



Reprinted with permission from: *Journal of Chromatography A*. 1999. 855:563-573.

Published and copyrighted by: ©Elsevier Science B.V.

<http://www.elsevier.com/locate/chroma> or <http://www.ScienceDirect.com>

Fast, sensitive and selective liquid chromatographic-tandem mass spectrometric determination of tumor-promoting diterpene esters¹

G. VOGG, S. ACHATZ, A. KETTRUP, and H. SANDERMANN JR.²

Vogg and Sandermann, Institute of Biochemical Plant Pathology, GSF-National Research Center for Environment and Health, D-85764 Oberschleissheim, Germany. Achatz and Kettrup, Institute of Ecological Chemistry, GSF-National Research Center for Environment and Health, D-85764 Oberschleissheim, Germany.

Abstract:

A liquid chromatography-tandem mass spectrometry (LC-MS-MS) method was developed to detect tumor-promoting diterpene esters of the tiglane and ingenane types within plant extracts. Fractionation on a C₁₈ high-performance liquid chromatography (HPLC) column was followed by MS-MS-multiple reaction monitoring (MRM) using the precursor→product ion pairs of m/z 311→293 and 293→265 for phorbol esters. The ion pairs m/z 313→295 and 295→267 were used for ingenol and deoxyphorbol esters. In a second run, the characteristic ions at m/z 311 and 313 were followed in precursor ion scan mode. These quasi-molecular ions were utilized to obtain full scan spectra of the compounds in product ion scan mode. Due to its selectivity, the present on-line method can be applied for plant cultivar selection and plant product control without time-consuming extraction procedures and complex bioassays.

Keywords:

Euphorbia leuconeura; Croton oil; Oils; Plant materials; Diterpenes; Terpenes; Phorbol; Ingenol.

¹ Received 15 March 1999; received in revised form 10 June 1999; accepted 10 June 1999.

² Corresponding author. Tel.: +49-89-3187-2285; fax: +49-893187-3383.
E-mail address: sandermann@gsfde (H. Sandermarm Jr.)