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# REVIEW ON *CLITORIA TERNATA*

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## ABSTRACT:

*Clitoria ternatea*, a perennial, twining herb that is native to tropical Asia, has a long history of usage as a memory booster and anxiolytic. Various portions of the plant have various components. The plant is said to include tannins, resins, starch, taraxerol, taraxerone, alkaloids, flavonoids, saponins, proteins, anthocyanins, and carbohydrates as well as other active chemical components. The plant is used to treat a variety of conditions in traditional medicine, including jaundice, migraine, throat infections, eye infections, skin illnesses, asthma, swollen joints, earaches, eruptions, fever, urinary tract infections, constipation, snakebites, headaches, indigestion, leprosy, and problems of the central nervous system. *Clitoria ternatea* is a plant that has historically been used for gonorrhoea, stress, infertility, and food colouring. Ayurveda has made extensive use of the plant. Pharmacologically, it has anti-inflammatory, analgesic, antimicrobial, and anxiolytic properties.

**Keywords:** *Clitoria ternatea*, Pharmacognostic studies, pharmacological activities, Phyto-Constituents, Traditional Uses.



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## INTRODUCTION:-

*Clitoria ternatea*, often known as butterfly pea, is a perennial twining herb with terete, more or less pubescent stems that is a member of the *Leguminosae* family (formerly Papilionaceae). Imperipinnate leaves with petioles 2 to 2.5 cm long and 4 mm long, linear, sharp stipules. Subcoriaceous, elliptic-oblong, 2.5–5 by 2–3.2 cm, obtuse or caute; leaflets: 5–7; stipules: filiform. Flowers are axillary, solitary, typically bright or blue, occasionally white, with an orange core; seeds are 6–10, smooth, and golden brown. There are two types a white variation and a blue flower variety that are frequently cultivated as decorative plants in Bangladesh. A frequent plant in gardens is the butterfly pea, also known as blue pea (*Clitoria ternatea*), which has 1 to 2 inches long, vibrant blue flowers with wavy rims and a white centre.

Since long time immemorial nature has been a mere source of medicinal plants. These medicinal plants are gift of God, to cure infinite number of diseases in human beings and other living organism. They have been the major source of drugs in all system of medicine and eBooks A Review on *Clitoria ternatea*(Linn.): Chemistry and Pharmacology Niraj Kumar Singh, Jeetendra Kumar Gupta, Kamal Shah, Pradeep Mishra, Atul Tripathi, Nagendra Singh Chauhan and Neeraj Upmanyu, Institute of Pharmaceutical Research, GLA University, Mathura, Uttar Pradesh-281406, India. Institute of Pharmacy, Pt. Ravi Shankar Shukla University, Raipur, Chhattisgarh, India. Drugs Testing Laboratory Avam. Such exhaustible source of active ingredients invaluable in the management of many intractable diseases which is harbored by plant kingdom. In the various systems of medicine, many plants and herbs are used to treat various infirmities. In all ancient scriptures of Ayurveda, Aparajita is mentioned as one of the important herb. It is a good looking twing herb. Aparajita's botanical name is *Clitoria ternatea* and belongs to Fabaceae (Pipilionaceae) family It is probably originated in tropical Asia . It is widely distributed throughout the humid, lowland tropics of Africa, Asia and Central America. It is found in low and medium altitudes of the settled areas. *C. ternatea* is a strongly persistent, sparsely pubescent, legume. It is perennial climber with slender downy stem, found throughout the tropical regions of the country being cultivated in gardens everywhere and often also found growing over hedges

and thickets. It is seen that Aparajita is being adapted to clay soils and has been tested as a forage and cover crop, but never developed as a pasture cultivar .In various Ayurvedic preparations different parts of this plant have been used as an active ingredient which is used for treatment of several disorders. There are several reported Ayurvedic ‘*medha*’ drugs which contain *C. ternatea* along with other plants. This plant has been scientifically studied for various pharmacological activities like antihistaminic, anti-depressant and hypoglycemic.



