For more than 500 years, people in South East Asia have been using the root of “White Kwao Krua” for its profound anti-aging properties. This root has been identified as Pueraria candollei var. mirifica Airy Shaw et Suvat, which belongs to family Papilionaceae (Leguminosae).

Folklore goes on to say that the root is a “fountain of youth” for aged men and women. It serves as anti-wrinkle agent for aged and wrinkled skin, darkens white hair and increases hair growth, alleviates cataract problems, helps with memory loss, increases energy and vigor, blood circulation, appetite and sleep disorders.

The name mirifica in Latin means miracle. There are more than thirteen related, identified species of Pueraria with similar tuberous roots they can be differentiated by the taxonomical characteristics of leaf, flower, inflorescence, fruit and covering trichomes. The only species with distinct estrogentic activity was found to be Pueraria candollei var. mirifica A. Shaw. & Suvat. (herein after “Pueraria mirifica or P. mirifica”), even the taxonomically close species Pueraria candollei Graph. Ex. Benth. does not contain any measurable amount of Miroestrol and also lesser amount of isoflavonoids.
Therefore, the properly identified roots are collected and their Phytoestrogens HPLC fingerprints authenticated before any further processing. For best results the location, age of plant (2-4 years), atmospheric conditions (no rain), drying process and storage conditions are carefully monitored.

In “Anusarnsoondhorn, L. (1931) The Ingredient of *Pueraria* Tuberous Root”. Translated from Siamese. In these writings it is mentioned that the use of this root, will make the skin smooth like a six year old child and allow you to live 1,000 years and prevent suffering from parasites, while also enhancing memory. Wanadorn, P.W. in: A Reputed Rejuvenator, *J. Siam Society, Natural History Supp.*, 8, 337 (1931), wrote “The ability of *P. mirifica* to produce a soft, youthful skin, and to turn White hair black, is stressed”.

*Pueraria mirifica* contains different types of Phytoestrogens, which may be broadly classified into three main groups:

1- The Miroestrol and Deoxymiroestrol group, these are comparatively potent Phytoestrogens Unique to *P. mirifica*, their structural configuration is very close to the structural configuration of Estradiol-17B.

![Miroestrol, Deoxymiroestrol, Estradiol-17B](image)

2- The isoflavonoid group, which comprises: Daidzin and Daidzein, Genistin and Genistein, also Puerarin.

3- The Coumestan group comprising coumestrol.

This wide variety of Phytoestrogenic compounds belonging to different groups and present side by side in a single plant, is what makes *P. mirifica* a very appreciated herb for replacing the decline in the natural hormones in women over 45 years of age.
Taking estrogenic hormones, has been proven to be carcinogenic. On the other hand, taking Phytoestrogens proved to be anti-carcinogenic or at least delay carcinogenic manifestations. A considerable amount of data has accumulated proving that Phytoestrogens exhibit an inhibitory effect against mammary tumorigenesis, prostate-related cancer and bladder cancer.

Phytoestrogens also exhibit favorable effects other than the dramatic results of protection against certain types of cancer. In other words, as a result of the decrease in the level of estrogenic hormones, the body’s systems and their functions begin to decelerate and the immune system weakens, accordingly menopausal women will usually experience both psychological and physiological changes. Psychological changes range from anxiety, tension and nervousness to chronic depression, whereas the physiological changes include hot flashes, fatigue and insomnia to more severe conditions as bone loss, balding and degeneration of the reproductive area.

The health benefit of Phytoestrogens is at least two folds:

First they can bind to the estrogen receptors with respective degrees of affinity. Hence Phytoestrogens from *P. mirifica* can correct estrogen insufficiency in the body and relieve any resulting symptoms.

Secondly, there is evidence to support that phytoestrogen consumption contributes to lower risks of cardiovascular diseases. Soy Bean, which contains similar isoflavonoids as those found in *P. mirifica*, was proven to decrease the level of LDL, Cholesterol and increase the level of HDL in the blood.

The following safety Studies were conducted:

**Mutagenicity Assay:** Ames test showed no sign of Mutagenicity for *P. mirifica*.

**LD-50:** The LD-50 of *P. mirifica* in mice was found to be greater than 16 g/kg of the body weight. Since the normal therapeutic dose has been estimated to be 0.8-1.3 mg/kg/day, it is quite obvious that the safety margin is very high. [Chivapat, S., Chavalittumrong, P., Rattanajarasroj, S., Chuthaputti, A. and Panyamang, S., *Bull. Dept. Med. Sciences*, 42, 202 (2000)]
**Human Studies:** Three female human studies, two in Thailand and one in Japan, were conducted, no significant signs of toxicity or adverse effects could be reported by the investigators. [Chandeying, V., Kuramoshi, T. and Schauss, A., *Personal Communication* (2001)]

**Skin Tests:** With regards to the safety and efficacy of dermal preparations of *P. mirifica* extract, standard dermal toxicity tests were performed in various animal species as well as in human and no toxicity was observed. Moreover, the efficacy of breast creams has been recently evaluated in a large group of human volunteers. [Thailand Institute of Scientific and Technological Research (July 2002)]

Various forms and preparations of *P. mirifica* should provide an effective, safe and inexpensive alternative to women who wish to take charge of their own health and to enhance their beauty or utilize *P. mirifica* for various cosmetic purposes.

When applied to the skin *P. mirifica* will be beneficial to that respective part of the body. Topical uses of *P. mirifica* have been known to include:

- **Breast Creams**
- **Eye Gels**
- **Body Gels**
- **Day & Night Creams**

**Raw Material Available:**
- Trade Name: Purestrol™
- Standardized Alcohol Free (AF) Extract containing ≥ 20 mg Miroestrol/100 g (INCI Names: Glycerin, Water, Pureria Mirifica Root Extract)
- Standardized Powdered Extract containing ≥ 20 mg Miroestrol/100 g

For Further Information Please Contact Bio-Botanica® Sales Department at (800) 645-5720 or local (631) 231-5522.