

International Conference on
PHARMACEUTICAL CHEMISTRY &
International Conference on
SYNTHETIC BIOLOGY

July 16-17, 2018 | Paris, France

Plant molecules affecting ovarian functions and preventing reproductive effects of oil-related environmental contaminants

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The aim of our in-vitro and in-vivo studies was to examine the potential influence of some medical and food plants and their constituents on ovarian functions. For this purpose, we have study the influence of green tea, rooibos, ginkgo, flaxseed, chia, *Tribulus terrestris* and yucca extracts, as well as of plant molecules resveratrol, curcumin, quercetin, daidzein, diosgenin on proliferation, apoptosis, release of hormones and response to gonadotropins and oil-related contaminants benzene, xylene and toluene of porcine and rabbit ovarian cells as well as on rabbit fecundity. It was observed, that green tea, rooibos, ginkgo, flaxseed, *Tribulus terrestris* and chia extracts, resveratrol, curcumin, quercetin, daidzein, diosgenin, are able to suppress proliferation, promote apoptosis, to alter the release of steroid hormones and to inhibit the response of cultured ovarian cells to hormonal stimulators FSH and IGF-I. Yucca extract expressed an opposite effect. Furthermore, feeding

of rabbits with yucca, but not with green tea or curcumin increased their fecundity. Benzene, xylene and toluene were able to affect these parameters, as well as to block FSH action. Plant extracts and molecules were able to prevent some effects of contaminants. These observations suggest potential direct inhibitory influence of some food and medical plants and plant molecules on ovarian functions. The similarity in plant and plant constituents effects suggest that the observed plant effects can be due to presence of curcumin, quercetin, daidzein and diosgenin. The potential anti-reproductive effect of these plants should be taken into account by their consumption. On the other hand, yucca can be used as a natural stimulator of reproduction and fecundity. Furthermore, plant molecules can be useful for prevention adverse effects of environmental contaminants on reproductive processes.

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