Effect of butyl cyanoacrylate nanoparticles on manganese-dependent peroxidase production by *Bjerkandera adusta*

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**Purpose:** The isobutyl cyanoacrylate nanoparticles (IBCA-NPs) are made of isobutyl cyanoacrylate polymer and exhibit antibacterial activity against gram-positive bacteria. These nanoparticles exhibit antibacterial activity against Gram-positive bacteria and inhibit mycelial growth of filamentous fungi and Gram-negative bacteria. Ligninolytic enzyme production by white rot fungi were thought to increase due to starvation stress caused by the lack of nutrients (C and N). Therefore, we thought that ligninolytic enzyme production by white rot fungi increased by antimicrobial stress.

**Methods:** In this study, we investigated the effect of IBCA-NPs on the production of manganese-dependent ligninolytic enzymes by basidiomycete *Bjerkandera adusta*. We evaluated the production of Mn-dependent enzymes when nanoparticles with different particle sizes 200 nm and 30 nm. Activity of Mn-dependent ligninolytic enzyme from *B. adusta* in the liquid culture added IBCA-NPs 30 nm and 200 nm in diameter were measured, respectively.

**Results and conclusions:** As a result, the 30 nm of IBCA-NPs exhibit the effect of increasing the production amount of Mn-dependent ligninolytic enzyme on *Bjerkandera adusta* Iwa5b.