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MAGNETIC SUSCEPTIBILITY OF ROAD DUST FROM KOLKATA-IN RELATIONSHIP TO ROAD TRAFFIC

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ABSTRACT

For the assessment of pollution levels prevalent in relation to the ever increasing roadside automobile traffic, this study has been conducted in and around the metro city, Kolkata. This study was carried out to assess the roadside dust and auto exhaust gaseous levels at 40 busy road-crossings of Kolkata. Magnetic susceptibility is used as a proxy for heavy metal pollution in the road - dust. The studied samples are collected as road-dust during winter season starting from December 2010 to June 2011. The highest susceptibility value (904.5833 X 10^{-6} CGS) as measured is evident from Ultadanga, and the lowest value (133.25 X 10^{-6} CGS) is evident from Vivekananda-Bidhan Sarani crossing. Remarkably a NE-SW ridge of high susceptibility value is found in the susceptibility map made by susceptibility value. It is evident from this study, that the narrow roads, with high traffic frequently played a prime role behind high susceptibility values, whereas wide roads, or open space around even busy road are capable to disperse the magnetic particles. Apart from these highest and lowest susceptibility values we have got such kind of result where traffic is low, but pollution is high due to the nearby constructional site. But generally pollution value is proportional to the traffic.

KEYWORDS: Environmental Magnetism, Magnetic Proxies, Magnetic Screening, Pollution of Roadside Soils, Emissions of Vehicles