

# Jordan University of Science and Technology

## The Sorption of Ketotifen Fumarate by Chitosan

**Authors:** Khoulood A Alkhamis, Mutaz S Salem, Mai S Khanfar

**Abstract:** The purpose of this investigation was to determine the mechanism of interaction between ketotifen fumarate and chitosan at different pH values. The specific surface area of chitosan was determined using gas sorption analyzer. The sorption experiments were conducted at pH 7 and pH 10 using two different particle size ranges of chitosan. The solutions were prepared at constant ionic strength and buffer concentration, with only varying the pH. The rotating bottle method was used for measuring the sorption. The average specific surface areas for the two different particle size ranges of chitosan were found to be 4.56 and 0.74 m<sup>2</sup>/g. The Langmuir-like equation and a model independent equation were both applied to the sorption experimental data. The extent of ketotifen uptake at pH 7 for small and large particles of chitosan was found to be 1073 mg/g and 2204 mg/g respectively. While the extent of ketotifen uptake at pH 10 for small and large particles of chitosan was found to be 4 mg/g and 11 mg/g respectively. The aforementioned results indicated that sorption of ketotifen fumarate at pH 7 is extremely high compared to pH 10 and that the sorption increases by decreasing the specific surface area of chitosan. Based on the results obtained, the following conclusions were reached. Ketotifen might be absorbed into the bulk structure of chitosan in addition to being adsorbed on the surface and the ability of chitosan to swell at pH 7 has a significant role in increasing its uptake.