A SESQUITERPENE LACTONE FROM ARTEMISIA AUSTRIACA

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SUMMARY

Artemisia austriaca Jacq. (Compositae, tribe Anthemidae) is one of the 23 species of Artemisia which grow in Turkey (1, 2). This report is one of the series on the chemical investigations of the Turkish Artemisia (3-8). In this paper, a sesquiterpene lactone (8-α-hydroxyachillin) has been isolated from A. austriaca.

ÖZET

Artemisia austriaca Jacq. (Compositae, tribus Anthemidae) Türkiye’de yetişen 23 Artemisia türünden biridir (1, 2). Bu çalışma, Artemisia türlerinin kimyasal yapısını araştıran bir seri incelemenin bir bölümünü oluşturmaktadır (3-8). Bu çalışma da A. austriaca türünden bir seskiterpen lakton (8-α-hidroksiaçillin) izole edilmiş ve yapısı aynılanmıştır.

Keywords: Artemisia austriaca, sesquiterpene lactone

INTRODUCTION

The essential oil of A. austriaca shows a strong antimicrobial effect (9). The vapor is prepared by boiling the plant and is used for vaginal purposes by women in Anatolia. A. austriaca was investigated previously for acetylenes (10), flavonoids (8, 11) and sesquiterpene lactones. Three sesquiterpene lactones arborescin, austricin and artausin were reported in this work (11). In this previous paper the occurrence of 8-α-hydroxyachillin, an other sesquiterpene lacton is shown.

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RESULTS

The presence of 8-α-hydroxyachillin in *A. austriaca* Jacq. has been for the first time. The structure of this sesquiterpene lactone has been established by spectral analysis.

\[ \text{UV} (\lambda_{\text{max}}): 255 \text{ nm, IR } \nu_{\text{max}}: 3500 \text{ (OH), 1760 (γ-lactone), 1680 (cyclopentenone), 1610 and 1630 (unsaturation) cm}^{-1}. \]

1H NMR (CDCl3, δ): 6.15 brs (H-3), 3.37 brd (H-5), 3.84 dd (H-6), 2.53 m (H-7), 3.71 td (H-8), 2.74 dd (H-9), 2.91 dq (H-11), 1.25 d (H-13), 2.40 s (H-14), 2.27 s (H-15) (J5,6=10 Hz, J6,7=10 Hz, J7,8=11 Hz, J8,9α=11 Hz, J8,9β=2.5 Hz, J9α,10β=14 Hz, J11,13=7 Hz). 13C NMR (CDCl3, δ): 146.2 (C-1), 195.6 (C-2), 135.4 (C-3), 178.4 (C-4), 51.8 (C-5), 80.9 (C-6), 58.0 (C-7), 65.0 (C-8), 48.2 (C-9), 132.7 (C-10), 38.0 (C-11), 170.6 (C-12), 9.3 (C-13), 21.7 (C-14), 19.8 (C-15). MS m/z (rel.int.): 262 [M]+ (100), 244 [M-H2O]+ (14), 229 [M-H2O-Me]+ (26), 216 (49), 201 (56), 189 (88), 175 (56), 171 (92), 159 (74), 151 (26), 147 (91), 136 (85), 121 (53), 115 (37), 108 (26).

EXPERIMENTAL

Plant material - Aerial parts of *Artemisia austriaca* Jacq. were collected at the flowering time in July from Erzurum (Eastern Turkey). A voucher specimen identified by Prof. Dr. N. Özhatay has been deposited in the Herbarium of the Faculty of Pharmacy, University of Istanbul (ISTE 62414).
Extraction and isolation - The dried plant material (1 kg) was extracted in a Soxhlet apparatus with petroleum ether. The residual plant material from the petroleum ether extraction was re-extracted with 95% EtOH in a Soxhlet apparatus. The EtOH extract was concentrated, diluted with H₂O, and extracted with C₆H₆, CHCl₃. Evaporation of the CHCl₃ extract gave 5.6 g of residue which was chromatographed over Silica gel (0.2-0.5 mm Merck) (220 g) using benzene with increasing amounts of acetone, 111 fractions being collected. Fraction 73-78 were combined (529 mg). For the purification of sesquiterpene lactone (90 mg) preparative TLC and Sephadex LH-20 were applied.

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REFERENCES

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