Purification of Glutathione S−Transferase Enzyme from Human Erythrocytes and Detection of the Effect of Separated and Mixture of Metformin and Daonil Drugs on its Activity

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Abstract : Glutathione S-transferases (GSTs) are a super family of enzymes involved in the detoxification of a various xenobiotics including diabetes mellitus drugs. The present study explained the effects of metformin and daonil drugs on the enzyme activity of glutathione−S−transferase (EC 2.5.1.18) obtained from human erythrocytes. For this purpose, erythrocyte glutathione S−transferase enzyme was purified 15.37 fold by DEAE-cellulose chromatography with a yield of 12.88%. During the purification, the temperature was kept under control (4°C). Enzyme purification was checked by performing SDS−PAGE. Two bands were obtained approximately at 26 and 34 kDa. GST enzyme activity was determined by spectroscopic monitoring of the formation of 1−chloro−2,4−dinitrobenzene−glutathione (CDNB−GSH) conjugate. The activity of GST enzyme after treated with diabetes mellitus drugs was 3.62, 3.57 and 3.66 μmol/min/ml for metformin, daonil and mixture of them respectively while it was 3.24 μmol/min/ml before treated with drugs.

Key words: Glutathione−S−transferase, metformin, daonil, diabetes mellitus.


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