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Reactivities of the sulphydryl groups of horse (*Equus caballus*) haemoglobin (1013.11)

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Abstract

The kinetics of the reaction of Ellman's reagent (DTNB) with CysF9[93]β sulphydryl group of the horse haemoglobins were studied at neutral and physiological pH ($6.8 < pH > 7.6$) ranges under pseudo first order conditions. The reaction is of first order with respect to the DTNB concentration. The reactions are pH dependent of the observed rate constant gave a complex trend. The observed rate shows that at neutral pH, the presence of inositol hexakisphosphate (inositol-P_6) increases the pseudo first order rate constant. For the first time, inositol-P_6 increases rate of forward reaction, kF at neutral pH values by increasing the mean value of the transition constant, K_{rt3}. The K_{rt3} for the haemoglobin without inositol-P_6 gave the value of 0.138 ± 0.1 while the haemoglobin in the presence of inositol-P_6 gave the K_{rt3} value of 0.325 ± 0.2. The results show that inositol-P_6 increases the relative population of the **t** tertiary conformation. So, it increases the reactivity of CysF9[93]β by changing the relative distribution of two protein conformations.