Title: Assessment of estrogenic potential of diethyl phthalate in female reproductive system involving both genomic and non-genomic actions

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Abstract

Phthalates are the diverse group of compounds abundantly present in environment. The present study shows the estrogenic potential of diethyl phthalate (DEP). The data showed that DEP increased the transactivation of ER in CHO and MCF-7 cells suggesting its interaction with ER. In vivo parameters like increased uterine epithelial cell height and up regulation of various steroidogenic genes were also observed in adult female rats. Our uterotrophic assay data from immature female rats suggested that DEP treatment resulted in augmentation of uterine weight as well as luminal epithelial cell heights in both vaginal and uterine tissues. Further, DEP was able to upregulate *pS2* gene expression with simultaneous activation of MAPK pathway as demonstrated by increased p-ERK/ERK ratio. Taken together, the present data suggests that DEP acts as an estrogenic compound and based on these data further detailed studies would reveal its mode of action at cellular levels.