Binding of Phytoestrogens to Rat Uterine Estrogen Receptors and Human Sex Hormone-binding Globulins

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The interaction of phytoestrogens with the most important binding sites of steroid hormones, *i.e.* sex hormone-binding globulin and estrogen receptors, was investigated. Relative binding affinities and association constants for 21 compounds among them isoflavones, flavones, flavonols, flavanones, chalcones and lignans were determined. The lignan nordihydroguaiaretic acid weakly displaced 17β-[^{3}H]-estradiol from estrogen receptor and Scatchard analysis suggests non-conformational changes. Compounds from *Glycyrrhiza glabra*, liquiritigenin and isoliquiritigenin, showed estrogenic affinities to both receptors. 18β-Glycyrrhetinic acid displaced 17β-[^{3}H]-estradiol from sex hormone-binding globulin but not from the estrogen receptor. Phytoestrogens compete with 17β-estradiol much stronger than with 5α-dihydrotestosterone for binding to sex hormone-binding globulin.

Key words: Phytoestrogens, Estrogen Receptor, Sex Hormone-binding Globulin