

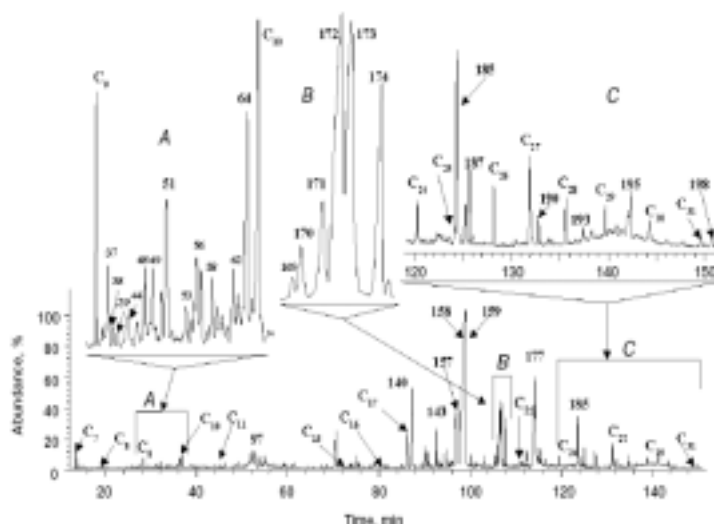
Use of Serially Coupled Capillary Columns with Different Polarity of Stationary Phases for the Separation of the Lipids of the Algal and Cyanobacteria Species

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The potential of GC/MS for the separation and identification of natural and/or synthetic drugs, its metabolites, and/or organic compounds has been evident for many years. Analysis of essential oil from biological samples by GC/MS is one of the basic and most efficient methods. The aim of this study was to establish the possibility of using serially coupled capillary columns with different polarity of stationary phases for separating a mixture of natural complex volatile compounds of the marine green, red and brown algae. We demonstrated the successful separation of natural complex mixtures of the some samples of marine algae, and cyanobacterial species using a serial capillary column system. This GC application could be use in biochemical investigations for the study of organic metabolites and/or lipid content of different biological samples. Separation of organic metabolites from sample of red alga is shown below.



Chromatogram of normal hydrocarbons (C7-C31) and natural metabolites from the marine red alga *Corallina elongata*. Separation of hydrocarbons, methyl esters of fatty acids, and other organic compounds was performed by gas chromatography using serially coupled capillary columns with different polarity of stationary phases. A) Separation of low molecular weight compounds located between two *n*-alkanes C9-C10; B) an example of separation of methyl esters of saturated, mono-, di-, and trienoic fatty acids and their isomers; C) an example of separation of *n*-hydrocarbons C24-C31 and other high molecular weight compounds. Overall run time was 165 min.