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Study of the Allelopathic Effects of Certain Aromatic Plants on Grapevines

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In organic farming, including organic viticulture, biodiversity plays a crucial role. Properly selected "companion" and helper plants create favorable conditions for the growth and development of the main crop. Additionally, they can provide protection from pests and diseases, suppress weeds, improve the crop's visual and taste characteristics, enhance nutrient absorption from the soil, and, as a result of all these factors, increase yields.

The use of companion plants is particularly relevant for organic farms, where the range of pesticides and fertilizers is significantly restricted by organic regulations, and they must be replaced with alternative, environmentally safe methods. Therefore, the aim of this research was to study the allelopathic effects of companion aromatic plants on grapevines. The research employed methods used in organic farming and the biological control of harmful organisms. The experiments were conducted in control and experimental plots, each with three replications on equal areas (50 m²).

The allelopathic potential of medicinal hyssop (Hyssopus officinalis), basil (Ocimum basilicum), marigold or Imeretian saffron (Tagetes patula), and lavender (Lavandula angustifolia L.) was studied in vineyards located in the Mtskheta-Mtianeti and Kakheti regions. The impact of these plants on grapevines (Vitis vinifera L.) (variety Muscat petitgrain), their growth and development according to the BBCH scale, yields, and diseases caused by certain pathogenic microorganisms (downy mildew, powdery mildew, anthracnose) was determined. Additionally, the biological, agricultural, and economic efficiency of using these companion plants was assessed.

Biography

Tinatin Shengelia is a Master's student and researcher at the Georgian State Agrarian University in Tbilisi, Georgia. She completed her schooling at the 47th Secondary School of Tbilisi (1995-2006), earned a Bachelor's degree at the Georgian State Agrarian University (2006-2010), and a Master's degree at Gori State University (2018-2022). She is now pursuing further Master's studies at the Georgian State Agrarian University. Tinatin's research focuses on sustainable and organic farming practices that support eco-friendly agriculture in Georgia. She is committed to finding practical solutions that benefit both the environment and local communities

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