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ELECTRONIC SUPPLEMENTARY INFORMATION

Binding of isoquinoline alkaloids berberine, palmatine and coralyne to hemoglobin: Structural and thermodynamic characterization studies

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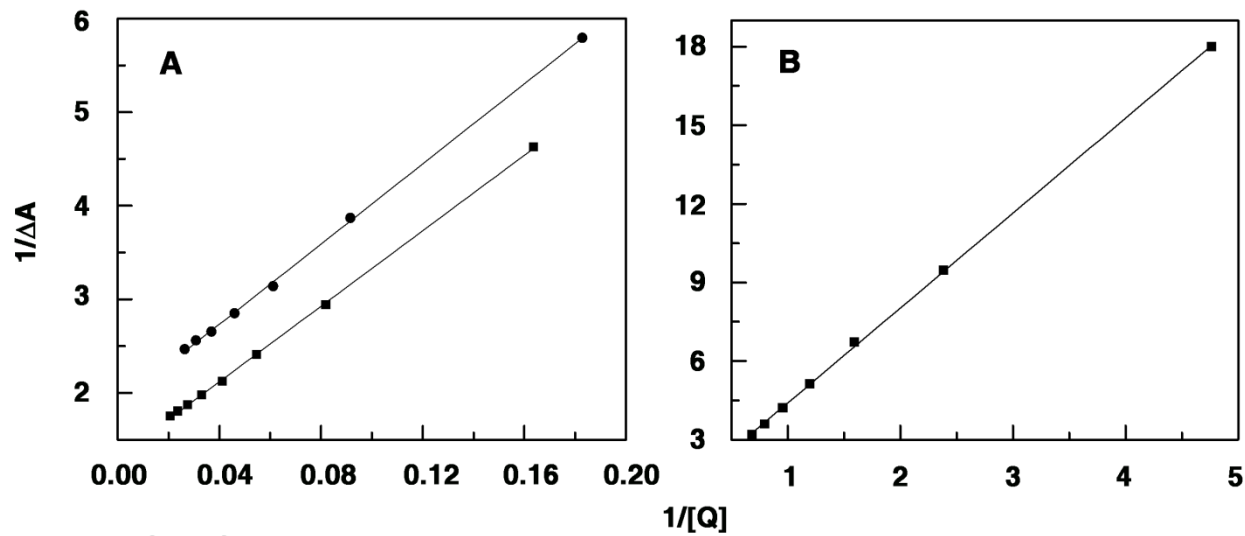


Fig. S1, ESI

Fig. S1 Representative Benesi-Hildebrand plots for binding of Hb with (A) berberine (■), palmatine (●) and (B) coralyne.

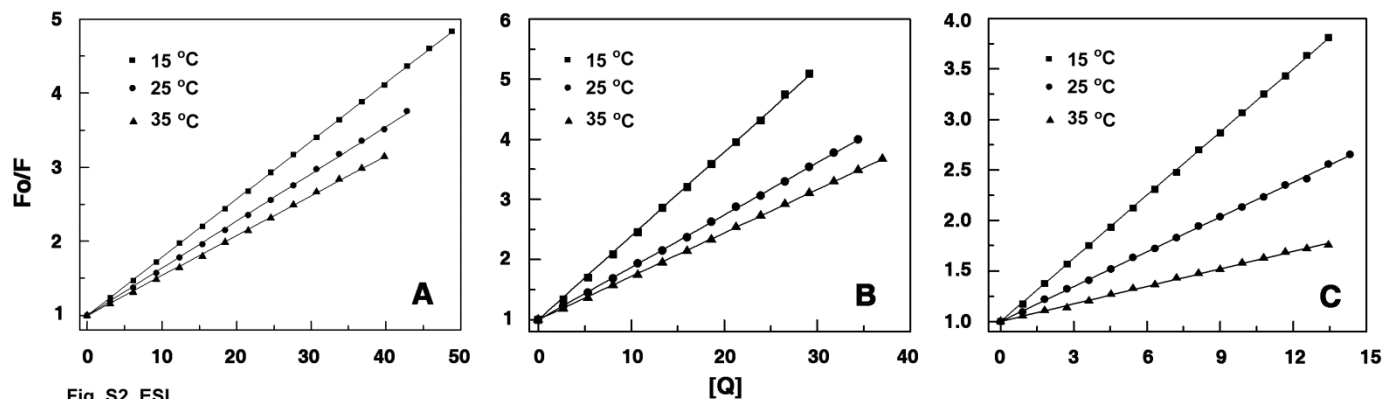


Fig. S2 Stern-Volmer plots for the quenching of Hb fluorescence by (A) Berberine, (B) palmatine and (C) coralyne at different temperatures.

