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## **Estrogenic Activity of Phthalates Evaluated by In Vitro Assays**

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Within the field of endocrine disruption, much focus has been placed on chemicals that mimic estrogen, and the number of such chemicals apparently detected in our environment such as drinking water. Phthalates are man-made chemicals abundantly found in the environment. For last few years, Di-n-butyl Phthalate(DBP), Butyl Benzyl Phthalate(BBP), Diethyl Phthalate(DEP), Bis(2-ethylhexyl)phthalate(DEHP), Dimethyl Phthalate(DMP) have been detected in Pal-dang reservoir with high frequency by simultaneous determination method of 300 chemicals. In this work, we selected 5 phthalates and tested by E-screen assay. DBP, BBP, DEP, DEHP were found to have estrogenic activities by MCF-7 cell proliferation about 2 fold induction. In addition, we measured reporter gene assay, estrogen receptor(ER) protein and pS2 mRNA levels to clarify the mechanism of their estrogenic activity and 17 $\beta$ -estradiol was tested as a positive control.

**Keyword:** MCF-7, phthalates, simultaneous determination, E-screen assay, Reporter gene assay