



Effect of different doses of vermicompost applications on oil content and composition of soybean (*Glycine max* (L.) Merrill)

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Abstract

The use of organic fertilizers such as vermicompost is becoming increasingly common in agriculture to reduce the environmental damage caused by chemical fertilizers. This research was conducted in 2025 to determine the effect of applying vermicompost at different doses on the oil content and composition of soybean (*Glycine max* (L.) Merrill). The study was established with three replications according to the “Randomized Block Experimental Design” at the application field of Selcuk University Cumra School of Applied Sciences. In the research, the İlksoy variety was used as material, and vermicompost was applied to the plots at four different doses (0, 50, 100 and 150 kg/da). In the study, seed yield, crude oil content, crude oil yield and fatty acid composition were determined. Vermicompost applications had no statistically significant effect on seed yield, crude oil content and crude oil yield. With different vermicompost applications, the seed yield of the İlksoy variety varied between 205.57–262.00 kg/da, the crude oil content between 13.10% and 15.80%, and the crude oil yield between 27.60–42.70 kg/da. The highest seed yield was obtained with the 50 kg/da vermicompost application, while the highest crude oil content and crude oil yield were obtained with the 100 kg/da vermicompost application. The effects of vermicompost applications on fatty acid composition were not statistically significant, except for oleic acid. According to the results, the ratios of linoleic, oleic, linolenic, palmitic, stearic, caprylic, arachidic and behenic acids ranged between 47.77-49.21%, 20.88-21.41%, 10.05-10.67%, 9.73-10.30%, 5.28-5.87%, 0.63-0.87%, 0.46-0.52%, and 0.35-0.38%, respectively. The highest oleic and palmitic acid ratios were obtained in the control group, while the highest linoleic and arachidic acid ratios were recorded at 100 kg/da, the highest linolenic, stearic, caprylic and behenic acid ratios were obtained with 150 kg/da vermicompost application.

Keywords: Soybean, *Glycine max* (L.) Merrill, Vermicompost, Crude oil, Fatty acid composition

