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**Steroids**

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**Steroids: Sex- myco- and phytoestrogens. From occurrence in dairy products and being a possible cause of carcinogenesis to impact on male and female reproductive systems**

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The presence of hormones in milk and dairy foods was reported decades ago. During the last couple of years, increasing body of evidence are indicating another property of sex hormones in dairy products as possible impact on human health including the role of some oestrogens in initiation and provoking of breast, prostate and endometrial tumours. In breast epithelium CYP1A1 and 1B1 play a major role in oestrogens (estrone [E<sub>1</sub>] and 17 β- estradiol [E<sub>2</sub>]) metabolism and clearly in the oestrogen catechols production. The main produced catechols by CYP1A1 and 1B1, are 2-hydroxy and 4-hydroxy-E<sub>2</sub> (2OH- and 4-OH E<sub>2</sub>), respectively, which both can be further oxidized to form quinines. Quinones built from 2OH-E<sub>2</sub> are considered to react with DNA to form a stable adducts without mutations. However, quinines derived from 4OH-E<sub>2</sub> forms depurinating adducts and result in mutations. Thus 4OH-E<sub>2</sub> seems to be the most genotoxic metabolites of E<sub>2</sub> as estradiol 4-hydroxylation activity is enhanced in breast and uterine tumours in comparison to normal tissues. Mycoestrogens and phytoestrogens on the other hand, are non-steroidal estrogenic compounds, which are produced by different species of *Fusarium* fungi and plants, respectively. These compounds are used as growth promoter and/or alternative compound for hormone replacement. Both series of chemicals are mainly acting via estrogen receptors that are located in various tissues. During the last two decades, my main focus was on determination of estrogens level in dairy products and meat from cow and buffalo. This investigation was along with molecular pathway(s) highlighting for possible role of mycoestrogens on estrogens metabolism and presumable role of them in cancer initiation and promotion. At the same time, the negative effects of myco- and phytoestrogens on male reproductive system were also investigated.

**Biography**

Malekinejad Hassan has completed his PhD from Utrecht University and Postdoctoral studies also from Utrecht University. He is the head of Pharmacology & Toxicology laboratory at the Faculty of Veterinary Medicine. He is serving actively as scientific board member of 4 high prestigious journals and leading several DVM, MD, PhD projects. During the last 5 years he has been selected two times as top researcher of Urmia University. Very recently (MAY 2015), he chaired as scientific secretary of 13th International congress of Toxicology in Iran. He is fellow member for various societies including ISSX, EAVPT, IST. He has published more than 75 papers in reputed journals.

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