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Subsequent effects of vermicomposts from kitchen biowaste on properties of soil and plants

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The aim of this work was to compare the direct and subsequent influence of vermicomposts from kitchen biowaste with the addition of woodchips and used paper on the soil agrochemical properties of light sand Cambisols and heavy clay-loam Luvisols, and on the biological parameters of oat biomass. The pH values and the available calcium and magnesium slightly increased in the Cambisols in the second year after the application of vermicomposts. The opposite trend was found for the contents of available phosphorus and potassium. In the case of the Luvisols, similar contents of total nitrogen, calcium, and magnesium were recorded in both years, but decrease in the available phosphorus and potassium were observed in the second year. The nutrient quality and yield of the fresh and dry matter of the harvested oats after the application of the vermicomposts were higher only in the case of the Cambisols. In the case of the Luvisols, no significant changes occurred in the yield after fertilization, except for vermicomposts consisting of 75% kitchen biowaste + 25% woodchips, and vermicomposts based on 50% kitchen biowaste + 50% paper, where slight increases in the yield were found. The positive impacts of the vermicomposts on yield and nutrient quality in the subsequent year were observed only for the Cambisols. A slight decline in the yield and quality was found in oats grown in the Luvisols.

Biography

Ales Hanc works at the University of Life Sciences in Prague, Czech Republic, Europe. He has published more than 100 articles in local and international journals and proceedings, mainly on the mobility of heavy metals. His research encompasses sewage sludge and household bio-waste composting. Currently, he focuses on the vermicomposting of different biowaste and the use of vermicompost as fertilizer.

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