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Effects of vanadate on glutathione metabolism in mycelium of fungus *Phycomyces blakesleeanus*

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Vanadium enters mycelium of fungus *P. blakesleeanus* in both +5 and +4 oxidation states¹. Mycelium in three stages of growth (20h, 36h and 56h) was treated with three concentrations of V⁺⁵ (1, 5 and 10 mM) for 1h or 5h. The decrease in viability of mycelium was noticed only at 36h for all applied concentrations. Glutathione has a role in reduction of V⁺⁵ to a less toxic form V⁺⁴,² so we assayed the changes in total glutathione. Mycelium in early exponential phase of growth (20 h), after 1h or 5h treatment, showed concentration dependent decrease in glutathione, with the largest decrease of 40±4% after 1h and 22±9% after 5h treatment induced by 10 mM V⁺⁵. In stationary phase of growth (56h), changes in glutathione concentration were noticed only after 1h of treatment, and the largest decrease (36±6%) was induced by 1 mM V⁺⁵. Activities of glutathione reductase (GR), glutathione transferase (GST) and glutathione peroxidase (GPx), have also been examined. Increase in the activities of GPx and GST was noticed in 56h old mycelia treated for 5h with 5 mM and 10 mM V⁺⁵, but the only statistically significant increase (54±20%) was noticed in GST activity after 5h of 10 mM V⁺⁵ treatment.

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