

## Short Communication

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TRITERPENES FROM *ECHINOPS SPINOSISSIMUS*\*

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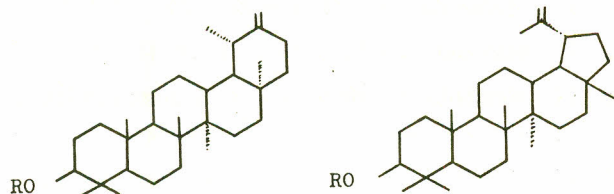
## INTRODUCTION

The genus *Echinops* (Compositae, tribe Cynareae) is placed in the subtribe Echinopsidae [1]. About 15 species of this large genus have already been investigated chemically. The thiophenes are typical and occur in considerable variation [2]. Alkaloids have been reported in many of the species [3]. Previous investigation of *E. spinosissimus* resulted in the isolation of thiophene, acetylene, thiophenes and lupeol acetate [2].

In continuation of our study on the Egyptian Compositae we have now studied the constituents of *Echinops spinosissimus*.

## RESULTS AND DISCUSSION

An extract of the powdered aerial parts, was separated by column chromatography into three fractions, (a) taraxasteryl acetate 1, (b) lupeol 2 and (c) taraxasterol 3.



1, R= Ac      2, R= H  
3, R= H      4, R= Ac

The isolated compounds were identified from IR, <sup>1</sup>H-NMR (400 MHz) and mass spectral data. Further

evidence for 2 was gained upon acetylation with Ac<sub>2</sub>O to give the acetate 4. The IR, <sup>1</sup>H-NMR spectra for 1 and 3 were nearly the same as reported [2].

## EXPERIMENTAL

The air dried plant material, collected in March from Wadi Hof, Egypt, was extracted with ether, petroleum ether and methanol (1:1:1). The extract of the aerial parts (152 g) was first treated with methanol to remove long chain hydrocarbons and then partially separated by CC (SiO<sub>2</sub>) with petroleum ether and increasing amounts of ether and finally ether, methanol (10:1). The fraction obtained with 10% ether afforded 50 mg 1. The fraction obtained with 50% ether on repeated TLC (60 % ether) afforded 25 mg 3 (R<sub>f</sub>=0.7) and 20 mg 2 (R<sub>f</sub>=0.6).

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## REFERENCES

1. H. Wagner, "The Biology and Chemistry of the Compositae" eds. Heywood V.V., Harborn, J.B. and Turner, B.L. (Academic Press, London, 1977), p. 1027.
2. Idem, *Ibid*, p. 1028.
3. T. Kawatani, T. Ohno and A. Kanematsu "Trial Cultivation of *Echinops setifer* and isolation of *Echinopsine*", *Eisei Shikenjo Hokoku*, 85, 48.

\*Part 10 in the series of Egyptian Compositae, for Part 9 see M.A. Metwally and A. Dawidar, *Die Pharmazie*, 41, H7, 522 (1986).