Composition of Essential Oil of Coronopus didymus Seeds

INAM UL HAQUE*

Deptt. of Chemistry, University of Engineering & Technology, Lahore-54890.

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Introduction

The essential oil of seeds from wild species of the crucifer, Coronopus didymus, has been analysed by high resolution (capillary) gas chromatography-mass spectrometry. Previously benzyl cyanide[1] has been shown to be the principal component of the essential oil derived from the entire Coronopus didymus plant excluding the roots.

Experimental

Seeds of Coronopus didymus, collected from various regions of Pakistan, were subjected to dry steam distillation[2] for the recovery of essential oil using an all glass still. The $(GC)^2$ analyses were carried out on a gas chromatograph (Perkin Elmer sigma IB) with FID. 30 m long fused silica capillary, 0.2 mm ID, coated with OV-1701 was used for analysis. Other operating conditions are given else-

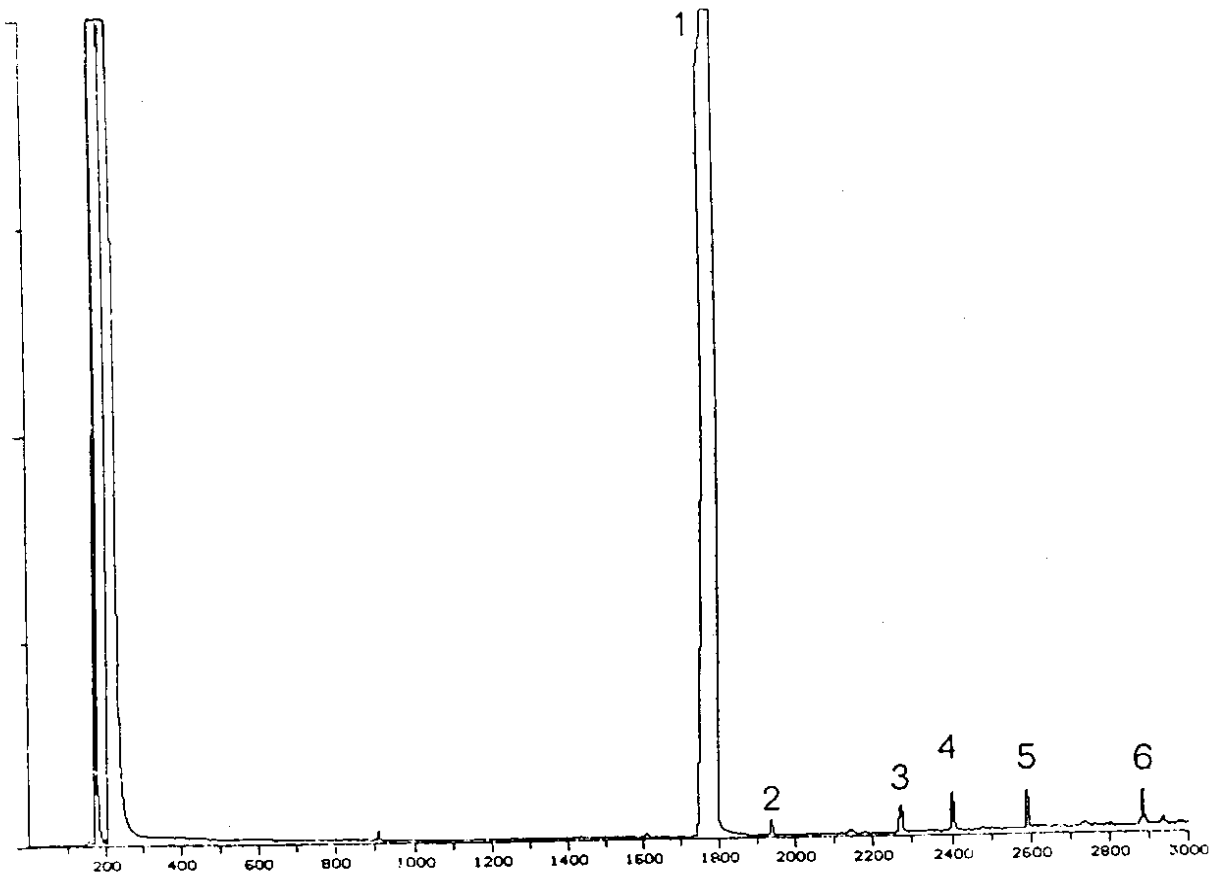

Fig. 1: Chromatogram of essential oil of CORONOPUS DIDYMUS. Numbering corresponds with that in Table 1.

* Deptt. of Chemistry, University of Engineering & Technology, Lahore-54890.

Table-I: Constituents of oil from CORONOPUS DIDYMUS

Peak No.	Compound (Formula)	% age
1.	Benzyl Nitrile ($C_6H_5CH_2CN$)	87.3
2.	n - Tetradecane ($n\text{-}C_{14}H_{30}$)	1.1
3.	n - Pentadecane ($n\text{-}C_{15}H_{32}$)	1.3
4.	Unknown	1.5
5.	n - Hexadecane ($n\text{-}C_{16}H_{34}$)	1.5
6.	n - Heptadecane ($n\text{-}C_{17}H_{36}$)	1.2

where[3]. GC-MS analyses were obtained on a quadrupole instrument (NERMAG R1010). All spectra were acquired at 70 eV in electron impact mode. Data acquired on a PDP 11/23 computer, were processed using SIDAR software.

Results

In all six components representing 93.9% of the oil were identified, as listed in Table 1, the first column of which gives the peak number corresponding to that given in GC-MS trace shown as Figure 1. Positive identification of the compounds was made by co-injecting authentic samples.

The essential oil is composed largely of benzyl nitrile 87.3% alongwith 5.1% of four saturated hydrocarbons. One component remains unidentified. Major fraction of the essential oil namely benzyl cyanide is a glycoside degredation product formed during steam distillation[1].

References

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