

Iron exopolysaccharides nanoparticles to improve the production of truffle mycorrhized plants

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Truffles are hypogeous fungi belonging to the genus *Tuber* (*Pezizales*, *Ascomycetes*), which live in ectomycorrhizal association with the roots of specific host plants. The cultivation of truffles involves the production of seedlings mycorrhized with *Tuber* spp. in greenhouse which should be then transplanted in specific calcareous soils. One of the prerequisites for the success of truffle production is the quality of the plants produced in greenhouse, which should be healthy and extensively mycorrhized with *Tuber* spp. In this work we tested the effect of Fe(III) exopolysaccharide nanoparticles (Fe-EPS), biogenerated by *Klebsiella oxytoca* DSM 29614 under anaerobic conditions, on *Quercus robur* seedlings inoculated with *T. borchii* in greenhouse. Fe-EPS were able to limit the chlorosis caused by high soil content of CaCO₃ during the first few months of seedling growth and increased *T. borchii* mycorrhizal colonization. These results are very promising for using Fe-EPS in truffle cultivation both in greenhouse and in iron-depleted soils.