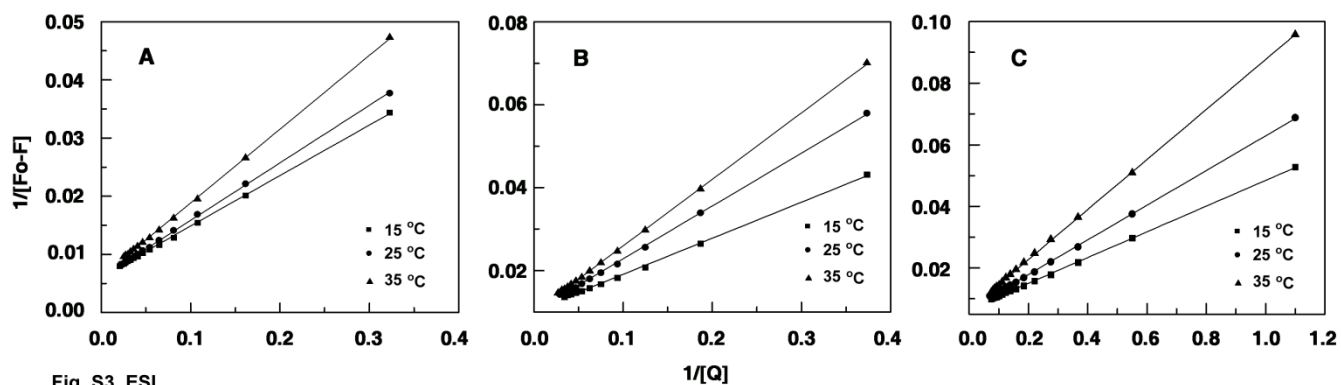


Fig. S3, ESI

Fig. S3 Lineweaver-Burk plots for the quenching of Hb fluorescence by (A) Berberine, (B) palmatine and (C) coralyne at different temperatures.

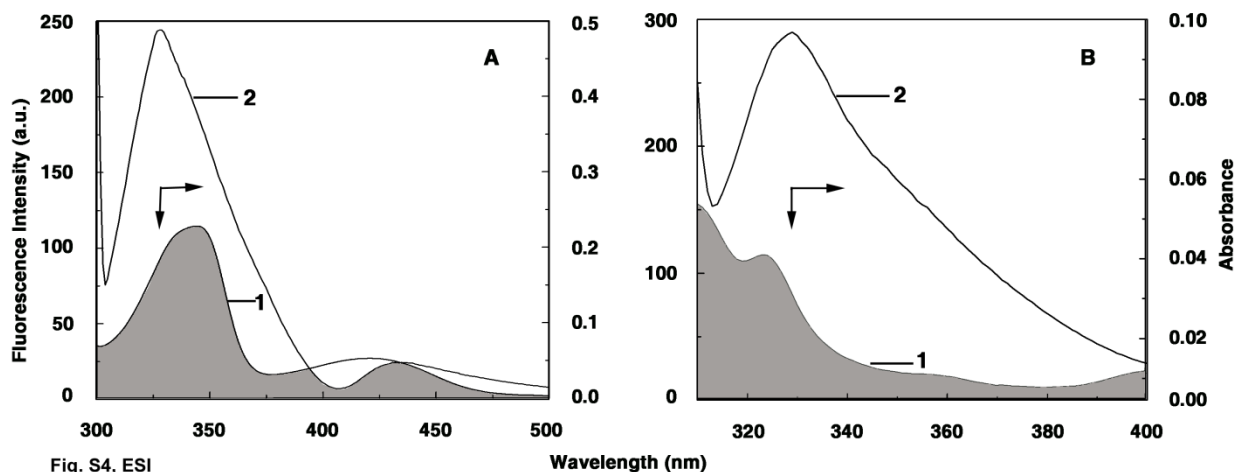


Fig. S4 Overlap (shaded portion) of Hb fluorescence spectrum and absorption spectra of (A) berberine and (B) coralyne. In panel (A) and (B) curve 1 represent absorption spectra of (A) berberine and (B) coralyne and curve 2 represent the fluorescence spectrum of Hb. The excitation of Hb was done at 295 nm. The ratio of the concentration of [Hb]:[alkaloids] = 1:1.

