EstroQuench™
Hormone Specific Formulation™

DESCRIPTION
EstroQuench™ is a *Hormone Specific Formulation*™ of ingredients that have documented anti-aromatase activity as well as androgenic adaptogens which support the function of endogenous aromatase inhibitors. Collectively these herbs promote minimal production and function of estrogens, while promoting testosterone function, including optimal sexual function in both genders. This formulation is designed to quench excessive production of estrogens and aberrant functions of them while supporting optimal function of androgens by maintaining the health of androgen producing glands.†

Hormone Specific Formulation™ provided by Douglas Laboratories® and formulated by Dr. Joseph J Collins is created to support the optimal function of specific hormones through the use of hormone specific adaptogens, hormone specific agonists and hormone specific functional mimetics. This formulation may be used as part of a hormone health program with dietary and nutrient support. In addition, this formulation may be used by clinicians as an adjuvant to support optimal hormone health in patients who have been prescribed bioidentical hormone therapies.

FUNCTIONS
Aromatase (a cytochrome P450 enzyme {CYP19}) is the enzyme that controls the conversion of androgens to estrogens. More specifically, aromatase is the enzyme responsible for catalyzing the biosynthesis of androstenedione into estrone, and the biosynthesis of testosterone to estradiol.
Estrogens include the broad range of aromatized hormones created form androgens. The specific attribute of estrogens that separate them from progestogens, androgens and corticoids is that estrogens are the only aromatized steroid hormones. Estradiol, the most potent endogenous estrogen, is biosynthesized by aromatization from androgens by aromatase (which is also called estrogen synthase). Both Males and females produce endogenous estrogen from testosterone via the enzyme aromatase. In aromatase inhibition, there is less conversion of testosterone and other androgens into estrogens. The end result is lower estrogen levels and higher androgen levels. Endogenous aromatase inhibition is recognized as a normal physiological process in human beings as well as other species. In humans, there are a number of naturally occurring, endogenous aromatase inhibitors. Endogenous means the substance is produced inside the organism – it is the opposite of exogenous aromatase inhibitors such as a prescription aromatase inhibitors.

The primary functions of EstroQuench™ are to support the natural production and function of endogenous aromatase inhibitors, and to support the natural production of testosterone and other androgens to maintain adequate levels of the substrates of androgen metabolites, which acts as aromatase inhibitors.
This is accomplished by supporting the function of testosterone producing glands in both gender, and by supporting the function of testosterone tissues through the use of herbs that mimic the actions of testosterone.

The synergistic combination of specific herbs in EstroQuench™ support important functions associated with optimal estrogen health in both genders through anti-aromatase specific actions of these herbs which:

- Decrease estrogen dominance by supporting androgen production and supporting endogenous aromatase inhibitors.
- Support the production and the function of endogenous aromatase inhibitors.
- Decrease the production of estrogens by inhibiting aromatase activity in both genders.
- Support optimal sexual function in both genders.
- Promote production of other androgens by adrenal glands in both genders.
- Mimic specific functions of testosterone metabolites, thereby acting as aromatase inhibitors and acting as testosterone functional agonists.

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PHYTOTHERAPEUTIC ACTIONS
The following is a list of the phytotherapeutic actions of these plants to support the structural production and the function of endogenous aromatase inhibitors, and the function of endogenous androgens, which oppose aromatase function.

Red maca (*Lepidium meyenii*) is a cruciferous vegetable rich in glucosinolates, which are known for having both antiproliferative and proapoptotic actions specifically in regard to hormone sensitive tissues. Red maca protects hormone sensitive tissues without affecting serum testosterone or estradiol levels. The ability to affect hormone sensitive tissues and support healthy sexual function makes Lepidium meyenii an important component of EstroQuench.™

Damiana (*Turnera diffusa*) has compounds that significantly suppress aromatase activity, but it has not been found to raise testosterone levels. Damiana also contains **apigenin** which has been described as one of the three most potent natural aromatase inhibitors. The levels of DHEA were also significantly higher in the presence apigenin than without it.

Hesperedin from *Citrus sinensis*, has been described as one of the most potent natural aromatase inhibitors. Hesperidin (a flavonone glycoside) is water-soluble due to the presence of the sugar part in its structure, so on ingestion it releases its aglycone, i.e, hesperetin. One study showed hesperetin to be a more potent aromatase inhibitor than naringenin and apigenin. However, since dietary flavones and flavonones might regulate aromatase transcription differently, evidence suggests that multiple flavones and flavonones are more effective than using only one flavone and flavonone.

