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## Heavy Metal Accumulation in the Eggplant (*Solanum melongena*) grown in MSW Compost Applied Soil

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### Abstract

A pot experiment was conducted to investigate the effects of soil applications MSW (municipal solid waste) compost on the fruit yield and heavy metal accumulation in the leaf and fruit of eggplant plant (*Solanum melongena*). Red Mediterranean soil collected from the surface (0–30 cm) of fields cropped in a wheat-corn rotation in Antalya (Turkey) was used as an experimental soil. The heavy metal content of untreated greenhouse soil was well within the accepted normal range of values. Pots containing different amounts (corresponding to 0, 25, 50, 100 and 200 ton ha<sup>-1</sup>, as dry weight basis) of MSW compost were used to grow eggplant plants under controlled greenhouse conditions. Zn, Cu, Ni, Pb, Cd and Cr contents in the leaves and fruits of eggplant were determined as well as the Fruit yield. MSW compost applications led to greater fruit yield at low application rates, but higher application rates (100 and 200 ton ha<sup>-1</sup>) of MSW compost depressed plant growth and fruit yield. It was found that the MSW compost applications brought about a sharp increase for heavy metals in the plant material. At low MSW compost treatments, the concentrations of heavy metals in plants were below the phytotoxic levels. However, in the high MSW compost treatments, according to background and toxicity limits, heavy metal status of leaves and fruits were ranged at high levels, and Pb and Cd concentrations in eggplant fruits were exceeded foodstuff index and limit values for edible vegetables. The resulting data demonstrate that the MSW compost was a source of heavy metals for the soil and MSW compost application caused an important accumulation of heavy metals in eggplant.

**Keywords:** Eggplant, heavy metals, MSW compost