



**60 Capsules Bottle**



## **Blue Butterfly Pea Flower - scientific name- *Clitoria ternatea***

Suggested dose - Take 2 Capsules per day

Are you suffering from low energy or brainpower? Feeling stressed? Anxiety? Can't sleep? Can't conceive? Constipated? Poor eyesight? Losing your hair or premature greying? Is your skin losing collagen?

Butterfly Pea is known to help.

Also known as Asian Pigeon Wings, Blue Bell Vine, Blue Pea, Cordofan Pea and Darwin pea, 'Butterfly Pea' (*Clitoria ternatea*) is an amazing brain boosting herb native to tropical equatorial Asia.

A traditional Chinese and Ayurvedic medicine, *Clitoria Ternatea* has been consumed for centuries as a memory enhancer, brain booster, anti-stress and calmative agent.

Known for its luminous indigo colour, Butterfly Pea has traditionally been used as a vegetable in cooking, to colour deserts or to make a strikingly vibrant coloured tea.

Butterfly Pea is jam-packed full of health promoting antioxidants, flavonoids and peptides and has shown considerable promise in animal studies as a natural remedy for a range of health complaints.

Many beauty products have also been derived from Butterfly Pea because of the effects of the flavonoid, quercetin has on skin and hair.

First let's take a look at the reputed health benefits of Butterfly Pea, before looking at the available evidence.

## Benefits of Butterfly Pea (*Clitoria Ternatea*)

- **Improve eyesight** - *Clitoria Ternatea* contains an antioxidant called pro anthocyanin, which increases blood flow to the capillaries of the eyes, useful in treatment of glaucoma, blurred vision, retinal damage or tired eyes.
- **Improve hair growth** - Rich in bioflavonoids, Butterfly Pea can promote hair growth and reduce greying of hair.
- **Improve skin** - antioxidants stimulate collagen and elastin synthesis, which helps rejuvenate the skin and lessen wrinkles and other signs of ageing.
- **Aphrodisiac** - has been traditionally used as an aphrodisiac particularly for women and used to treat menstruation problems or white vaginal discharge (leucorrhoea).
- **Antioxidant** - Flavonoids, anthocyanin's and phenolic compounds in Butterfly Pea flowers activate antioxidant activity, which helps decrease oxidative stress caused by disease causing and ageing free radicals.
- **Nootropic** - has been shown to enhance cognitive function and boost brain function.
- **Diuretic** - promotes normal urination, which in turn lowers blood pressure
- **Analgesic** - *Clitoria Ternatea* has been used traditionally as a local anaesthetic as it has been shown to help relieve pain and swelling.
- **Anxiolytic** - Butterfly Pea has a calming effect on the body, reducing stress and anxiety
- **Anti-inflammatory** - The deep indigo flowers contain flavonoids. Found in almost all fruits and vegetables, flavonoids are powerful antioxidants with anti-inflammatory and immune system benefits.
- **Anti-Asthmatic** - It is used in common cold, cough & asthma as it acts as an expectorant and reduces the irritation of respiratory organs.
- **Anti-anxiety and depression** - Indications are that high doses of Butterfly Pea may be adaptogenic – helping the body deal with stressors.
- **Anti-diabetic** - Butterfly Pea has shown to inhibit glucose intake from the diet.
- **Anti-HIV** - Butterfly Pea is one of the few herbs to contain cyclotides, which have exhibited anti-HIV effects in studies.
- **Anti-cancer and anti-tumour** - *Clitoria Ternatea*'s cyclotides can cause cancer cell death by disrupting cell membrane integrity.
- **Anti-microbial** - In several Indian studies, Butterfly Pea exhibited significant anti-microbial effects against *Staphylococcus Aureus*.
- **Anti-convulsant** - Butterfly Pea has been shown to help reduce the severity and stress on the body from convulsions useful in treating epilepsy.
- **Anti-pyretic** - *Clitoria Ternatea* can help reduce fever by dilating the blood vessels right beneath the skin, whereby air can cool the blood easier.