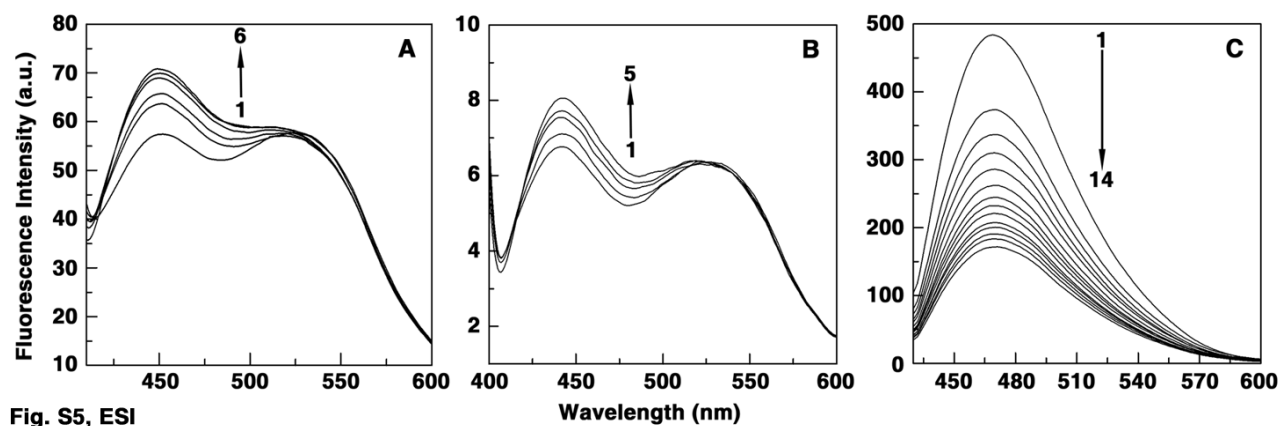


Fig. S5, ESI

Fig. S5 DSC thermograms of Hb and Hb-alkaloids complex. In panel (A), (B) and (C) curve 1 and curve 2 represents for Hb and Hb-alkaloids complex. Inset thermal melting profiles for Hb and Hb-alkaloid complexes.

