

Separation and identification of hydrocarbons and other volatile compounds from cultures of *Aspergillus niger* by GC-MS using two different capillary columns and solvents

ABSTRACT

A simple, fast, repeatable, and less laborious sample-preparation protocol based on gas chromatography–mass spectrometry was developed and applied for the analysis of bioactive compounds derived from the filamentous fungus *Aspergillus niger* strain SS10. The match factors for the spectra of the samples with reference to the mass-spectral library of fungal volatile compounds were determined and used to study the complex hydrocarbons and other volatile compounds that were separated using two different capillary columns and nonpolar and medium-polar stationary phases. More than 295 volatile compounds (spectral match factor of at least 90%), such as normal saturated hydrocarbons (C7–C30), cyclohexane, cyclopentane, fatty acids, alcohols, esters, sulfur- and bromo-containing compounds, simple pyrane, and benzene derivatives, were identified. Most of these compounds have not been reported earlier. The method described in this article is a suitable research tool for the determination of volatile compounds from the cultures of *A. niger*.