Health Benefits of  
**Blue Butterfly Pea**

## Health Effects of Butterfly Pea (*Clitoria Ternatea*)

Butterfly Pea has been ascribed many health benefits in both Chinese and Ayurvedic medicine, many of which have been supported with contemporary clinical research.

The herb shows promise in studies for its brain boosting effects and its wide spectrum of neurological benefits including helping with depression, anxiety and reducing fever.

In studies to date, Butterfly Pea has shown to act on several key systems of the body:

- *The Nervous System* – Butterfly Pea has a calming effect on the brain
- *The Digestive System* – Butterfly Pea is an antiemetic (anti-nausea), anti-dyspeptic (anti-indigestion), mild-laxative and cholagogue (stimulates flow of bile from liver)
- *The Circulatory System* – Butterfly Pea is a haemostatic (helps stop bleeding) and a blood purifier
- *The Respiratory System* – Butterfly Pea acts as an expectorant and has shown to reduce the irritation of respiratory organs, useful in treating colds, coughs and even asthma.
- *The Urinary System* – Butterfly Pea is a diuretic, helping promote normal urination and can be used for dysuria (difficulty urinating)
- *The Reproductive System:* Butterfly Pea is reported to be spermatogenic, aiding in normal sperm production
- *The Integumentary System* – Pre-maturing ageing is often a problem of the skin. Flavonoids present in Butterfly Pea have been found to boost collagen production, increasing the skin elasticity.

Butterfly pea is one of the few plants on earth that contain cyclotides, peptides that have shown to possess anti-HIV and anti-tumour properties, while certain cyclotides have been shown to be toxic to cancer cells.

In fact, while more studies are needed recent Chinese research suggests butterfly pea is very effective against certain lung cancer cells.

Researchers have also found that a powder made from the ground-up butterfly pea leaves can enhance cognitive ability, improving memory and brainpower.

Other studies in India found that butterfly pea improves the body's levels of acetylcholine – an important neurotransmitter – vital for communication within your brain.

Acetylcholine decreases significantly as we age and Butterfly Pea has been found to stimulate its production.

### **Clitoria Ternatea for Hair Loss**

In ancient Thai medicine, Butterfly Pea herb has been used for centuries to treat male pattern baldness and premature greying. A key ingredient in Butterfly Pea is Anthocyanin, thought to

increase blood flow in the scalp and sustain and fortify hair follicles.

### **Clitoria Ternatea for the Brain**

In animal studies, Clitoria Ternatea has shown promise for its memory enhancing effects, with a wide spectrum of neurological benefits (anti-depression, anxiolytic, anti-pyretic) indicated, although more research is needed.

In rats, between 50 to 100mg/kg of Clitoria Ternatea water extract was found to increase memory over the course of 30 days.<sup>1</sup>

Larger doses of the ethanolic extract (up to 300mg/kg) have also indicated some efficacy, with the extract of the root apparently more potent than the leaves or stem extract.<sup>2</sup>

One in vivo study of Clitoria Ternatea suggested improved cholinergic function after oral administration of Clitoria Ternatea, suggesting the key active compound that enhances the memory is acetylcholine.<sup>2</sup>

An additional study also suggested increases in acetylcholine localized to the hippocampus using 100mg/kg of a Butterfly Pea water extract.<sup>3</sup>

This study assessed both neonatal and adult rats and found hippocampal acetylcholine increases of 130% and 262% from baseline values, with the highest efficacy in older rats.

In electroshock stressed mice (inducing cholinergic amnesia) a higher degree of memory retention was seen with extracts of Clitoria roots.<sup>2</sup>

### **Butterfly Pea for Anxiety**

Clitoria Ternatea has shown to possess moderate anxiolytic and anti-depressive effects. Butterfly Tea was also able to reduce the biological impact of stress on rats when taken at 400mg/kg, in a study on stress-induced ulcers.<sup>4</sup>

High doses of Clitoria Ternatea are also thought to be adaptogenic.<sup>4</sup>

While more research is needed, Butterfly Pea appears to possess stress reducing effects.

