

## Quantifying Temporal Variation of Volatile Organic Compounds and Their Ozone Forming Potential at Rural Atmosphere in Delhi

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**Abstract :** Ambient concentrations of volatile organic compounds (VOCs) were investigated in order to find out temporal variations and their ozone forming potentials (OFP) at rural site in Delhi National Capital Region during summer 2013. Sampling was performed for continuous five days, to identify the differences in working days and weekend VOCs concentration levels. Sampling and analytical procedure for VOCs were done using National Institute for Occupational Safety and Health (NIOSH) standard method. On each sampling day, VOCs samples were collected for 3-hours in the morning, afternoon and evening. There has been observed a noticeable contrast in the concentration of VOCs levels between working days and weekend. However, most of the VOCs showed diurnal fluctuations with higher concentrations in the morning and evening as compared to afternoon which might be due to change in meteorology. The results showed that mean toluene/benzene and m-/p-xylene/benzene ratios were higher in the afternoon while it was lower during morning and evening. The relative contribution of the VOCs to ozone formation, total propylene equivalent concentrations and OFP were calculated. Toluene was the most contributing organic contaminant to ozone formation as well as ambient VOCs concentrations. Results obtained in current study demonstrate that ozone formation at rural site in Delhi is probably limited by the emissions of VOCs.

**Keywords :** VOCs, rural, NIOSH, ozone forming potential, propylene equivalent concentration

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