E211

Peroxidase from Rice Suspension Culture

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The changes of production and secretion of peroxidase by several ions such as Ca^{++}, Na^{+} and Ni^{++} were investigated in the suspension-cultured cell of rice (*Orzya sativa L*). In the rice cell extracts, there were major three cathodic isoperoxidases, named C_1, C_2 and C_3 and two anodic isoperoxidases, named A_1 and A_2, when subjected to starch gel electrophoresis at pH 7.0. The effects of $CaCl_2$ on the specific activity of total peroxidase and isoperoxidase patterns were studied in the cell and cultured medium. The releases of cathodic isoperoxidases, C_2 and C_3, into the cultured medium were maximal between 3 and 5 mM $CaCl_2$, and the secretions of cathodic isoperoxidases were accomplished within 10 minutes after addition of 5 mM $CaCl_2$. A large increase of the specific activity of cell associated peroxidase was found in $NiCl_2$ treated cell, but $NiCl_2$ had no effect on the secretion of peroxidase into the medium. Notably, a significant increase of peroxidase secretion was found after addition of NaCl, but NaCl did not increase the specific activity of the cell asociated peroxidase in rice suspension culture. The effects of cell wall degrading enzymes were also examined.

E212

The Effect of β-mercaptoethanol on the Peroxidase Activity of Bovine Hemoglobin

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The peroxidase activity of bovine hemoglobin was almost completely inhibited by β-mercaptoethanol. The inactivation of the peroxidase activity of hemoglobin was dependent on pH. The peroxidase activity of hemoglobin was protected from inactivation in the presence of substrate guaiacol. The analysis of double reciprocal plot at different concentrations of β-mercaptoethanol suggested that β-mercaptoehanol was a uncompetitive inhibitor. When bovine hemoglobin was treated wiht β-mercaptoehtanol, the absorption spectrum around 403nm was gradually reduced depending on the incubation time and β-mercaptoethanol concentration.