### **Butterfly Pea for Diabetes**

A series of in vitro studies on carbohydrate enzymes discovered that Clitoria inhibited the intestinal glycosidase enzymes (IC<sub>50</sub> of 3.15±0.19 mg/ml) against intestinal sucrase (IC<sub>50</sub> 4.41±0.15 mg/ml) and pancreatic alpha-amylase (IC<sub>50</sub> 4.05±0.32 mg/ml).<sup>5</sup>

The study presents data from five plant-based foods evaluating the intestinal α-glycosidase and pancreatic α-amylase inhibitory activities and their additive and synergistic interactions.

The study concludes that Butterfly Pea could be useful for developing functional foods by combination of plant-based foods for treatment and prevention of diabetes mellitus.

Preliminary research also suggests that Clitoria Ternatea is healthy for the liver and possibly beneficial for diabetics via its ability to inhibit glucose intake.

### **Butterfly Pea for Heart Health**

In one study of induced hyperlipidaemia, Clitoria Ternatea was able to suppress triglycerides and total cholesterol (at 500mg/kg) to a similar extent as the drugs statin atorvastatin (50mg/kg) and

Gemfibrozil (50mg/kg). <sup>6</sup> The benefits on triglycerides were seen through the activation of lipoprotein lipase (LPL).

Both Butterfly Pea seeds and the root extract were found to reduce triglycerides, however only the root was able to reduce total cholesterol, suggesting the herb may have some positive effects on cardiovascular health.

The findings of this study suggest that Butterfly Pea, in combination with another herb Vigna mungo (Fabaceae family), may have significant anti hyperlipidaemia effects.

### **Butterfly Pea for Hypertension**

Clitoria Ternatea has been used traditionally as a diuretic, which has been confirmed in animal studies but not investigated further. <sup>10</sup>

Butterfly Pea is thought to boost the evacuation of water (micturition), which diminishes blood mass thereby lowering hypertension. There are also suggestions this diuretic effect aids quick but generally transitory weight loss.

### **Butterfly Pea for Fever**

Clitoria Ternatea is thought to bring down fever (anti-pyretic) by expanding the blood vessels just beneath the skin, which increases blood flow where it can be more easily cooled.

In one study, the methanol extract of Clitoria ternatea was evaluated for its anti-pyretic potential on normal body temperature and yeast-induced pyrexia in albino rats.

An extract of Butterfly Pea at doses of 200, 300 and 400 mg/kg produced significant reduction in normal body temperature and yeast-provoked elevated temperature in a dose-dependent manner. The effect extended up to 5 hours after administration.

The study suggested the anti-pyretic effect of the extract was comparable to that of paracetamol (150 mg/kg body wt.), a standard medicine prescribed for fever. <sup>7</sup>

### **Butterfly Pea for Inflammation**

Clitoria Ternatea may have beneficial effects for asthmatics. In one mouse study, an ethanolic extract of Clitoria Ternatea has shown to possess anti-asthmatic effects. <sup>8</sup>

In this experiment, there was no noted difference in the effects from between 100, 125, and 150mg/kg bodyweight.

Clitoria Ternatea was equally effective as the drug (Dexamethasone 50mg/kg) in suppressing leukocytes and Eosinophils.

### **Safety and Toxicity of Butterfly Pea**

Studies assessing oral toxicity of doses up to 3000mg/kg bodyweight failed to notice any significant toxicity in Butterfly Pea. <sup>9</sup>



**Healthy Convenience:** Our blue butterfly pea vine tea is unique. Normally, if you can find this tea at all, it will be in the form of dried flowers. You will steep the tea and then throw away the flowers, drinking only the mildly infused water. You've just kept the bath water and thrown away the

baby!

In this case you do not need to steep tea. This makes the product more convenient, more dramatic (you can mix it at the table and watch the water turn blue), and avoids the heat of steeping the tea which will decrease the quality of the thermo sensitive ingredients.

