2].

Numerous pharmacological properties of this plant, including its antihistaminic, anthelmintic, hypoglycemic, antidepressant, and sedative properties, have been the subject of scientific investigation.^[3]

Clitoria ternatea features 0.5–3 m long, twining delicate stems. The leaves are pinnate and have 5–7 small elliptic to lanceolate leaflets that are 3–5 cm long, pubescent below. Flowers are solitary, 4–5 cm long, very short pedicellate, and blue-mauve to deep blue in colour. With up to ten seeds, the flat, linear, beaked pods are 6–12 cm long, 0.7–1.2 mm diameter, and somewhat pubescent. The seeds are 4.5–7 mm long and 3–4 mm broad, with an olive, brown, or black hue that is frequently speckled.^[4]



Vernacular name-

Sanskrit: Ardrakarni, Girikarnika, Ashphota, Aparajita Saukarnika, Supuspi, Mohanasini, Vishadoshaghni, Shwetanama, Vishnu-Kranta, Ashwakhura.

Hindi: Aparajita, Beng, Oriya: Aparajit.

Gujarati: Koyala, Garani, and Bismar.

Marathi: Gokurna

English: pigeon wings, mussel-shell climber, butterfly pea, and blue pea vine ^{[5],[6]}.

Chemical constituents:

The plant was found to contain tannins, phlobatannin, proteins, alkaloids, anthraquinone, anthocyanins, cardiac glycosides, phenols, carbohydrates, saponins, triterpenoids, phenols, flavanoids, flavonol glycosides, and volatile oils in addition to steroids. ^{[7],[8]}

1) Flower :

Alkaloids, Glycosides, Phytosterols, Saponins, Tannins, and Carbohydrates

Uses: Analgesic, anti-inflammatory, and antidiabetic properties of ethanol extract ^{[9],[10]}

2) Leaf:

alkaloids, flavonoids, steroids, glycosides, and reducing sugars.

Uses:

effectively reduces excessive perspiration and prevents diabetic mellitus and neurological disorders. ^{[11],[12]}

3) Root:

1,1-diphenyl-2-picrylhydrazyl is the root (DPPH).

Uses:

The root bark is used as an antioxidant and has laxative and diuretic properties; a decoction is administered as a demulcent for bladder and urethral discomfort.

4) Seed:

The seeds include vital amino acids, delphinidin-3,3,5-triglucoside, and nucleoprotein, which has an amino acid sequence comparable to insulin. pentosan, water-soluble mucilage, adenosine, an anthoxanthin glucoside, greenish yellow fixed oil a phenol glycoside,

3,5,7,4-tetrahydroxy-flavone-3-rhamoglycoside, an alkaloid, ethyl D-galactopyranoside, p-hydroxycinnamic acid polypeptide, a highly basic proteininfotin, a bitter acid resin, tannic acid, 6% ash and a toxic alkaloids.

Uses:

Seeds have aperient, purgative, and cathartic properties. They are applied to enlarged viscera in the abdomen, dropsy, and swollen joints. ^{[13],[14],[15]}

**PHARMACOLOGICAL USES:****1. Neuro-pharmacological activity :**

According to reports, *C.ternatea* has neuroprotective properties that may be related to its anti-inflammatory and anti-oxidant properties. It has demonstrated potential in enhancing cognitive function and avoiding neurodegenerative diseases. ^[15]

2. Antidiabetic effect:

In Streptozotocin-induced diabetic rats, the hypoglycemic effects of methanol, water, petroleum ether, and chloroform extract of *Clitoria ternatea* leaves were assessed for both acute and subacute effects. Rats with diabetes induced by streptozotocin showed a significant reduction in blood glucose levels when exposed to 200 and 400 mg/kg of *Clitoria ternatea* extract. Significant hypoglycemic effects were seen with 400 mg/kg; 200 mg/kg also reduced glucose levels, but not as much as 400 mg/kg.

