

Poster MS16

Adsorption of Salicylic Acid on Bentonite from Supercritical Carbon Dioxide

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Clays are played an important roles in many pharmaceutical products as excipients, shielding and adsorbent agent [1]. Bentonite is a kind of clay which contains 2:1 type alumina silicate [2]. Salicylic acid (SA) is known for its ability to ease aches and pains and reduce fevers. SA is also used as a food preservative, bactericide, antiseptic [3]. Salicylic acid is very strong acid therefore, it cannot be used directly on human body. Clays and clay minerals can be used as carrier of SA molecules by reducing its acidity [4].

Natural bentonite was not effective adsorbent for many organic substances, therefore it was modified by using hexadecyltrimethylammonium (HDTMA) bromide. In this study, the adsorption of SA onto modified bentonite by using supercritical CO₂ (SCO₂) was performed. The effects of pressure and contact time of SCO₂ on the adsorption of SA in SCO₂ were also determined. The characterization of both modified bentonite (HDTMA-bentonite) and SA-adsorbed HDTMA-bentonite was accomplished by using FTIR, BET, SEM-EDX techniques. Finally, the optimum SCO₂ pressure and contact time values for the experiments were found to be 250 bar and 75 min, respectively.

Acknowledgments

The authors gratefully acknowledge the financial support of Anadolu University for the Scientific Research Projects (Project No.081006).

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