Humboldt-Universität zu Berlin, Germany
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BOOK of ABSTRACTS

International Conference on Soil Fertility and Soil Productivity
- Differences of Efficiency of Soils for Land Uses, Expenditures and Returns -
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VERMICOMPOST EFFECTS ON THE WHEAT YIELD AND NUTRIENT CONTENTS IN SOIL AND PLANT

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ABSTRACT

Vermicomposting of organic waste has an important part in playing an integrated waste management strategy. The aim of the present study were, (i) to investigate the ability of an epigeic earthworm Eisenia fetida to transform anaerobically digested sewage sludge (SS -pH 7.35, %2.54 N, C/N 9.0-) amended with hazelnut husk (HH -pH 5.81, %1.14 N, C/N 47.4-) and cow manure (CM -pH 8.46, %1.70 N, C/N 12.2-) in different proportions (0% SS+50% HH+50% CM; 10% SS+45% HH+45% CM; 20% SS+40% HH+40% CM; 30% SS+35% HH+35% CM; 40 SS%+30% HH+30% CM; 50% SS+25% HH+25% CM), (ii) to investigate the effects of vermicompost on the wheat (Triticum aestivum) yield and nutrient (N, P, K) contents in soil and plant under greenhouse conditions, and (iii) to compare the best SS- HH - CM proportion. Three pots of each treatment (control, 2% vermicomposted mixtures and 2% postvermicomposted mixtures) were terminated after 90 days of sowing.

Research result showed that all vermicomposted and postvermicomposted mixtures had positive effects on the yield and N, P, K concentrations of wheat compared to the control plants. The vermicomposted organic waste mixtures showed a comparatively better result of plant production than the postvermicomposted organic waste mixtures. Also, vermicomposted 50% SS+25% HH+25% CM mixtures had the highest effects on the yield and increased the production of grain yield in pot experiment compared to control treatment. This study suggests that vermicomposted organic wastes may be a potential source of plant nutrients for sustainable crop production.