### **Make a drink with the Blue Butterfly Pea Flower:**

You can add just a pinch of our Cellular Preservation Technology (CPT) activated powder to either hot or cold water (even ice water) and the fine powder with porous particle structure will dissolve in the water with mild stirring to produce a beautiful bright blue herbal infusion (“Tisane”) Our blue butterfly pea vine tea is similar to matcha tea in the sense that you are drying the flowers and creating a fine powder which you ingest – essentially drinking the flowers.

Take 1 capsules, twist open to separate the capsule, empty the powder contents into a cup and discard the empty capsule shell. Mix with warm, cold or ice water. You can watch the water turning a bright blue in front of your eyes. If you add a touch of lemon or lime juice the color turns from bright blue to deep purple. This is even more fun as the tea changes color before your eyes.

This provides a concentrated dose requiring only a very small quantity of powder and provides the benefits of this amazing plant in concentrated form. In this concentration the cost per serving is very reasonable. In this stable dry powder with shelf life of two years, you have availability of the highest quality all year round regardless of the flowering season.

*Add few drops of lemon or lime juice for taste and watch in amazment as the blue color instantly turns to deep purple.*



Not only is the blue butterfly great on its own, but it also can act as a great base for mixed drinks.

[www.cptsuperherbs.com](http://www.cptsuperherbs.com)



## **CELLULAR PRESERVATION TECHNOLOGY**

*It is this process that distinguishes our herbs from all others.*

1. Our herbs do not require any preservatives or heat treatment to prevent degradation. If this were a crème or liquid it would require preservatives since moisture is the medium for the enzymes and microorganisms to degrade the product.

2. The enzymes, vitamins, minerals and other vital ingredients are preserved with their full potency intact. The value of the herbs and botanicals are kept at their highest level.
3. It is exactly this high level of preservation of the vital ingredients that create the results that we would otherwise not achieve in traditional drying methods, even if we had used exactly the same ingredients in exactly the same proportions.
4. If we use heat to remove the moisture (de-hydration), the heat will denaturize the enzymes (making them ineffective), reduce the protein levels considerably and oxidize thermo-sensitive vitamins such as Vit C and beta-carotene.
5. The freeze dry process eliminates water without exposure to heat thereby preserving all of the enzymes, vitamins, minerals, and bioactive compounds.
6. The very small particle size (micronization - no need for grinding) and porous particle structure achieved by the Bio-Dynamic Freeze Dry Process allow our herbs to be more easily absorbed and metabolized. Vitamins such as Vit C are fat soluble and are easily and quickly absorbed into our body.
7. The effectiveness and capabilities of all our herbs are greatly enhanced due to the particulate size and structure produced by our transitional and evolutionary Freeze Dry process.



### **The Technology – Cellular Preservation Technology (CPT)**

Cellular Preservation Technology or CPT is a proprietary technology which utilizes a modified form of freeze drying.

Freeze Drying has been used for centuries however the common industry standard freeze dry method typically uses traditional 'static' freeze drying with a further process of mechanical grinding.

## Image 1 – Traditional Vs Cellular Preservation Technology (CPT)

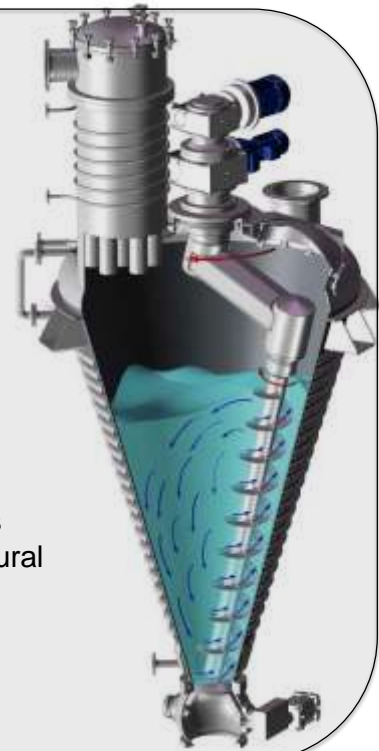
### Traditional freeze drying



- multi-step process; bacteria and mould growth risk.
- static materials sitting on trays; 10-20% residual moisture
- product ground into a powder; product cell structure destroyed

### Cellular Fracture Line technology

- 1-step process
- super frozen particles fly around in the product chamber
- no mechanical grinding.
- brittle material motion and sublimation of ice structure that hold it together causes product to break along natural elemental fracture lines.
- <0.1% residual moisture



CPT is a key component in the creation of our functional foods. It allows us to preserve a whole food in its fresh form, thus maintaining all of the medicinal activity of a live plant while providing the safety of a stable commodity.

