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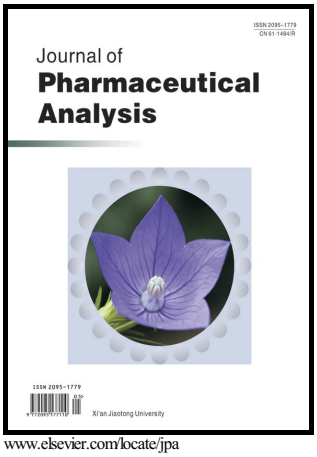

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Multi-spectroscopic characterization of bovine serum albumin upon interaction with atomoxetine

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Abstract

The quenching interaction of atomoxetine (ATX) with bovine serum albumin (BSA) was studied in vitro under optimal physiological condition (pH=7.4) by multi spectroscopic techniques. The mechanism of ATX-BSA system was dynamic quenching process and was confirmed by the fluorescence spectra and lifetime measurements. The number of binding sites, binding constants and other binding characteristics were computed. Thermodynamic parameters ΔH^0 and ΔS^0 indicate that intermolecular hydrophobic forces predominantly stabilize the drug-protein system. The average binding distance between BSA and ATX was studied by Försters theory. UV-absorption, Fourier transform infrared spectroscopy (FT-IR), circular dichroism (CD), synchronous spectra and three dimensional (3D) fluorescence spectral results revealed the changes in micro-environment of secondary structure of protein upon the interaction with ATX. Displacement of site probes and the effects of some common metal ions on the binding of ATX with BSA interaction were also studied.

Keywords: Atomoxetine, Bovine serum albumin, 3D fluorescence spectra, FT-IR, Energy transfer, Lifetime measurements.

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