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B R I E F C O M M U N I C A T I O N S

CHEMICAL CONSTITUENTS OF THE PETROLEUM ETHER EXTRACT OF *Holotrichia diomphalia* LARVAE

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Holotrichia diomphalia larvae have been traditionally used in folk medicine as herbal drugs in China and one of the most widely used Korean folk medicinal preparations for the treatment of chronic liver cirrhosis, contusion, edema, furuncle, and apoplexy [1]. Recently, potent antibacterial proteins have been isolated from *Holotrichia diomphalia* larvae [2], and prophenoloxidase from the hemolymph of *Holotrichia diomphalia* larvae has also been purified and characterized [3].

At present no chemical studies on this Chinese herbal medicine have yet been carried out. The chemical composition of the petroleum ether extract of *Holotrichia diomphalia* larvae has been reported for the first time in the present study.

Air-dried and chopped *Holotrichia diomphalia* larvae (9598.7 g) were refluxed three times (3 h each time) with 75% ethanol. The materials were filtered, and the clear supernatant was then concentrated under reduced pressure at 60°C with a vacuum rotary evaporator. The concentrated ethanol extract was partitioned between water and petroleum ether (60–90°C). After removing the aqueous laye fraction, the extract was evaporated. Yield 690.5 g (7.19%). The residue was used for the experiment.

GC/MS analysis was carried out on a Finnigan Voyager gas chromatograph fitted with a fused silica VF-5ms capillary column (30 m × 0.25 mm; coating thickness 0.25 μm). The oven temperature was programmed from 80–300°C at 15°C/min. Helium was used as a carrier gas at a flow rate of 1.0 mL/min. The gas chromatograph was coupled to a Finnigan Voyager mass selective detector. The MS operating parameters were: ionization voltage, 70 eV; ion source temperature, 200°C. Identification of components of the petroleum ether extract was based on retention times of the relative fat acid and computer matching with the NIST98.L library, as well as by comparison of the fragmentation patterns of the mass spectra with those reported in the literature [4, 5].

The results from GC/MS analysis of all the identified components and their percentages are given in Table 1, where the components are listed in order of their elution on the HP- column. Twenty-one components were identified. All of the identified components, such as monounsaturated fatty acid (60.2%), in the petroleum ether extract are known, as can be seen in Table 1.

Based on the results, the petroleum ether extract of *Holotrichia diomphalia* larvae could be a most promising anticancer agent.

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TABLE 1. Composition of the Petroleum Ether Extract of *Holotrichia diomphalia* Larvae

Compound	Rt	%	Compound	Rt	%
Benzenecarboxylic acid	4.855	0.33	Pentadecylic acid	10.77	2.70
Acetic acid, phenyl-	5.741	0.04	*Z*-11-Hexadecanoic acid,	11.637	8.98
Hydrocinnamic acid	6.668	0.06	Hexadecanoic acid	11.797	25.64
n-Tetradecane	7.275	0.11	Palmitic acid, ethyl ester	11.924	0.41
n-Pentadecane	8.182	0.14	Heptadecanoic acid	12.15	0.77
n-Dodecanoic acid	8.689	0.06	Elaidic acid	12.977	50.82
n-Cetane	9.029	0.14	Stearic acid	13.057	2.65
n-Heptadecane	9.823	0.18	5,8,11-Heptadecatrien-1-ol	13.898	0.30
E-9-Tetradecenoic acid	10.21	0.14	Arachic acid	14.204	0.25
Myristic acid	10.29	1.39	Glycol oleate	16.092	1.10
n-Octadecane	10.576	0.09			

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Rt: retention times on HP-5 capillary column.
%: calculated from GLC data.

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