

عنوان مقاله:

Evaluation of lead and nickel in wheat (*Triticum aestivum* L.) using sugarcane biochar

محل انتشار:

مجله پیشرفت در تحقیقات بهداشت محیط, دوره 8, شماره 3 (سال: 1399)

تعداد صفحات اصل مقاله: 6

نویسندگان:

Shahyad Tokhmehchian - *Department of Agronomy, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran*

Seyed Keyvan Marashi - *Department of Agronomy, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran*

Teimour Babaeinejad - *Department of Soil Science, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran*

خلاصه مقاله:

Today, heavy metal contamination in soil due to toxicity, stability, high shelf life in soil, and elemental accumulation in foods is considered to hazardous biologically and ecologically. This study aimed to investigate the distribution of lead and nickel in wheat using sugarcane biochar. The experimental design was factorial with a completely randomized design in triplicate, and the factors included sugarcane biochar at four levels of zero (control), 2, 4, and 6% of soil weight and soil type (contaminated and non-contaminated with lead and nickel). Lead (500 mg/kg) and nickel (250 mg/kg) were added to each pot based on the threshold and critical levels of contaminated agricultural soil. The maximum lead in roots (1,771.8 mg/kg), stems (119.73 mg/kg), and grains (32.36 mg/kg) and maximum nickel in roots (562.5 mg/kg), stems (39.54 mg/kg), and grains (9.4 mg/kg) were measured in the contaminated soil. The maximum reduction of lead and nickel in the plants was measured using 6% biochar, and the reduction rate of lead in roots, stems, and grains with 6% biochar was 22.2, 75.7, and 83.3%. The reduction rate of nickel in roots, stems, and grains was 16.9, 81, and 62.8% compared to the biochar absence, respectively. In the contaminated soils, 6% biochar was effective in reducing the lead below the standard level in foods, especially in the grains, while the grain nickel was slightly higher than the food standards, and further investigations should increase food safety.

کلمات کلیدی:

Biochar, Lead, nickel, Contaminated Soil, sugarcane, Wheat

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1168927>

