

Landfill leachate as an abiotic disease factor affecting agricultural crops in the Jenin District

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Abstract:

Different landfills in Jenin district were selected in this research. Those are considered the main garbage destinations for the northern part of the West Bank. Due to hypothesis predicting possible drastic effects on agricultural crops, the experiment was carried out to study the impact of such landfills on nearby olive orchards. The results showed that, since their build up, the landfills have caused drastic reductions of olive yield from an average of 150 kg/dunum to 56 kg/dunum within four years. Furthermore, most olive trees were damaged and many died pushing the yield down to nil. On the other hand, the effect of landfills was studied on vegetables under laboratory conditions. For that, different dilutions of the landfill leachate were used to irrigate tomato and pepper plants. The results showed that leachate caused many negative effects including plant stunting and reduction in leaf surface area when compared with control plants regardless of the amount of dilution used, but these results appeared to be more pronounced in those without dilution. On the other hand, the chlorophyll concentration was higher in plants treated with the zero dilution of leachate when compared with other treatments. Number of dropped leaves was greater in plants treated with the zero dilution of leachate when compared with the other dilutions and the control. The plants treated with zero dilution died before other treatments. Conclusion: Leachate may have a drastic effect on nearby cultivated plants and could affect plant growth and lead to premature plant death.

Key words: Landfills, Leachate, Agriculture, Palestine.