### **WHOLE PLANT OF *CLITORIA TERNATEA***

#### **TAXANOMIC HEIRARCHY:-**

Kingdom: Plantae

Phylum: Angiosperms

Order: Fabales

Family: Fabaceae,

Genus: Clitoria

Species: *C. ternatea*



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### **VERNACULAR NAMES:-**

The shape of flowers of the *Clitoria plant* is a reflection of its genus name. The flowers of this plant resemble in shape with human female clitoris, hence the Latin name of the genus “*Clitoria*” belongs to “*clitoris*” and “*Ternatea*”, the name of the species, which comes from Ternate, an Eastern Indonesian island. Similarly in different languages various vernacular names of the flowers are based on reference to a woman’s genital organ.

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

**Hindi, Bengali, and Oriya:** Aparajita or Aparajit.

**Gujarath:** Bismar, Garani, Koyala

**Kannada:** Billisaiuga, Satugadagida.

**Telugu:** Dintana, Gilarnika, Neela-ghentana, Sankhupuvvu.

**Tamil:** Kakkanam, Kakatan, Kavachi, Kuruvilai.

**Punjab:** Dhanattar. Rajasthan: Koyalri, Titlimatar

**English:** Butterfly pea, Blue pea vine, Mussel-shell climber, Pigeon wings.

### **CULTIVATION;-**

*Clitoria ternatea* is a deep-rooted, tall slender, climbing legume with five leaflets and a deep blue flower. It is well adapted to a variety of soil types (pH 5.5- 8.9) including calcareous soils. It is surviving in both the extended rainfall regions and prolonged periods of drought. Propagation is done through seed. It exhibits excellent regrowth after cutting or grazing within short period and produce high yields also known as *Clitoria ternatea L.* is well adapted to heavy cracking clay soils in northern Australia. It is also used as a cover crop and green manure. The seeds are normally sown from the beginning until the middle of the wet season. It persists best when grazed lightly during the wet season.

### **BOTANICAL DESCRIPTION:-**

**Habit:** Twining climber

**Root:** Branched tap root system having nodules.

**Stem:** Aerial, weak stem and a twiner



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**Leaf:** Imparipinnately compound, alternate, stipulate showing reticulate venation. Leaflets are stipellate. Petiolate and stipels are pulvinate.

**Inflorescence:** Solitary and axillary.

**Flower:** Bracteate, bracteolate, bracteoles usually large, pedicellate, heterochlamydeous, complete, bisexual, pentamerous, zygomorphic and hypogynous.

**Calyx:** Sepals 5, synsepalous, green showing valvate aestivation. Odd sepal is anterior in position.

**Corolla:** Petals 5, white or blue apopetalous, irregular papilionaceous corolla showing descendingly imbricate aestivation.

**Androecium:** Stamens 10, diadelphous (9)+1 nine stamens fused to form a bundle and the tenth stamen is free. Anthers are dithecal, basifixed, introrse and dehiscent by longitudinal slits.

#### **GEOGRAPHICAL DESCRIPTION:-**

*Clitoria* genus is inconspicuous, indigenous climber and a common garden flower found throughout the tropical and subtropical regions of the world. Now the genus becomes rare in humid and sub-humid lands of Asia, America, and Africa and also in semi-arid tropical Australia. It grows from sea level to 1800 and also grown as an ornamental in the warmer parts of the world and outspread from about 20° North latitude to the Salta district in Argentina at about 24° South latitude. In Africa it grows in grasslands, often on seasonally waterlogged black clays and in old cultivations whereas in Sudan it is grown for fodder or grazing and in Kenya it is grown in a mixture with *Chloris gayana*. In America, the species of this plant is spread from Florida to Texas and from New Jersey to Kentucky & Arkansas. It is commonly found in Jamaica, Puerto Rico, Turks, and Caicos Islands etc. It is found in all over India, especially in southern India up to an altitude of 1,500 m and in the Andaman Islands.



## **PHYTOCHEMICAL CONSTITUENTS IN *CLITORIA TERNATA*:-**

### **LEAF:-**

#### **Phytochemical constituents:-**

Alkaloids, reducing sugars, flavonoids, steroids, glycosides.

#### **Uses:-**

- Prevention of neurodegenerative diseases and diabetes mellitus.
- Effectively controls the excessive sweating.

### **Flower:-**

#### **Phytochemical constituents:-**

Saponin, Tanin, Alkaloids, Glycosides, Phytosterols, Carbohydrates.

#### **Uses:-**

- Anti inflammatory, analgesic.
- Ethanol extract is used as antidiabetic.

### **Root:-**

#### **Phytochemical constituents:-**

1,1-diphenyl-2-picrylhydrazyl (DPPH) .

