

STUDY THE ORGANIC MATERIALS OF SUSPENDED PARTICULATES IN ATMOSPHERE OF TEHRAN

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Tehran is one of the most pollutant cities in the world, because of its geographical location, population, heavy traffic jams and especial climate. Measuring of daily suspended particulates in Tehran shows that their concentration is higher than air quality standards in more times. In this work we extracted organic materials from the suspended particulates with cyclohexane by soxhlet apparatuses and cyclohexane was evaporated with a rotary evaporator. The cyclohexane soluble fractions were studied by gas chromatography. The samples of suspended particulates were collected by drawing air through glass fiber filters using a high volume air sampler for 24 hours in every 6 days periods during two years. The average ratio of organic materials to suspended particulates was 93.7 mg/g, in the range of 24 mg/g (corresponding to one day in April) to 249 mg/g (corresponding to one day in December) and the average of concentrations suspended organic materials in the air was 15.56 mg/m³, between the lowest amount 4.5 mg/m³ and the highest amount 31.7 mg/m³. IR and NMR spectroscopy showed the aromatic organic materials are less than 5 percent of total organics and analysis by gas chromatography showed that more than 95% of these materials have been formed from hydrocarbons those have more than twelve carbons (C₁₂) and 85% were the hydrocarbons with more than 18 carbons (C₁₈). Solar radiation and relative humidity are two influence factors on the length of hydrocarbons chains.