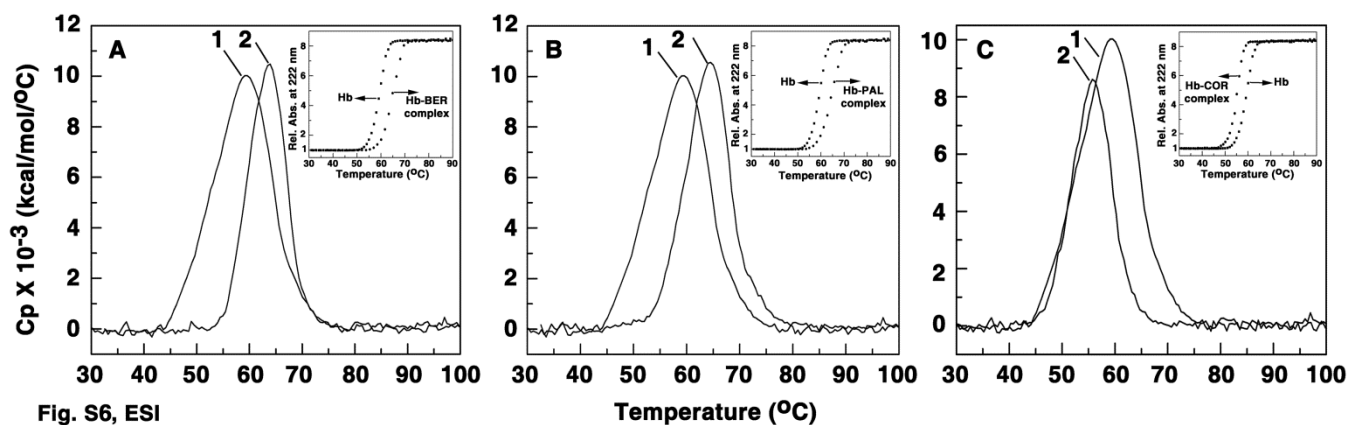


Fig. S6 Representative fluorescence spectra of (A) berberine (10 μM, curve 1-6) with 0, 0.98, 1.96, 2.94, 3.92, 4.90 μM of Hb, (B) palmatine (5 μM, curve 1-5) with 0, 0.98, 1.96, 2.94, 3.92 μM of Hb and (C) coralyne (0.1 μM, curve 1-15) with 0, 0.15, 0.30, 0.44, 0.59, 0.74, 0.89, 1.03, 1.18, 1.32, 1.47, 1.61, 1.76, 1.90 μM of Hb.

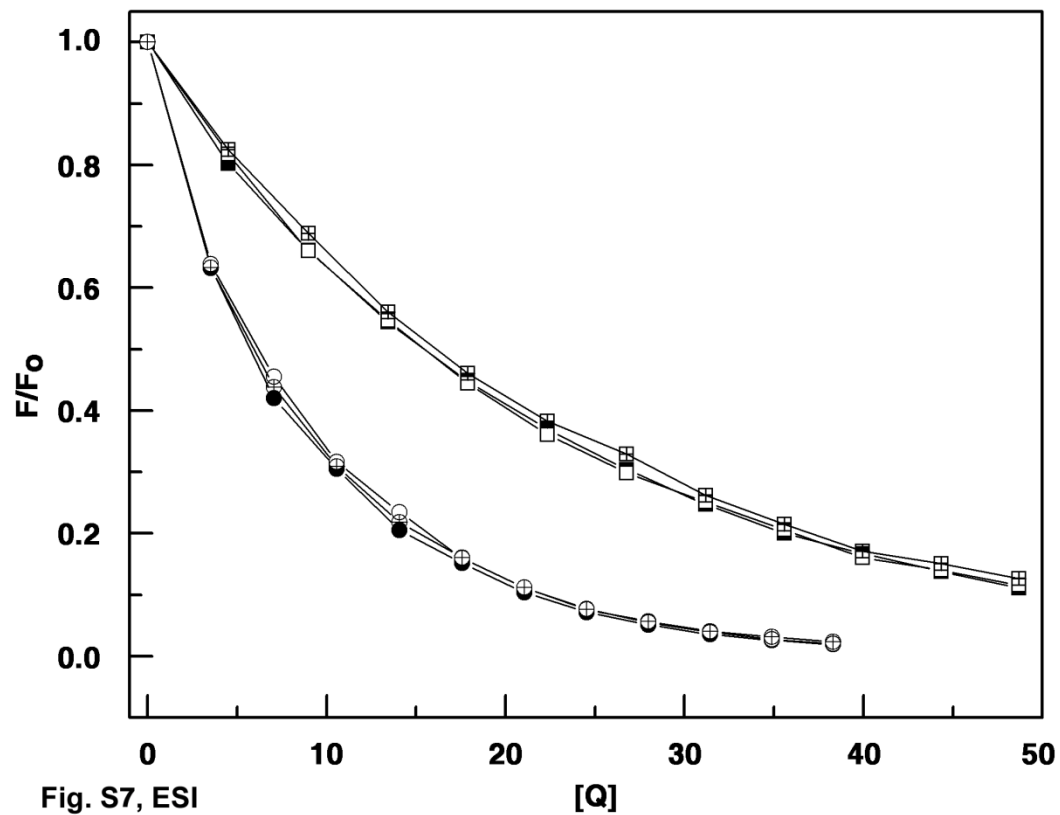


Fig. S7 Displacement study of hydrophobic probe ANS bound to Hb by the alkaloids.

Plots of F/F_o versus $[Q]$ of palmatine and coralyne with Hb (■,●), Hb-ANS (1:1) complex (□,○) and Hb-ANS (1:5) (cross symbol) complex.