ABSTRACT

The present study has been conducted to enhance the laccase productivity and stability by *Fomes fomentarius* (L.) Fr. and *Agaricus bisporus* (J.E. Lang) Imbach. Different metabolic activators, inhibitors, metallic and non-metallic microminerals were used. For this purpose six activators gallic acid, PEG, copper sulphate, ethanol, phenol and casamino acid were used to evaluate the laccase activity at 1 ppm concentration. Amongst all activators copper sulphate showed highest laccase activity of 82.24 ± 4.11 mU/ml/min for *A. bisporus* and 71.35 ± 3.56 mU/ml/min for *F. fomentarius*. Amongst all metallic microminerals, ammonium ferrous sulphate, sodium carbonate, sodium nitrate, potassium phosphate and calcium phosphate enhanced the laccase activity. Amongst all non-metallic microminerals, potassium chromate, potassium fluoride, potassium iodide and potassium bromide increased the laccase activity. The enzyme displayed maximum inhibition (*A. bisporus* 2.56 ± 0.12 mU/ml/min and *F. fomentarius* 1.12 ± 0.05 mU/ml/min) in the presence of sodium chloride. Copper sulphate, phosphoric acid, glutaraldehyde, manitol, rochelli salt and glycerol are used for the stability of laccase. Amongst all stabilizers, manitol showed highest laccase activity of 85.98±4.29mU/ml/min by *A. bisporus* and copper sulphate showed highest laccase activity of 91.24 ± 4.56 mU/ml/min by *F. fomentarius*. It is concluded that best activator of laccase is copper suphate. Many micronimerals acted as activator of laccase while very few inhibited the laccase activity. Manitol and copper suphate stabilized the laccase activity.