Humulus lupulus L.

High-quality dry extract standardised in xanthohumol (X)+ isoxanthohumol (IX)

Humulus lupulus L., Hops, hemp family (Cannabaceae), is a **dioecious, climbing vine**, native to temperate Eurasia, whose **female inflorescences** (cones or strobiles) have been used to **flavor beer** since the 11th century. It is **traditionally used** as a **digestive aid** and to **promote relaxation and sleep**, but also **for menopausal symptoms**.

Hops contains:

- **Flavonoids**
- **Tannins**
- **Essential oil Bitter acids** (humulone and lupolone)
- **Prenylated chalcones and flavanones** (phytoestrogens)

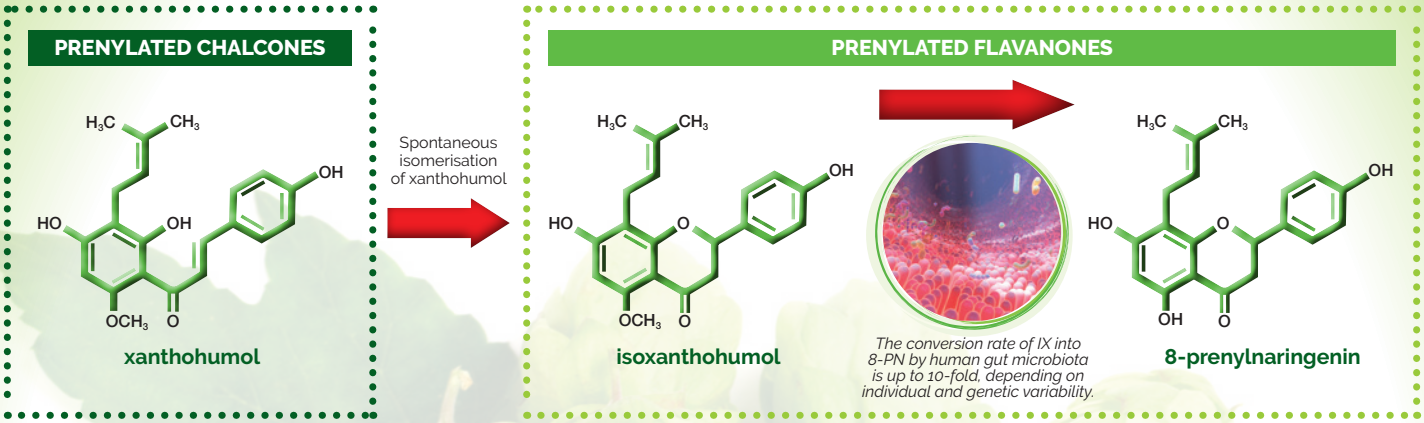
The **reduction of estrogens** during **menopause**, in addition to causing disturbances (**hot flashes, night sweats**, **sleep disorders**, **mood swings**, and **fatigue**), increases the **risk of serious diseases**, such as **metabolic syndrome** and **cardiovascular disease**. **Phytoestrogens** may represent a **green alternative** to **hormone replacement therapy** (HRT).

SereWOMen® plus | DNA® CERTIFIED EXTRACTS

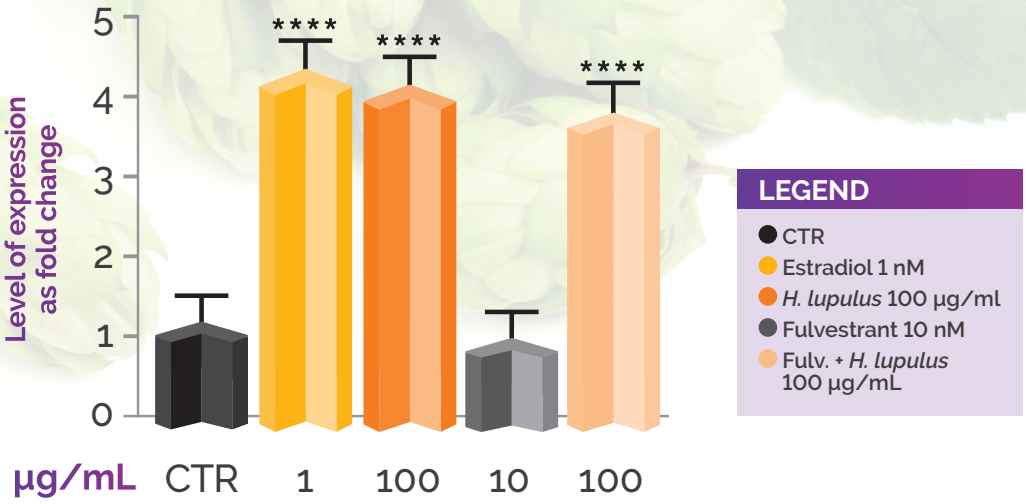
Rev. 00/2026

www.eposrl.com

8-prenylnaringenine (8-PN) is a **natural phytoestrogen**; similar to endogenous 17-β-estradiol, it can bind to **ER receptors** and is **10 times more potent than cumestrol** and **100 times more potent than ginestein**, the main soy and red clover phytoestrogens; hops contains small quantities of 8-PN, but **it forms *in vivo***, converting its precursors **xanthohumol** and the isomer **isoxanthohumol**, through **gut microbiota**.



The **pro-estrogenic effect** of the **hops dry extract standardised in X+IX** has been tested *in vitro* on a **breast cancer cell line** (MCF-7) (data to be published).



Effect of hops extract on the level of expression of PgR gene in MCF-7 cells.

At a concentration of 100 µg/mL, **hops extract significantly increased mRNA expression of the PgR gene**, reaching nearly the same level as the positive control (estradiol 1 nM), also in the case of pretreatment with the antagonist **fulvestrant.**

SereWOMen® plus | DNA® CERTIFIED EXTRACTS

www.eposrl.com