

The study on host-guest interaction of arbutin and montmorillonite

김명훈\*, 김동명<sup>1</sup>, 홍원기<sup>1</sup>, 공수성<sup>1</sup>, 이연엽<sup>1</sup>

연세대학교; <sup>1</sup>한국콜마(주) 피부과학연구소

(hunin315@daum.net\*)

Mineral montmorillonite (MMT) is known as an effective adsorbent due to its layered structure, nonstoichiometry, the cation exchange capacity as well as extremely large surface area and the swelling ability. Possessing these properties the MMT is able to adsorb the organic molecules in its interlayers either via a cation exchange mechanism or in a way of the chemical reaction. The mode of the interaction depends upon the chemical features of the organic adsorbate. We have reported recently that the interaction of arbutin(ABT) compounds with MMT using their aqueous solutions proceeds as a cation exchange reaction. ABT cations enter the interlayer spaces of the MMT while the inorganic exchangeable cations and the water molecules are replaced. Their arrangement (according to the Xray diffractometry (XRD) results) depends upon the intercalation extent (the amount of the adsorbed ABT<sup>+</sup> cation) and the presence of the residual water in the interlayer space. The aim of this work is to contribute to the explanation of the host-guest interaction through the study of the XRD of the original and adsorbed species.