

The crystal structure and stability studies of hemoglobin from *Cerdocyon thous*

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Hemoglobin is the iron-containing oxygen-transport metalloprotein from distantly related organisms, including bacteria, plants and humans. X-ray crystallographic studies have shown that the two quaternary states of the hemoglobin are stabilized by presence and absence of salt bridges and different pattern of interactions between α and β subunits. In this work, the crystal structure of hemoglobin from *Cerdocyon thous* (fox) was solved and refined at 2.2 Å to a crystallographic R_{factor} of 0.168 and R_{free} of 0.232. The structure was deposited at PDB under the entry 2BH7. The structural similarities among hemoglobin three-dimensional structures were analyzed. Indeed, a combined three-dimensional structure with stability studies of this hemoglobin was performed by fluorescence and circular dichroism. The transition curves showed the melting temperatures (T_m) ranging from 54 to 58°C in different pHs. The hemoglobin from *C. thous* tends to be more stable at acidic and alkaline pH presenting ΔG^{25} of approximately 7.0 kcal.mol⁻¹. This stability was increased in the presence of 0.1 mM cetyl trimethyl ammonium bromide (CTAB).

Key words: Crystal structure; Hemoglobin; protein stability; *Cerdocyon thous*.

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