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Oestrogenic Activity of Parabens in Endocrine System

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The use of underarm and body care cosmetics with oestrogenic chemical excipients (particularly the parabens) hypothesized association with breast cancer incidence. It is noted that the type of cosmetic product is irrelevant (e. g. antiperspirant/deodorant versus body lotion, moisturizers or sprays versus creams) and attention must focus on issues of actual exposure to chemicals through continued dermal application of body care products and the endocrine/ hormonal activity and toxicity of the chemicals in the formulations. To evaluate the estrogenic activities of parabens such as ethylparaben, butylparaben, propylparaben, isobutylparaben and isopropylparaben, we used recombinant yeasts containing the human estrogen receptor [*Saccharomyces cerevisiae* ER + LYS 8127], human breast cancer MCF-7 cell lines and human estrogen receptor α and β . In E-screen assays, isopropylparaben is the most estrogenic paraben, and in ER competition assay, isobutylparaben is the most estrogenic paraben. We evaluated isopropylparaben was most active in the recombinant yeast assay, followed by propylparaben, ethylparaben, isobutylparaben and butylparaben. Results from this study demonstrate that parabens are observed in human endocrine system. Therefore, we have shown that the parabens were induced the estrogenic activities similar to 17β -estradiol and bisphenol-A.

Keyword: ethylparaben, butylparaben, propylparaben, isobutylparaben, isopropylparaben, estrogenic effect, endocrine disruptor