

عنوان مقاله:

Estimation of the Concentration of Diazinon Pesticide in Drinking Water Resources in Summer Areas of Mashhad, Iran

محل انتشار:

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نویسندگان:

Zohreh Moghiseh - *Department of Environmental Health Engineering, School of Health, Mashhad University of Medical Sciences, Mashhad, Iran*

Ali Asghar Najafpoor - *Health Sciences Research Center, Department of Environmental Health Engineering, School of Health, Mashhad University of Medical Sciences, Mashhad, Iran*

Mohammad Hassanzadeh Khayyat - *Department of pharmaceutical chemistry, School of Pharmacy, Pharmaceutical Research Center, Mashhad University of Medical Sciences, Mashhad, Iran*

Habibollah Esmaily - *Health Sciences Research Center, Department of Biostatistics and Epidemiology, School of Health, Mashhad University of Medical Sciences, Mashhad, Iran*

خلاصه مقاله:

Background & Aims of the Study: Torqabeh and Shandiz are the two most well-known areas among the varied summer areas of Mashhad. The climate of these areas is appropriate for the development of agriculture and gardening and attracting tourists. Hence, maintaining the safety of drinking water is necessary in these areas. This study was carried out to investigate the diazinon concentration in drinking water resources (groundwater) in the summer areas of Mashhad city. **Materials & Methods:** Sixty water samples, with the volume of 250 ml, were gathered from 10 wells and springs in the villages of Shandiz and Torqabeh in two seasons. The liquid-liquid extraction was performed using dichloromethane solvent and the concentrations were measured using High-Performance Liquid Chromatography (HPLC) system (KNAUER model) which was equipped with UV detector. The data were analyzed by SPSS software (Version 16). A probability level of $P < 0.05$ was considered as statistically significant. The data were compared to the standards of WHO and EPA. **Results:** A linear relationship between concentration and peak area was obtained within the range of 0.05 to 2 ppb with R^2 (Correlation coefficient) values greater than 0.99. Recoveries for spiked water samples with six diazinon standards in 0.05 to 2 ranged from 79.63 to 110.90% (with an average of 92.80 ± 12.12). The results indicated that diazinon wasn't detectable in the springs of the studied areas while the wells of Torqabeh (with an average concentration of $0.82 \mu\text{g/l}$) were contaminated more than the wells of Shandiz (with an average concentration of $0.48 \mu\text{g/l}$), measured by HPLC. The maximum and minimum of contamination were observed in the villages of Veyrani¹ and Nochah, respectively, measured by HPLC. **Conclusions:** The concentration of diazinon in Shandiz and Torqabeh areas was higher than standard limits of WHO ($0.1 \mu\text{g/l}$) and EPA ($9 \times 10^{-6} \text{ mg/l}$). Also, the average concentration of diazinon in Torqabeh ($0.61 \mu\text{g/l}$) was higher than that in Shandiz ($0.48 \mu\text{g/l}$) and the contamination in wells was observed to be more ($0.59 \mu\text{g/l}$) than springs.

کلمات کلیدی:

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