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I  
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BEZBEDNOST I KVALITET HRANA / FOOD QUALITY AND SAFETY



## Bioactive properties of Greek garlic genotypes

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Garlic (*Allium sativum* L.) is one of the most economically important species of the *Allium* genus throughout the world. One of the major beneficial effects of garlic is related with antioxidant properties which have been associated with many therapeutic effects, including cancer prevention, antithrombotic effects, cardiovascular protection and anti-aging effects.

The aim of the present study was to determine the bioactive properties from various Greek garlicks in order to determine the variability in their antimicrobial and antioxidant properties, as well as to compare them with commercial cultivars. The collected samples included: one local garlic cultivar from Evros “Nea Vissa” (samples G1 and G2); one sample of a local landrace and one sample of Chinese origin cultivated in Neapoli; (samples G3 and G4, respectively); one sample from Euboea Prefecture of Chinese origin (G5); one sample of local cultivar of “Platykampos”, one commercial sample of Chinese origin and one sample of commercial cultivar Gardos, all cultivated in Magnissia Prefecture (G6-G8, respectively), and three samples from Arcadia Prefecture of local cultivar of “Tripoli” (G9-11). The antioxidant activity was evaluated by DPPH radical-scavenging activity, reducing power, inhibition of beta-carotene bleaching and inhibition of lipid peroxidation. The antimicrobial activity was evaluated against four Gram positive bacteria, six Gram negative bacteria and two fungi, using the microdilution method, in order to obtain the minimal growth inhibitory concentrations and minimal bactericidal/fungicidal concentrations.

Genotype G5 showed the lowest EC<sub>50</sub> values for all the tested antioxidant activity assays. The antimicrobial activity was significant, especially against the bacteria *P. mirabilis* and antibiotic resistant *E. coli*. Significant variation was observed between the studied garlic genotypes, indicating the importance of both growing conditions and genotype on the bioactive properties of dry garlic. This variation could be further exploited in breeding programs in order to select elite genotypes with increased bioactive properties.

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