عنوان مقاله:

Evaluation of health risk to humans in consumption of wheat grown in nickel-contaminated soils

محل انتشار:

مجله پیشرفت در تحقیقات بهداشت محیط, دوره 6, شماره 1 (سال: 1396)

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خلاصه مقاله:

In this research, accumulation and distribution of nickel in root, leaves and stem and grains of wheat were studied to assess the health of wheat grain for human consumption. A greenhouse experiment was conducted based on randomized complete block design with three replications. Wheat was grown under two nickel concentrations in soil (0.0 and 100 mg kg-1). At maturity, wheat was divided into its parts (root, leaves and stem, grain) and nickel concentrations were measured in plant parts. Results indicated that the highest nickel (132.8 mg kg-1 plant tissue) was accumulated in roots which was 12 times more than nickel accumulated in shoots, suggesting that no actual remediation was occurred by wheat. Under high concentrations of nickel, wheat grains are not suitable for human consumption, because health risk index was achieved 130.27 and 169.40 for adults and children, respectively. However, because wheat was able to grow under high concentrations of nickel, this plant can be considered as a tolerant plant to nickel stress. Further research is needed to determine the ultimate limit of nickel concentrations in soils where the accumulation of nickel in the grains is not such a high amount that it threatens human health.

کلمات کلیدی:

Concentration Factor, Heavy Metal, Plant Part, Wheat Grain