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# Benzene and ethylbenzene analysis in hemodialysis rooms using SPME-GC-FID

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**Background and Aims:** Low quality of indoor air as a major problem of hospital was observed. It might be a main concern of administrators of health system. This study examines the possible presence of Benzene and Ethyl benzene in the Hemodialysis Room (HR) in Yazd city hospitals. It is based on the truth that benzene has been classified as an carcinogenic agent to humans by IRAC and small levels of ethyl benzene in the indoor air can cause harmful health effects.
**Methods:** we collected data from two public hospitals. Eighteen indoor air samples were got from the different places in Hemodialysis rooms by Tedlar bags in morning shift on December 2011. Two toxic and volatile organic compounds (benzene, ethyl benzene) were analyzed and measured by SPME-GC-FID. The ANOVA test was used to analyse the results.
**Results:** there is no significant difference between the concentrations of benzene and ethyl benzene in indoor air of the three different places of hemodialysis room (dialysis room center, nursing station, beside of the dialysis machine). In the Nursing station, the benzene and ethyl benzene concentrations were higher than two other sampling sites.
**Conclusions:** Results shows that hemodialysis Rooms contain environmental pollution of benzene and ethyl benzene. But the concentrations are low and the differences were not significant. Other factors such as temperature, type of air conditioning and use of solvents plays an important role in quality of indoor air in hemodialysis rooms. Therefore, a survey needs to be done to determine the air pollution caused by dialysis machine alone.

**Keywords:** Benzene; Ethylbenzene; Hemodialysis rooms; SPME-GC-FID