

Determination of lindane leachability in soil-biosolid systems and its bioavailability in wheat plants

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The leachability of lindane from different biosolid amended soils was determined and compared to its bioavailability. Sand, soil, and a mixture of soil-sand (1:1 w/w) were spiked with lindane, blended with different amounts of biosolids, and subjected to a leaching process with water that lasted for 1-28. d. This procedure is in accordance with ISO/TS 21268-1: 2007. After these batch tests, lindane was extracted from the leachates using three different solvent-free microextraction techniques, including solid phase microextraction (SPME), stir-bar sorptive extraction (SBSE), and silicone rod extraction (SRE). The amount of lindane was determined with thermal desorption and gas chromatography coupled to mass spectrometry (GC-MS). The efficiencies of the three microextraction techniques were statistically different, and the efficiency could be related to the amount of polydimethylsiloxane (PDMS) in each extraction device. However, all of the techniques provide data that shows that the lea