Silver nanoparticles as efficient tool in agrifood applications

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Silver nanoparticles (AgNPs) are widely used in several fields *i.e.,* biomedicine, textile, cosmetic and healthcare [1]. Nowadays, there is a deep interest to use engineered nanomaterials in agrifood, as they can revolutionize agricultural systems using them in different ways [2]. This research aims to improve the production of mycorrhized plants with *Tuber melanosporum* (black truffle) through the controlled use of nanotechnology (Figure 1). Thus, hydrophilic AgNPs with a size range of 30-50 nm were synthesized via green synthesis approach, functionalized during their growth with 3-mercapto-1-propansulfonate sodium salt (3MPS) or poly(acrylic acid) (PAA). To study their different stabilizing efficiency through a covalently linked thiol or a polymeric matrix, DLS and UV-vis measurements. was assessed for an interval of 0-30 days and their functionalization was confirmed by FT-IR, NMR and SEM-EDX. This project belongs to the TANA Project funded by Regione Lazio.