This proprietary and transitional preservation process gives us the unique ability to provide a superior product compared to anything else available on the market today. The 'secret' to our technology is the Herbs are dried while they remain frozen in a vacuum state, rather than sitting motionless on trays (as in the traditional tray freeze drier), the product is flying round in a vortex. The deeply flash-frozen CPT granules decrease in size due to sublimation of the connecting ice structure and break into increasingly smaller particles along natural elemental fracture lines.

This creates a smaller particle size and porous structure without cellular hemorrhaging, caused by mechanical grinding of the traditional process as used in the industry today. CPT particles are much more easily absorbed and metabolized (more bio-available), and are more soluble for use as a catalyst ingredient in other formulations.

### Solubility



As a food ingredient our herbs are highly soluble. Solubility ties into taste as well as ease to combine with other ingredients. This high level of solubility (enhanced by the CPT freeze dry process creates a more soluble particle structure),

### Fresh Super herbs and Super foods

As soon as our botanicals are harvested they naturally begin to degrade. It is critically important to get them into the CPT process immediately after harvest. The logistics are challenging in any case, but the fact that they are grown at our doorstep in the mountains surrounding Chiang Mai, Thailand makes it all possible.

### Higher Bioactivity Superior Efficacy

The objective achieved by CPT is preservation not only of the targeted ingredients but preservation of the entire cellular and molecular structure of the live plant. This is achieved by:

- An Evolutionary and Transitional Freeze Dry Process where the product is never exposed to the destructive oxidative forces of heat.
- Plant tissue fractures between/along the layers of the cell walls preserving cellular integrity and improving the retention of the bioactive intracellular contents.
- Water removed as a liquid at an extremely low constant temperature (minus 55 deg C) evaporates at a constant rate while the quantity of water steadily decreases. This creates surface tension. Any solid structure in contact with the water will normally experience surface tension strong enough to damage fragile cell walls; CPT removes water in its gaseous state (water vapor) and avoids this destructive surface tension.
- Exposure of the entire surface area to sublimation results in “even” drying which preserves cellular integrity.

The net result is preservation of the complex synergistic structure as close as possible to how it exists in nature. This translates to a more highly bioactive more effective powder.

### Higher Absorption and Higher Bio-Availability

Particles break down inside the product chamber with minimal need for mechanical grinding. They break down due to the movement of the super frozen particles and sublimation of the ice structure that holds the particles together. This causes them to fall into small porous particles along the natural Cellular Lines creating soft, porous particles which have more surface area per unit of weight and therefore are absorb more easily.

The function and value of our food supplements lie not in lab tests alone, but in their energetic breakdown and uptake inside your body and the preservation of enzymes, proteins and vitamins.

The ability of your body to store or use these nutrients is called bio-availability – yet another huge advantage of our Cellular Preservation Technology activated botanicals.

The quality and effectiveness of our Products are the result of the remarkable protocols and processes we employ from the fields to the finished product. For details on this evolutionary process, please contact us at [www.cptsuperherbs.com](http://www.cptsuperherbs.com)

## Scientific Support & Reference Citations

References <http://examine.com/supplements/clitoria-ternatea/> lists 22 scientific references which provide support for the benefits of Clitoria ternatea:

