

TOX 13

Estrogenic activity of Pomegranate extract in MCF7-ERE cells

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Pomegranate, a small tree originating in Orient, belongs to Punicaceae family. The seeds contain an oil of which about 80% is rare trans 18 carbon fatty acid (punicic acid), and have highest botanical concentration of a sex steroid, estrone. Pharmacological properties of pomegranate extract have been studied, with anti-microbial, anti-parasitic, anti-viral, and anti-cancer effects.

We have examined the estrogenic activity of the pomegranate extracts using MCF-7-ERE cells. MCF-7-ERE cells, stably transfected with pERE-Luc were treated various amount of pomegranate extract and after overnight treatments, luciferase activity were measured. Estradiol(E2) dose dependently induced luciferase activity in this cell and maximal response is obtained at 100pM E2.

82-A, 80-A extract of pomegranate showed stronger estrogenic activity than that of 100pM E2. And 40, 41, 44 (EtOH bot seed, fer jui polyphenols, scf peric polyphenol) showed about half inductive effect as compared to 100pM E2. These increase in luciferase activity by pomegranate was inhibited by Tamoxifene concomitant treatment. Therefore is reasonable to interpret that pomegranate extract increased luciferase activity via ER.