



Air Quality deterioration by Firecracker during Diwali Festival in Jamshedpur, India

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ABSTRACT

During Diwali festival public used to burn firecrackers to express their happiness and joy. Fireworks in large amounts exaggerate the level of air pollutants and cause significant short-term air quality degradation. In this study pilot experiment were analyzed for PM_{10} , $PM_{2.5}$ and inorganic (sulfate, ammonium, nitrate, potassium, chloride, sodium, calcium and magnesium) chemical components. Initial results show that throughout day and night times for pre Diwali (before Diwali), Diwali day and post Diwali (after Diwali). On Diwali schedule the short term PM_{10} concentration was between $430 \mu\text{g m}^{-3}$ (before Diwali) to $883 \mu\text{g m}^{-3}$ (Diwali day), which is about fourteen times higher than the Indian Ambient Air Quality (NAAQ) Standard which is $60 \mu\text{g m}^{-3}$ and $PM_{2.5}$ Concentration was between $183 \mu\text{g m}^{-3}$ (before Diwali) to $263 \mu\text{g m}^{-3}$ (Diwali). The $PM_{2.5}$ values are more than six times higher than the NAAQ Standard value which is $40 \mu\text{g m}^{-3}$.

Keywords: PM_{10} , $PM_{2.5}$, Diwali, Ions, Firecrackers, NAAQS.
