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$PM_{2.5}$ and PM_{10} chemical characterization in Tula.

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The results of the study on $PM_{2.5}$ and PM_{10} chemical composition at Tula are presented. Samples were collected at two sites during March - April, 2006. Several trace elements, organic carbon (OC) and elemental (EC), polycyclic aromatic hydrocarbons (PAH) and six ions were analyzed to characterize aerosols. Results showed that there were no exceedences to the $PM_{2.5}$ standard (65 μg/m^3 24-h average) and concentrations were between 16.3 μg/m^3 (Tepeji) and 23.8 μg/m^3 (Subestacion). PM_{10} average concentrations were 59.7 (Subestacion) and 33.7 μg/m^3 (Tepeji), therefore the standard (120 μg/m^3, 24-h average) was no exceeded. $PM_{2.5}$/PM_{10} ratios were 0.42 and 0.68 at Subestacion and Tepeji, respectively, which shows that combustion processes are more important in Tepeji. Chemical analysis of $PM_{2.5}$ and PM_{10} samples provided a picture of spatial variation across Tula, showing that fugitive dust was one of largest PM_{10} contributors in Subestacion while $PM_{2.5}$ was dominated by secondary particles (sulfate, nitrate and ammonium) carbon and some dust in the case of Subestacion. Data validation showed a good agreement between analytical techniques (K^+ vs. potassium, Ca^{2+} vs calcium, Na^+ vs sodium).