#### **Uses:-**

- Antioxidant
- The root bark is diuretic and laxative; a decoction is given as a demulcent in the irritation of the bladder and urethra .

### **Seed:-**

#### **Phytochemical constituents:-**

The seeds contain nucleoprotein with its amino-acid sequence similar to insulin, delphinidin-3,3,5-triglucoside, essential amino-acids, pentosan, water soluble mucilage, adenosine, an anthoxanthin glucoside, greenish yellow fixed oil a phenol glycoside, 3,5,7,4-tetrahydroxyflavone-3-rhamnoglycoside, an alkaloid , ethyl D-galactopyranoside, p-hydroxy cinnamic acid polypeptide, a highly basic protein-finotin, a bitter acid resin, tannic acid, 6% ash and a toxic alkaloid.



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**Uses:-**

- Seeds are cathartic and the root diuretic.
- Seeds are purgative and aperients .
- Seeds are used in swollen joints, dropsy and enlargement of abdominal viscera.

**CHEMICAL CONSTITUENTS:-**

- The hydrophilic phase of butterfly pea flower extract contains flavonol glycosides, anthocyanins, flavones, flavonols, phenolic acids, and cyclotides. Meanwhile, the terpenoids, alkaloids, and fatty acids were found in the lipophilic phase of butterfly pea flower extract.
- Ethanol extract of *Clitoria ternatea* shows presence of terpenoid, flavonoid, tannin and steroid which may act as antioxidant principal. The major phytoconstituents found in *Clitoria ternatea* are the pentacyclic triterpenoids such as taraxerol and taraxerone. Phytochemical screening of the roots shows the presence of ternatins, alkaloids, flavonoids, saponins, tannins, carbohydrates, proteins, resins, starch, taraxerol and taraxerone.
- It also contains anti-fungal proteins and has been shown to be homologous to plant defensins. Aabgeena et al. reported a lectin present in the seeds of *Clitoria ternatea* agglutinated trypsin-treated human B erythrocytes. Since the purified lectin was found to be potential tool for cancer studies so an attempt was made for the alternate high yielding purification method for *Clitoria ternatea* lectin designated CTL, present in the seeds of this member of leguminosae family.

**MICROSCOPIC CHARACTERS:-**

Root Shows 10-20 or more layers of rectangular, thin-walled, tangentially elongated exfoliating cork cells; secondary cortex consists of 10-12 rows of large, polygonal, thin walled cells filled with starch grains, a few cells contain prismatic crystals of calcium oxalate in this region; single or groups of 2-10 lignified cortical fibers, distributed in the lower half of the cortex; secondary phloem consists of usual elements; phloem fibers 2-8 in groups, a few solitary fibers also present, very long, thin-walled with narrow lumen and pointed tips; secondary xylem consists of usual elements; vessels pitted with oblong, bordered pits and

have short conical tail at one end, mostly occur 2 or 3 in groups; xylem fibers similar to those of phloem fibers, a few showing slit-like pits; medullary 10 rays 1-5 cells wide, oblong and pitted; xylem parenchyma irregular in shape and pitted walls; starch grains simple as well as compound having 2-6 components, single grains measuring 3-13  $\mu$  in dia., found in secondary cortex, phloem and xylem parenchyma. Powder - Yellowishbrown; shows simple and compound starch grains, measuring 3-13 $\mu$  in dia., vessels with oblong bordered pits and fragments of fibers.

