

**Cytome Assay of Buccal Epithelium for Bio-monitoring
Genotoxic Assessment of Benzene Exposure
among Petrol Pump Attendants**

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ABSTRACT Petrol pump attendants are occupationally exposed to benzene through their contact with petrol vapor and engine exhaust. This study investigated the genotoxic effect associated with benzene exposure. Exfoliated buccal cells and urine samples were collected from 40 petrol pump attendants and 40 subjects as control group, their age and sex matched and they were not exposed to benzene. Further, these groups were classified into two subgroups: smokers and non-smokers. Cytogenetic study was carried out by cytome assay. To determine the benzene exposure, we have used metabolites of benzene such as phenol and *trans, trans*-muconic acid from urine. Frequencies of binucleated cells ($P < 0.01$), micronucleated cells ($P < 0.01$), bulging form nucleated cells ($P < 0.01$) and karyorrhectic cells ($P < 0.01$) were found to be significantly higher in petrol pump attendants than control individuals. Urinary mean phenol level ($P < 0.01$) and *trans, trans*-muconic acid levels ($P < 0.01$) were also found to be significantly high. Our study indicates that chronic and long term exposure of benzene can increase the genotoxic risk in petrol pump attendants.