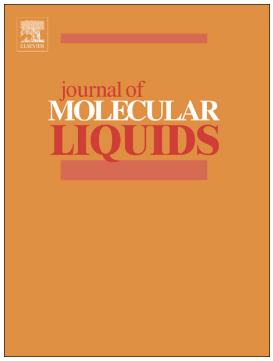

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BIOPHYSICAL STUDIES ON THE INTERACTIONS BETWEEN ANTIDEPRESSANT DRUGS AND BILE SALTS

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Abstract

The mechanism of the interaction of drugs with other foreign materials is of paramount importance in the drug delivery. The excess amount of drugs can cause overstimulation, psychotic illness and other disorders. In recent years the research on targeted drug delivery in body organs and the role of surfactants is primarily focused. Surfactants have been broadly used in pharmaceutical industries due to their unique micellar solubilization properties. Here we report the characterization of binding of two antipsychotic drugs chlorpromazine hydrochloride (CPZ) and desipramine hydrochloride (DSP) with bio-surfactants sodium cholate (NaC) and sodium deoxycholate (NaDC) which belongs to the class of bile salt. UV–visible and steady state fluorescence have been employed to study the interaction of drugs with bile salts. Various Interaction parameters such as binding constant (K_a), Stern-Volmer constant (K_{sv}), binding sites (n) and thermodynamic parameter Gibb's free energy changes ($\Delta G_{Binding}$) have been evaluated at 300 K. The observed results show changes in spectral intensities of antipsychotic drugs on the addition of bile salts. Highest binding affinity and most promising activity are shown by CPZ and NaDC system.

Keywords: Antidepressant Drugs**,** Bio-surfactants, Binding Constant, Stern-Volmer Constant.