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Purification and Partial Characterisation of Superoxide Dismutase from Chicken Erythrocytes

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Abstract: Superoxide dismutase (SOD), which plays a very important role in protecting organisms from oxygen toxicity, was purified from chicken erythrocyte and partially characterised. Erythrocyte membranes were disintegrated via freeze-thaw methods in the presence of Triton X-100. Following ethanol precipitation, SOD-containing solution was applied to DEAE-cellulose and then Sephadex G-100 gel columns. Chicken erythrocyte SOD was purified 508-fold with a specific activity of 8,480 units per mg. The molecular weight was estimated to be 30.6 kDa \pm 0.4 by gel filtration. The enzyme was composed of two subunits of equal size and contained one atom of copper and one atom of zinc per molecule. Maximum SOD activity was observed between pH 7.0 to 9.0 at 25 °C. The enzyme has high thermal stability.

Key Words: SOD, purification, characterisation, chicken, erythrocytes.

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