Effects of some antibiotics on glucose 6-phosphate dehydrogenase in sheep liver

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ABSTRACT: In vitro effects of penicillin, sulbactam, cefazolin, and amikacine on the activity of the enzyme glucose-6-phosphate dehydrogenase in sheep liver were investigated. Glucose 6-phosphate dehydrogenase was purified from sheep liver, using a simple and rapid method. The purification consisted of two steps, preparation of homogenate and 2', 5'-ADP Sepharose 4B affinity chromatography. As a result of the two consecutive procedures, the enzyme, having the specific activity of 11.76 EU/mg proteins, was purified with a yield of 35.72% and 1.913 fold. In order to control the enzyme purification SDS polyacrylamide gel electrophoresis (SDS-PAGE) was done. SDS-PAGE showed a single band for the enzyme. In addition, I₅₀ values of the antibiotics were determined by plotting activity % vs. antibiotic concentrations. I₅₀ values were 17.71 mM for penicillin, 27.38 mM for sulbactam, 28.88 mM for cefazolin, and 30.59 mM for amikacine.

Keywords: glucose 6-phosphate dehydrogenase; antibiotics; sheep; liver