Naringenin (*Citrus grandis L.*, fruit) and Chrysin

Naringenin is considered one of the three of the most potent natural aromatase inhibitors (as well as apigenin and hesperedin) that will affect estrogen activity. Throughout the medical literature, chrysin is consistently recognized as one of the most potent flavonoid aromatase inhibitors. Like chrysin, naringenin has been shown to inhibit the activity of aromatase, thus decreasing estrogen biosynthesis and producing antiestrogenic effects, important in breast and prostate health.

Agaricus mushroom (*Agaricus bisporus*) is white button mushrooms that suppress aromatase activity and estrogen biosynthesis, and were found to have antiproliferative properties. The researchers concluded that the phytochemical in *Agaricus bisporous* exhibits selective inhibitory effects against estrogen sensitive cells. *Agaricus bisporous* has been found to be a competitive aromatase inhibitor at the cellular level, preventing the conversion of testosterone to estradiol by competing against testosterone on aromatase binding sites.

Brassaiopsis glomerulata

There are a number of constituents in *Brassaiopsis glomerulata* such as N-benzoyl-L-phenylalanine methyl ester and (−)-dehydrololiolide have been found to have aromatase inhibition activity. *Brassaiopsis glomerulata* is one of the herbs presented in a comprehensive documentation of natural aromatase inhibitors that can be used with reduced side effects.

Eurycoma longifolia

Eurycoma longifolia is recognized for its ability to support normal tesostosterone levels in human studies. One mechanism of action is that Eurycomanone, the major quassinoid found in *Eurycoma longifolia* enhances testosterone steroidogenesis at the Leydig cells of the testes and also inhibits aromatase conversion of testosterone to estrogen.

Mangosteen Fruit (*Garcinia mangostana*)

Four xanthones from the botanical dietary supplement mangosteen (*Garcinia mangostana*) exhibit aromatase inhibitory activity. Of those four, gamma—mangostin was found to be active in inhibiting aromatase in cells. The antioxidant properties of this herb work together synergistically with the aromatase inhibiting activity of *Garcinia mangostana* to make this an effective component of EstroQuench™.

Pomegranate Hull Extract (*Punica granatum L.*).

Pomegranate fruit and hull is a rich source of ellagitannins (ET). Six of these ET-derived compounds have anti-aromatase activity, and all compounds exhibited antiproliferative activity. A number of studies have validated that various constituents of pomegranates can inhibit aromatase and have antiestrogenic activity,

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along with possible benefits in other hormone dependent tissues.
Bioperine® is a patented extract of piperine (black pepper fruit) which has been clinically tested in the United States and found to significantly enhance the bioavailability of various supplement nutrients and herbal extracts through increased absorption. A specific benefit in EstroQuench™ is that piperine reduces stress induced elevations of corticosterone when given with an aromatase inhibiting flavonoid like chrysin. This is contributory to the goals of EstroQuench™ because increased levels of glucocorticosteroids (cortisol and corticosteroid) can cause increased aromatase activity resulting in higher estrogen levels.

INDICATIONS
EstroQuench™ may be a useful dietary supplement for individuals wishing to modulate healthy estrogen production and function.

FORMULA (#202060-120X)
Serving Size…… 2 Vegetarian Capsules ……..4 Vegetarian Capsules
Proprietary Blend ....1,150 mg…… 2,300 mg
Maca 4:1 root Extract (*Lepedium meyenii*), Damiana 4:1 leaf Extract (*Turnera diffusa*), Hesperidin (*Citrus sinesis*), Agaricus mushroom 8:1 mycelia Extract (*Agaricus bisporus*), *Brassaiopsis glomerulata* 10:1 leaf Extract, *Eurycoma longifolia* 100:1 root Extract, Mangosteen fruit Extract (*Garcinia mangostana*), Pomegranate Hull Extract (*Punica granatum L.* standardized to 70% Ellagic Acid), Naringenin (*Citrus grandis L.*, fruit), Chrysin
Bioperine® ..... 2.5 mg…….. 5 mg
(black pepper fruit extract/*Piper nigrum*)

Other ingredients: Hydroxypropyl methylcellulose (capsule), cellulose, vegetable stearate, and silica

SUGGESTED USE
As a dietary supplement, adults may take ***2*** **capsules daily with food for 1 to 2 weeks** or as directed by your healthcare professional.
The dose may then be increased to **4 capsules daily with food for 2 to 4 months** or as directed by your healthcare professional.
After 2 to 4 months, dosage may be lowered back down to *2* capsules daily with food and may continue on that dosage as needed or as directed by your healthcare professional.

WARNING: Consult your healthcare professional before use if you are pregnant, nursing or taking prescription medications.

SIDE EFFECTS
No adverse effects have been reported.
STORAGE
Store in a cool, dry place, away from direct light. Keep out of reach of children.

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For more information on EstroQuench™, visit douglaslabs.com

† These statements have not been evaluated by the Food and Drug Administration.
This product is not intended to diagnose, treat, cure, or prevent any disease.

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