#### PHARMACOGNOSTICAL DESCRIPTION:-

Different growing conditions can affect its morphology. It is extensively grown in gardens for its flowers as an ornamental plant and it belongs to the sub family papilionaceae and family Fabaceae (Leguminosae) botanically, butterfly pea (*C. ternatea*). It has various synonyms like *C. purpurea* and *C. ternatea*, some have potential for foraging use and some are partially domesticated. The plant is a long-lived perennial herb 90 to 162 cm tall with an erect habit. It has two types one has white-flower and other blue flower. *Clitoria* have cleistogamous and chasmogamous flowers i.e., self-pollinating and insect pollinating respectively. Physical properties of flower like color, structure and position vary from species to species they may 60 to 120 mm long like beans and blue scabbards flat and linear . The flowers of this plant are papilionaceous, axillary, solitary, pedicel 0.8 to 1.3 cm long with bright blue or white with yellow or orange center. Calyx 13 to 20 mm long, corolla 38 to 50 mm, oblong, seeds 8 to 11/pod, Pods 50 to 100 mm by 0.8 to 1.3 cm, nearly straight, somewhat flattened, sharply beaked sparsely hairy, 0.3 to 0.4 cm wide, shiny, often mottled, minutely pitted, olive brown to almost black. Pinnate leaves with 5 or 7 leaflets; stipules persistent, narrowly triangular, 1 to 6 mm long, subulate, prominently 3-nerved; rachis 10 to 70 mm long; petioles are 15 to 30 mm long; stipels are filiform, leaflets are elliptic, oblong, ovate or nearly orbicular, 20 to 50 mm long, 3 to 30 mm wide, with apex acute or rounded, often notched, and base cuneate or rounded, both surfaces sparsely appressed pubescent. Flattened pods are 40 to 130 mm long, linear to oblong and 8 to 12 mm wide, are style persistent, pale brown, dehiscent when dry, sparsely pubescent when mature and with





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thickened margins. The bracteoles are persistent and 0.4 to 1.2 cm long, broadly ovate or rounded, calyx is 17 to 22 mm long with a few fine hairs; lobes triangular or oblong; tube campanulate, 8 to 12 mm long 7 to 10 mm long, acute or acuminate. The physiochemical properties of roots are buffy brown in color, with characteristic odor and bitter in taste. *Clitoria ternatea* have both primary and secondary roots are thick, hard with smooth surface and later are thin, fibrous in nature respectively. Its roots fix nitrogen; therefore this plant has been used to improve soil quality. The thick horizontal roots may grow bearing one to several purplish, glaucous, wiry stems with more than 2 m length.

#### **AYURVEDIC PROPERTIES AND USES:-**

*Clitoria* is pungent in the post digestive effect, has cold potency, bitter in taste, and possesses light dry and sharp attributes. In Ayurveda 'Sankhapushpi' is one of the formulations which consists of the seeds and roots of *C. ternatea*, is used as a 'nerve tonic', alternative and laxative. It has been used for the treatment of various neurological disorders as an active ingredient in 'Medhya Rasayana'. By various group of persons it is considered as medicine which is useful in skin diseases, eye and throat infections also in urinary disorders, ulcers and antidote activity.

#### **Root:**

The roots have a sharp bitter or acrid taste and credited with cooling, laxative, diuretic, anthelmintic, anti-inflammatory properties. In the scientific studies it was found that extracts of *C. ternatea* can raise the acetyl choline content and acetyl choline esterase activity in rat brain in a similar fashion to the standard cerebral drug pyritinol. In other treatments of various ailments like infections, as anthelmintics, antidote to animal stings, urinogenital disorders and body aches *C. ternatea* is also used. Especially the roots of *C. ternatea* are useful in severe asthma, remittent fever and bronchitis. These are used to administer with ghee and honey as a tonic to children for boost up in their mental abilities, muscular strength, complexation, whooping cough, goiter and epilepsy. Roots used by tribal to cause abortion and its paste applied on cattle stomach for curing abdominal swelling. Research suggested

that the methanolic extract of *C. ternatea* roots shown nootropic, anxiolytic, anti-depressant, anticonvulsant and anti-stress activity in animals. The decoction or powder of root is given in rheumatism and ear disease. Root and leaves have emetic and antiperiodic.

**Seed:**

The use of seeds of *Clitoria ternatea* for medicinal purpose is both for external and internal applications. Fried seeds are recommended in ascites when given orally with hot water in powdered form with ghee and fennel. Seeds are also used in digestive disorders because they have purgative, cathartic and laxative action when used in combination with ginger powder. Seeds are also prescribed in cough, hepatic disorders, spleen and rheumatic infections. The seeds are safe for abdominal viscera, colic, dropsy and also for arthritis.

**Leaves:**

Leaves are used as emetic, diuretic, antiperiodic and laxative. The leaves are also very useful in the inflammation of mastoid lymph nodes when used with salt in paste form. The juice form has the ability to mitigate the toxins. In combination with ginger juice, the fresh leaves are useful in hepatic fever, excessive sweating and also useful in inflammation around the ear and neighboring glands in juice form with common salt.

