

The influence of colloidal metal nanoparticles on *in vitro* plants of potato

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Potato (*Solanum tuberosum*) as one of the most economically important strategic crops in the world, it is also host to many pathogenic microorganisms causing serious diseases, significantly affecting the yield. One of the most efficient ways of preventing yield losses are application of healthy seed material as well as strict hygiene during the production. Therefore, it is crucial to provide appropriate conditions, at the initial stage of the potato production, especially during *in vitro* plant material micropropagation process. Currently applied biocides often trigger phytotoxic response and they are not very efficient. As an alternative to the substances the silver, copper, gold and platinum nanoparticles have been used. Therefore, the aim of the proposed research was to develop and identify the influence of the colloidal metal nanoparticles on growth and proliferation of *in vitro* cultures of potato. The research on different varieties of potato were performed by placing the explants of the *in vitro* cultures in sterile Murashige and Skoog type medium impregnated with the examined nanoparticles. The vigour of growth and the rate of proliferation has been examined. The preliminary results confirmed high usefulness of the nanocolloids in the safe and effective production of the examined *in vitro* cultures.