

Abstract:

Cardanols are more and more used in the industry of polymers, resins, coatings, friction materials, etc. At right conditions, these lipid-like chemicals can undergo metathesis reaction. The main aim of the diploma thesis is an analysis of products of cardanol metathesis by HPLC-MS/MS. Standard 3,3'-hexadec-8-en-1,16-diylidiphenol, one of the main products of cardanol metathesis, was prepared for quantitative HPLC analysis. The standard was prepared in two steps. The first step was cardanol ethenolysis to give 3-(non-8-enyl)phenol. The second step was self-metathesis of 3-(non-8-enyl)phenol to give 3,3'-hexadec-8-en-1,16-diylidiphenol. The standard was characterised by HPLC/MS, MS/MS, EI-MS, UV/VIS, IR, Raman and NMR spectroscopy. The second part of the thesis is dedicated to the study of a mechanism of double-bond localization method in long chain hydrocarbons by acetonitrile APCI-MS. The formation of adducts $[M + 55]^{+}$, which are the key substances of this method, was studied using simple alkene models by MS and MS/MS. At the end, the structure and the mechanism of the formation of adducts $[M + 55]^{+}$ were suggested.

Key words:

Cardanol, olefin metathesis, HPLC-MS, double-bond localization, APCI, acetonitrile