Abstract

Ceramides of stratum corneum (SC) play a crucial role in maintaining the barrier function of the skin. This work deals with series short-chain analogues of ceramides with structure identical to naturally occuring ceramide NS, acyl chain length from 2 to 12. Acyl chain length is very important for barrier properties. Ceramides with chain length 4-8C lose barrier function, conversely were able to increase skin peremability. Ceramides with 2 and 12C showed no increase in permeability. Calorimetric and infrared spectroscopic measuring data were used for studying thermotropic phase behaviour analogues of ceramides and compared to the physiological cermide NS. At physiological temperatures, all crystalline phases of ceramides exhibit lamellar structures with highly ordered hydrocarbon chains. Structure-activity relationships and potential permeable aktivity of these ceramides were observed. Short-chain ceramides do not act as natural ceramides and their biological activity has been widely investigated.