



**5<sup>TH</sup> INTERNATIONAL SYMPOSIUM ON  
AGRICULTURAL SCIENCES**



**AGRORES**

**2016**



# **BOOK OF ABSTRACTS**



February 29 - March 3, 2016  
Banja Luka, Republic of Srpska, Bosnia and Herzegovina

HP18

## **HAZELNUT YIELD AND SOIL NUTRIENT CONTENTS INFLUENCED BY HAZELNUT HUSK COMPOST USING MICROBIAL BIOTECHNOLOGICAL TECHNIQUES**

Ridvan Kizilkaya, Tayfun Askin, Ceyhan Tarakcioglu, Svetlana Sushkova

*Ondokuz Mayıs University, Faculty of Agriculture, Samsun, Turkey*

*Agrobigen R&D Ltd.Co., Samsun Technopark, Ondokuz Mayıs University, Samsun, Turkey*

*Ordu University, Faculty of Agriculture, Ordu, Turkey*

*Southern Federal University, Academy of Biology and Biotechnology, Rostov-on-Don, Russia*

Plant residue, a by-product of plant production systems, is an important biological resource, comprising approximately 50% of the total biomass of crops. It is estimated that a total of approximately 2 billion tons of residue are produced annually worldwide. The return of residue to the field is a useful cultural practice to improve both soil fertility and soil organic carbohydrate storage. Composting, as one method of residue return, is a widely acceptable alternative for converting waste into a more useful eco-friendly fertilizer and is known to improve soil fertility. With the increasing demand for organic fruits and vegetables, the return of composted residue to fields as organic manure has recently attracted attention of farmers and scientists due to the positive effects of soil amendment while reducing the use of synthetic fertilizer. The purpose of this work was to examine the influence of different doses of (0, 1.25, 2.5, 5.0, 7.5 and 10 t.da<sup>-1</sup>) composted hazelnut husk (CHH) using microbial biotechnological techniques to the two hazelnut orchard with different textures such as sandy loam and clay loam on the nutrient contents of soil and hazelnut yield. The results showed that hazelnut yield and nutrient contents were significantly affected by soil texture and CHH application doses. In general, CHH markedly increased the hazelnut yield and increased the contents of mineral nitrogen (NH<sub>4</sub>-N, NO<sub>3</sub>-N), available P, exchangeable cations (Ca, Mg, K and Na) and available micronutrient (Fe, Cu, Zn, Mn). CHH significantly increased the aggregate stability of soil, and the hydraulic conductivity in the soil were notably heightened. Yield and yield characteristics, including the shelled hazelnut weight were significantly increased by CHH. According the results of field experiments, conducted with different texture types, focusing on the organic substance management and sustainability of the available nutrient contents in soil, it was clear from the evidence obtained by the research that the ideal CHH application was 5 ton per decare to increase the organic matter content by 2%.

Key words: Hazelnut, Hazelnut husk Compost, Soil, Nutrient, Yield

### Acknowledgements

The authors gratefully acknowledge the scientific research grand (TUBITAK 1110698) from The Scientific and Technological Research Council of Turkey.