

Short Communication

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CHARACTERIZATION OF SOME LIPID COMPONENTS OF *COCCULUS HIRSUTUS* BY MASS SPECTROMETRY

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Fatty acid components of lipid contents of *Cocculus hirsutus* have been characterized by mass spectrometry and G.C.M.S. techniques and their fragmentation pattern has been discussed. *Cocculus hirsutus* (Syn. *C. villosus*) locally called Jamti-ki-bel belongs to family Menispermaceae. It is a climbing shrub and is commonly found in Sind. Its various parts are reputed to have medicinal properties. In the present work, the fatty acid components of *Cocculus hirsutus* were identified through mass spectrometry and G.C.M.S. technique [1-6].

MATERIAL AND METHODS

The plant material was identified by Prof. S.I. Ali at Botany Department, University of Karachi.

The hexane extract was shaken out with 90% methanol to remove the steroidal compounds. The hexane-phase was washed with water dried with anhydrous Na_2SO_4 and solvent removed under the reduced pressure. 1 g of the residue was refluxed with 5% methanolic KOH and shaken out with ethyl acetate to remove the unsaponifiable matter. The lower alkaline phase was acidified and free fatty acids were extracted by shaking with ethyl acetate. The residue was dissolved in ether than esterified by diazomethane. The methyl esters of *Cocculus hirsutus* fatty acids were analysed through G.C.M.S. on a Varian Model 3700 capillary gas chromatograph attached with a MAT-112 mass spectrometer connected to PDP 11/34 computer system.

RESULTS AND DISCUSSION

The G.C.M.S. spectrum showed 9 molecular ion peaks, 7 of which were saturated and 2 mono-unsaturated methyl esters. These results and characteristic mass fragments observed in mass spectra are given in Table 1, containing C-8 to C-22 carbon chain. The methyl esters of saturated fatty acids, containing more than five carbon atoms give hydrocarbon ions and oxygen bearing ions on fragmentation. The oxygen containing ions give prominent peaks in the

spectrum. The diagnostic peaks were molecular ion peak (M^+). M^+ -31 the acylium ion formed due to the loss of a methoxy group, M^+ -43, M^+ -59 resulting from the loss of methoxy group and two hydrocarbon units and M^+ -74 arising from the loss of $(\text{CH}_2)\text{COOCH}_3$.

Table 1. Mass spectral data for fatty acid, esters of *Cocculus hirsutus*. m/z (rel. int. %).

M^+	M^+ -31	M^+ -43	M^+ -59	M^+ -74	Fatty Acid
158 (20)	127 (8)	115 (11)	99 (16)	-	Octanoic
186 (40)	155 (6)	143 (42)	127 (4)	-	Decanoic
214 (2)	183 (6)	171 (18)	155 (6)	-	Dodecanoic
242 (2)	211 (12)	199 (8)	-	-	Tetradecanoic
270 (18)	239 (10)	227 (12)	-	-	Hexadecanoic
294 (2)	263 (2)	-	-	220 (2)	Octadecadienoic
296 (2)	265 (4)	-	-	222 (4)	Octadecenoic
298 (8)	267 (2)	255 (6)	-	-	Octadecanoic
354 (2)	223 (1)	-	295 (2)	-	Docosanoic

Mono-unsaturated fatty acids of methyl esters showed the diagnostic mass fragments M^+ -31 and M^+ -74. Further work on the various portion of the *Cocculus hirsutus* in progress and will be reported later.

Key words: Fatty acids, *Cocculus hirsutus*, G.C.M.S.

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