Abstract

Vernix caseosa is a natural biofilm which covers the skin of a human fetus from the third trimester of pregnancy. It has hydrating, regenerating and anti-microbial effects. The components responsible for these properties of vernix caseosa could be used in the pharmaceutical and cosmetic industries. For this reason, the total composition is analyzed. The lipid components of vernix caseosa consist of squalene, wax esters, sterol esters, 1,2-diol diesters, triacylglycerides, free fatty acids, fatty alcohols, cholesterol, diacylglycerides, monoacylglyceridesů and phospholipids .

This study is focused on structure analysis of the 1,2-diol diesters of vernix caseosa. Conditions were optimized for the HPLC separation. Nova -Pak C18 column was used and a gradient of acetonitrile:ethyl acetate was chosen as a mobile phase. Before entering the APCI source ammonium formate was added; ammonium adducts $[M+18]^+$ were formed. Eight scan events was set in MS method. One for the full scan spectrum, second for MS^2 spectrum of the precursor ions and six MS^3 data-dependent spectra. The position of the double bonds of unsaturated 1,2-diol diesters was determined by fragmentation of their $[M+C_3H_5N]^{+\bullet}$ adducts.

There were identified over 2200 of 1,2-diol diesters differing in lengths of alcohol and fatty acid chains, and retention behavior.