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Activities of three erythrocyte enzymes of hyperglycemic rats (*Rattus norvegicus*) treated with *Allium* sativum extract

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The present study sought to investigate erythrocyte glutathione S-transferases (GST), NADH-Methaemoglobin reductase (NADH-MR) and Na+/K+-ATPase activities of hypoglycemic rats treated with ethanol/water (1:2 v/v) extract of *Allium sativum* as agent of glycemic control. Hyperglycemia was induced by a single intra-peritoneal injection of 0.1 ml/L Alloxan monohydrate in phosphate buffer saline (PBS) solution (pH=7.4). At the end of the experimental time (t=76 h), erythrocyte GST, NADH-MR and Na+/K+-ATPase activities as well as serum fasting blood sugar (FBS) levels were measured using spectrophotometric methods. Serum FBS levels of control/normal (C/N) rats ranged between 72.93±0.82-95.12 (±0.92) mg/dL, whereas experimental rats without glycemic control gave: 249.41±1.03-256.11±1.23 mg/dL. Hyperglycemic rats treated with ethanol/water (1:2 v/v) extract of A. sativa exhibited comparative reduced serum levels of FBS alongside erythrocyte GST, NADH-MR and Na+/K+-ATPase activities. The average relative activities of the three enzymes and corresponding order of enzyme activity in hyperglycemic rats treated with ethanol/water (1:2 v/v) extract of *A. sativa* exhibited. In the same order, relative activities of the three enzymes in rats without glycemic control were: NADH-MR=49.65%>GST=23.69%>Na+/K+-ATPase=17.02%. Erythrocyte GST, NADH-MR and Na+/K+-ATPase activities gave insights into the pathophysiology of diabetic state and served as biomarkers for ascertaining therapeutic control in type-1 diabetes mellitus.

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