**Flower:**

Flowers are suggested and used for the treatment of scorpion sting and snake bite. In Cuba decoction of flowers with roots are considered emmenagogue. An infusion of flowers is used to promote menstruation and induce certain contraction. Flowers are also used to treat chlorosis and intestinal problem. In experimentally induced diabetic mice, the ethanolic extract of flowers significantly lowers the serum sugar level.

**Stem:**

Stem is recommended for the treatment of snake bite and scorpion sting. The stem of the plant contains the phytochemicals which are mainly considered as brain tonic and is also useful for eye and throat infections, skin diseases, urinary troubles.



## PHARMACOLOGICAL PROPERTIES:-

### **Anthelmintic Activity:**

Anthelmintic activity was found in ethanolic and aqueous extract of *C. ternatea* leaves at the dose of 100 mg/ml. This was performed at three different concentrations (100, 50, 25 mg/ml) of ethanolic and aqueous extracts respectively by using *Eisenia foetida*. The study was focused at the in-vitro comparative study of aqueous and ethanolic extracts of leaves of *C. ternatea* for anthelmintic activity. Thus, the study involved in the determination of time of paralysis (P) and time of death (D) of the worms. While determination for both extracts, the time of paralysis and death time of aqueous extract was observed as  $18 \pm 1.57$  and  $53.33 \pm 0.33$  and in case of ethanolic extracts  $12.33 \pm 0.80$  and  $32.33 \pm 0.71$  respectively. At last, the anthelmintic activity of ethanolic extract of *C. ternatea* was found more potent than aqueous extract of *C. ternatea*

### **Antihistaminic Activity:**

Antihistaminic activity was found in the ethanolic extract of *C. ternatea* roots in dose dependent manner. Evaluation for antihistaminic activity was done using clonidine and haloperidol induced catalepsy in mice for Ethanol Extract of *C. ternatea* Root (ECTR) at doses 100, 125 and 150 mg/kg IP. Dose dependent catalepsy was induced in mice by Clonidine, a  $\alpha_2$  adrenoreceptor agonist which was inhibited by histamine H1 receptor antagonists but not by H2 receptor antagonist. Clonidine, which is responsible for the release of histamine from mast cells, is responsible for different asthmatic conditions. A non-selective D2 dopamine antagonist (Haloperidol) induces catalepsy is primarily due to blockade of dopamine receptors in the striatum. The agents responsible for increase in dopamine transmission inhibit haloperidol-induced catalepsy. Findings showed that ethanol Extract of *C. ternatea* Root (ECTR) and Chlorpheniramine Maleate (CPM) inhibit clonidine induced catalepsy significantly  $P < 0.001$  when compare to control group, while 12 ECTR and CPM fail to inhibit haloperidol induced catalepsy. So it is concluded that the agents increasing dopamine transmission inhibits haloperidol-induced catalepsy and the present study shows ECTR possesses antihistaminic activity.

### **Antimicrobial Activity:**

The antimicrobial screening was evaluated against *Extended Spectrum Beta Lactamase* (ESBL) producing *Salmonella enteritidis*, *Salmonella typhimurium*, *Klesiella pneumonia*, *Enteropathogenic E.coli*, *Uro-pathogenic E.coli*, and *Pseudomonas aureginosa* isolated from patients with urinary tract infection and acute gastroenteritis. Disc diffusion method was used to test the above mentioned extracts for their activity. Water, methanol and chloroform extracts of *C. ternatea* flowers was exhibited activity against uropathogenic *E.coli*, *Enteropathogenic E.coli*, *Enterotoxigenic E.coli*, *Salmonella typhimurium*, *Klesiella pneumoniae* and *Pseudomonas aureginosa*. Methanol extract of *C. ternatea* exhibits comparatively high activity as compared with chloroform and aqueous extracts. The inhibitory zone produced by water, methanol and chloroform extracts at a concentration of 4 mg/disc was found 12 mm, 16 to 26 mm and 14 mm to 18 mm respectively while petroleum ether and hexane extracts did not exhibit any activity.

### **Cytotoxic Activity:**

The crude methanol extract of stem-bark, leaves and seeds of *C. ternatea* demonstrated a significant cytotoxic activity in a brine shrimp lethality bioassay test. The LC<sub>50</sub> values of the crude methanol extract of stem-bark, leaves and seeds were found to be 179.89, 25.82, 110.92 µgm/ml) respectively. Among them crude methanol extract of leaves (25.82 µgm/ml) and methanol fraction of leaves (22.28 µgm/ml) showed a very promising cytotoxic activity.

