

Novel copper nanoparticles for the control of olive foliar and fruit diseases P. NTASIOU, G. T. TZIROS, and G. S. KARAOGLANIDIS. *Aristotle University of Thessaloniki, Faculty of Agriculture, Forestry and Natural Environment, School of Agriculture Laboratory of Plant Pathology, POB 269, 54124, Thessaloniki, Greece. E-mail: ntasioup@agro.auth.gr*

Peacock spot caused by *Spilocaea oleagina* and anthracnose caused by *Colletotrichum* spp., are the most important foliar and fruit diseases of olive. Applications of copper-based fungicides are the main control measures for these pathogens. However, replacement of copper –based products by more eco-friendly alternatives is a priority. In this study we investigated the efficacy of 5 novel Nano-copper (Cu-NPs) formulations against the 2 major olive diseases. Two commercial copper-based formulations were included as reference treatments. The efficacy of Cu-NPs against *Spilocaea oleagina* was evaluated in one-year-old olive trees (cv. Chondrolia Chalkidikis) under controlled environmental conditions in plant growth chamber, while the efficacy against *Colletotrichum* spp. was evaluated under field conditions on the same cultivar. Results showed that the most effective Cu-NPs against *Colletotrichum* spp. was 110_CN_S4_X1 that provided a mean control efficacy value of 61.03%, while the 2 commercial formulations of conventional copper products provided significantly lower control efficacy values of 35.06 and 45.45%. Similarly 3 of the Cu-NPs tested (110_CN_S4_X1, 109_CC_S4_X2, 108_CN_S1_X1) were found to be highly effective against *Spilocaea oleagina* with control efficacy values ranging from 60 to 67.5%. The results of this study are expected to contribute in the optimization of olive diseases control and reduce the yield losses caused, using a new generation of biocides.

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