The results of the methanol extract's acute effects revealed that 200 and 400 mg/kg had fairly similar effects, however that 200 mg/kg initially caused a slight drop in blood glucose levels after 30 minutes. Subacute activity demonstrated that, over the long run, 200 mg/kg of extract is far more effective than 400 mg/kg in controlling blood glucose levels. ^[16]

3. Antibacterial effect :

Clitoria ternatea's characteristics were examined using the well diffusion and agar disc procedures. Extracts from the leaves of Clitoria ternatea were evaluated against Salmonella typhi, Bacillus cereus, Staphylococcus aureus, Proteus vulgaris, and Klebsiella pneumonia using organic solvents (petroleum ether, ethyl acetate, and methanol). Promising antibacterial efficacy against the studied microbiological pathogens was demonstrated by the results. Comparing the extracts, it was discovered that the methanol extract had a stronger inhibitory effect than the others.^[17]

4. Hypoglycemic Effect :-

The effect of orally administered aqueous extracts (400 mg/kg body weight) of C. ternatea leaves and flowers were examined in control and test group of rats on insulin, glycosylated hemoglobin and serum glucose. The aqueous extracts of C. ternatea leaves and flowers significantly ($P > 0.05$) increased the liver and skeletal muscle glycogen, the activity of the glycolytic enzyme and glucokinase serum insulin but able to reduce the serum glucose, glycosylated hemoglobin and the activities of gluconeogenic enzyme, glucose-6- phosphatase. Following all of the biochemical testing, the rats given with leaf extract showed nearly the same profile as the rats treated with flower extract. ^[18]

REFERENCES:

1. Almeida MR. Flora of Maharashtra. Vol. 2. Mumbai: Oriental press. 1998; 22-30.
2. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network-(GRIN), National Germplasm Resources Laboratory, Beltsville, Maryland. URL: <http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?10942> (24 June 2015).
3. Pati AP, Patil VR (2011) Comparative evaluation of hepatoprotective potential of roots of blue and white flowered varieties of *Clitoria ternatea* Linn. Pelagia Research Library. Der Pharmacia Sinica 2: 128-137.
4. Hall, T., J., Adaptation and Agronomy of *Clitoria ternatea* L. in Northern Australia, Tropical Grasslands, 19(4): 156-163, (1985).
5. The Plants Database, database (version 4.0.4). National Plant Data Center, NRCS, USDA. Baton Rouge, LA 70874-4490 USA.
6. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network-(GRIN), National Germplasm Resources Laboratory, Beltsville, Maryland. URL: <http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?10942> (24 June 2015).
7. Kamilla L, Mnsor SM, Ramanathan S and Sasidharan S. Antimicrobial activity of *Clitoria ternatea* (L.) extracts. Pharmacologyonline 2009; 1: 731-738.
8. Mukherjee PK, Kumar V, Kumar NS and Heinrich M. The Ayurvedic medicine *Clitoria ternatea*- from traditional use to scientific assessment. Journal of Ethnopharmacology 2008; 120(3): 291-301.
9. Srivastava V, Khaan S and Banerjee S. An evaluation of genetic fidelity of encapsulation microshoots of the medicinal plant: Cineraria maritime following six months of strong. Plant Cell, Tissue and Organ Culture. 2009; 99:193-198.10.
10. Malik K, Manvi FV and Agarwadi KR. Evaluation of anti-inflammatory activity of *Gymnema Sylvestre* leaves extract in rats. International Journal of Green pharmacy. 2008;2(2):114-115
11. Scalbert A, Manach C, Morand C, Remesy C and Jimenez L. Dietary polyphenols and the prevention of diseases. Critical Review on Food Science and Nutrition. 2005; 45: 287-306.
12. Nadkarni AK. Indian Materia Medica. 3rd Ed., Bombay; Popular Prakashan 1992: Vol-I, pp. 354]
13. Braca A, Sortino C, Politi M, Morelli I and Mendez J. Antioxidant activity of flavonoids from *Licania linariaeflora*. Journal of Ethnopharmacology. 2002; 79: 379-381.
14. Kirtikar KR and Basu BD. Indian Medicinal Plants. Bishen Singh Mahendra Pal Singh, Dehradun, India. 1980: Vol-1: pp. 802-803.
15. Yoganarasimhan SN. Medicinal Plant of India. Bangalore, India; Interline Publishing Company. 2000: Vol- 2: pp. 146-147.
16. 16 . Abhishek S, Vikas S, Minu K and Pankaj M. Comparative hypoglycemic effects of different extract of Clitoria ternatea leaves on rats. IOSR Journal of Pharmacy and Biological Sciences 2015; 10(2-III): 60-65.
17. Anand SP, Doss A and Nandagopalan V. Antibacterial studies on leaves of Clitoria ternatea Linn.-A high potential medicinal plant. Int J Appl Bio Pharm Tech 2011; 2(3): 453-456.
18. Rajathi M, Daisy P (2009) Hypoglycemic Effects of Clitoria ternatea Linn. (Fabaceae) in alloxan-induced diabetes in rats. Trop. J. Pharm. Res 8: 393-398.