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## **INFLUENCE OF SEWAGE SLUDGE ON AGGREGATION AND PHYSICAL PROPERTIES OF DIFFERENT TEXTURED SOILS**

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### **Abstract**

Application of organic waste to soil is accepted as the most environmentally and economically friendly disposal method. This research was performed to evaluate the influences of sewage sludge on certain structural properties of different textured soils. While the proportion of aggregates <6.4 mm increased with sewage sludge application, proportion of aggregates >6.4 mm decreased. Organic matter contents of soils significantly increased with sewage sludge applications. The general mean organic matter content of the control group was 1.4%, it increased to 3.1, 3.4, and 4.1% with 2, 4, and 8% sewage sludge dose, respectively. Organic matter content increased at rates of 121.4%, 142.9%, and 192.9% compared to the control. The aggregate stability of experimental soils increased from 29.3% (control) to 33.5%, 37.4%, and 42.5% with 2, 4, and 8% sewage sludge application, respectively. Sewage sludge applications enhanced the aggregate stability and reduced the dispersion ratio in all aggregate sizes. The lowest mean bulk density and the highest mean total porosity was obtained from the highest dose of sewage sludge. The highest permeability coefficients were obtained in 4% application dose. As a result of a significant decrease in bulk density and significant increase in aggregate stability, permeability coefficient increased as compared to control. Results obtained have shown that using sewage sludge is not only an effective practice to improve soil aggregation and physical properties but also a friendly disposal of this material.

*Key words:* aggregate size distribution, aggregate stability, bulk density, permeability coefficient, sewage sludge

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