1. Jain NN, et al [Clitoria ternatea and the CNS](#) . *Pharmacol Biochem Behav.* (2003)
2. Rai KS, et al [Clitoria ternatea root extract enhances acetylcholine content in rat hippocampus](#) . *Fitoterapia.* (2002)
3. Malik J, Karan M, Vasisht K [Nootropic, anxiolytic and CNS-depressant studies on different plant sources of shankpushpi](#) . *Pharm Biol.* (2011)
4. Sethiya NK, et al [An update on Shankpushpi, a cognition-boosting Ayurvedic medicine](#) . *Zhong Xi Yi Jie He Xue Bao.* (2009)
5. Aulakh GS, Narayanan S, Mahadevan G [Phyto - chemistry and pharmacology of shankpushpi - four varieties](#) . *Anc Sci Life.* (1988)
6. Swain SS, Rout KK, Chand PK [Production of Triterpenoid Anti-cancer Compound Taraxerol in Agrobacterium-Transformed Root Cultures of Butterfly Pea \(Clitoria ternatea L.\)](#) . *Appl Biochem Biotechnol.* (2012)
7. Kumar V, et al [Validation of HPTLC method for the analysis of taraxerol in Clitoria ternatea](#) . *Phytochem Anal.* (2008)
8. Terahara N, et al [Eight new anthocyanins, ternatins C1-C5 and D3 and preternatins A3 and C4 from young clitoria ternatea flowers](#) . *J Nat Prod.* (1998)
9. Terahara N, et al [Five new anthocyanins, ternatins A3, B4, B3, B2, and D2, from Clitoria ternatea flowers](#) . *J Nat Prod.* (1996)
10. Taur DJ, Patil RY [Evaluation of antiasthmatic activity of Clitoria ternatea L. roots](#) . *J Ethnopharmacol.* (2011)
11. Ripperger H [Isolation of stigmast-4-ene-3,6-dione from Hamelia patens and Clitoria ternatea](#) . *Pharmazie.* (1978)
12. Kazuma K, Noda N, Suzuki M [Malonylated flavonol glycosides from the petals of Clitoria ternatea](#) . *Phytochemistry.* (2003)
13. Revilleza MJ, Mendoza EM, Raymundo LC [Oligosaccharides in several Philippine indigenous food legumes: determination, localization and removal](#) . *Plant Foods Hum Nutr.* (1990)
14. Kamkaen N, Wilkinson JM [The antioxidant activity of Clitoria ternatea flower petal extracts and eye gel](#) . *Phytother Res.* (2009)
15. Rai KS, et al [Clitoria ternatea \(Linn\) root extract treatment during growth spurt period enhances learning and memory in rats](#) . *Indian J Physiol Pharmacol.* (2001)
16. Taranalli AD, Cheeramkuzhy TC [Influence of clitoria ternatea extracts on memory and central cholinergic activity in rats](#) . *Pharm Biol.* (2000)
17. Rai KS, et al [Altered dendritic arborization of amygdala neurons in young adult rats orally intubated with Clitoria ternatea aqueous root extract](#) . *Phytother Res.* (2005)

18. Adisakwattana S, *et al* [In vitro inhibitory effects of plant-based foods and their combinations on intestinal  \$\alpha\$ -glucosidase and pancreatic  \$\alpha\$ -amylase](#) . *BMC Complement Altern Med.* (2012)
19. Solanki YB, Jain SM [Antihyperlipidemic activity of Clitoria ternatea and Vigna mungo in rats](#) . *Pharm Biol.* (2010)
20. PIALA JJ, MADISSOO H, RUBIN B [Diuretic activity of roots of Clitoria ternatea L. in dogs](#) . *Experientia.* (1962)
21. El-Halawany AM, *et al* [Screening for estrogenic and antiestrogenic activities of plants growing in Egypt and Thailand](#) .*Pharmacognosy Res.* (2011)
22. Ramanathan M, Balaji B, Justin A [Behavioural and neurochemical evaluation of Perment an herbal formulation in chronic unpredictable mild stress induced depressive model](#) . *Indian J Exp Biol.* (2011)

**Factory :** 224 Moo 10, T.Banthi, A.Banthi, Lamphun 51180 Thailand  
**Head Office :** 165/3 Moo 1, T. Changphueak, A.Muang, Chiang Mai 50300 Thailand

**Phone :** +66 (0)8 1764 4324 **Phone / Fax :** +66 (0)53 414 064 **E-mail :** info@thaifreeze-dry.com **www.thaifreeze-dry.com**