Evaluation of inhalational exposure to benzo[*a*]pyrene in asphalt workers of Tehran

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Abstract

Background: Asphalt workers are being exposed to many different hazardous agents, including polycyclic aromatic hydrocarbons (PAHs) in their own workplaces which could jeopardize their health and wellbeing by developing possible occupational diseases. Benzo [*a*] pyrene, a proven carcinogenic compound, could be generated from hot asphalt and put the workers in respiratory exposure. The aim of this study was to evaluate the respiratory exposure of asphalt workers to benzo [*a*] pyrene.

Methods: In this study, 42 samples were collected from breathing zone of asphalt workers under supervision of Tehran Municipality. The samples were taken by sorbent tube and filter connected to a personal sampling pump. Analysis of samples was done by HPLC – UV.

Results: In total 42 taken samples, Benzo [*a*] pyrene was detected in 30 of them, which equals to 71 percent of total samples. Among all the jobs, the highest exposure level was related to screed man with a mean and standard deviation of 38.83 and 17.74, respectively. No concentration level of benzo [*a*] pyrene was detected in oil man job. Scheffe test showed significant differences between screedman and roller driver jobs ($P< 0.03$).

Conclusion: Results showed this fact that not only asphalt workers have exposure to polycyclic aromatic hydrocarbons (PAHs), but also exposure to Benzo [*a*] pyrene in screed men and roller driver jobs were maximum and minimum, respectively. In addition, according to the result of this study, occupational exposure to benzo [*a*] pyrene among asphalt workers is below the Iranian standard.**Key words**: benzo [a] pyrene,Asphalt workers, respiratory exposure, HPLC- UV

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