### **Proteolytic Activities:**

The activities of endopeptidases (pH of hemoglobin is 3.5 and pH of azocasein is 6.0), carboxypeptidase (pH of CBZ-Phe-Ala is 5.2), and arylamidases (pH of LPA is 7.0 and pH of BAPA is 7.6) were assayed in extracts of cotyledons and axis of resting and germinating seeds of *C. ternatea* L. All the activities were low in resting seeds but the endopeptidases at pH 3.5 and the arylamidase at 7.0 were high in cotyledons. The activities of endopeptidases showed an increase at the day 3 followed by a decrease, while the carboxypeptidase and the arylamidases increased in cotyledons reaching a maximum at the day 9. In the axial tissue the endopeptidases and carboxypeptidase activities showed an increase until the day 9 followed by a decrease and the arylamidases were low. The increase of acidic endopeptidase and



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carboxypeptidase activities in germinating cotyledons has been suggested as an indication of their participation in the degradation of the storage proteins.

#### **Antipyretic Activity:**

Evaluation of anti-pyretic potential Of Methanolic Extract of *C. ternatea L.* Root of blue flowered variety (Family: Fabaceae) on normal body temperature and yeast-induced pyrexia in albino rats. Increase in rectal temperature was observed after 19 hours of Yeast suspensionsubcutaneous injection. The extract produced significant reduction in normal body temperature at doses of 200, 300 and 400 mg/kg body wt., p.o., and yeast-provoked elevated temperature in a dosedependent manner. The effect extended up to 5 hours after the drug administration. The anti-pyretic effect of the extract was comparable to that of paracetamol a standard anti-pyretic agent.

#### **Antioxidant Activity:**

The chemical composition of the flowers of *C. ternatea* suggest that they may have antioxidant activity, ethanopharmacological evidences shows that 15 the extracts of *C. ternatea* (butterfly pea) flowers are used in Thailand as a component of cosmetics. The aqueous and ethanolic extract of *C. ternatea* was found to have antioxidant potential. Aqueous extracts were shown to have stronger antioxidant activity than ethanol extracts (IC50 values were 2 mg/mL and 5 mg/mL, respectively). This was assessed by performing DPPH scavenging activity test. The total phenolic content was 2.0 mg/g extract as gallic acid equivalents. The data from this study support the use of *C. ternatea* extracts as antioxidant inclusions in cosmetic products.

#### **In-Vitro Cytotoxic Activity:**

This study evaluates the in-vitro cytotoxic effect of petroleum ether and ethanolic flower extracts of *C. ternatea Linn* by using trypan blue dye exclusion method. Both extracts exhibit significant cell cytotoxic activity. For both the extracts decrease in cell count was observed with increase in concentration of the extract. There was a dose dependent increase in cytotoxic activity for all the concentrations tested.



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## CONCLUSION:-

*Clitoria ternatea* is not only a wild herb but also a medicinal plant. It has so many traditional usages as well a number of medicinal usages. Even, it is useful in treatment of some incurable diseases such as cancer, neurological disorder, nephorological disorder, hyperglycemia, urinary disorder, goiter, respiratory disorders etc. The exploring the active component of this plant responsible for the pharmacological activities along with their mode of action will be guided by the accumulative information presented in this article. Major thrust by whole of the pharmaceutical industry is focused towards design and development of new plant based drugs through investigation of leads from traditional system of medicines. In the study of *Clitoria ternatea* alcoholic extracts of roots, leaves and flowers gives different pharmacological activities like antileprosy, anti-inflammatory, antihelminthic, immunomodulatory, antiasthmatic, antidepressant, anticonvulsant, analgesic, antipyretic, antifungal, proteolytic and antihyperlipidemic. Many important phytoconstituents responsible for the activity were isolated. The scientific research on *Clitoria ternatea* suggests a huge biological potential of this plant. Though the reported evidences supports the safety and efficacy of CT, but the quality of the evidence is limited in respect to its bioactive secondary metabolites, bioavailability, pharmacokinetics and therapeutic importance including clinical trials, which are not known with sufficient details. It is strongly believed that detailed information as presented in this review might provide detailed evidence for the use of this plant in different medicines. At the same time, the organic and aqueous extracts of *Clitoria ternatea* could be further exploited in the future as a source of useful phytochemicals compounds for the pharmaceutical industry.

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