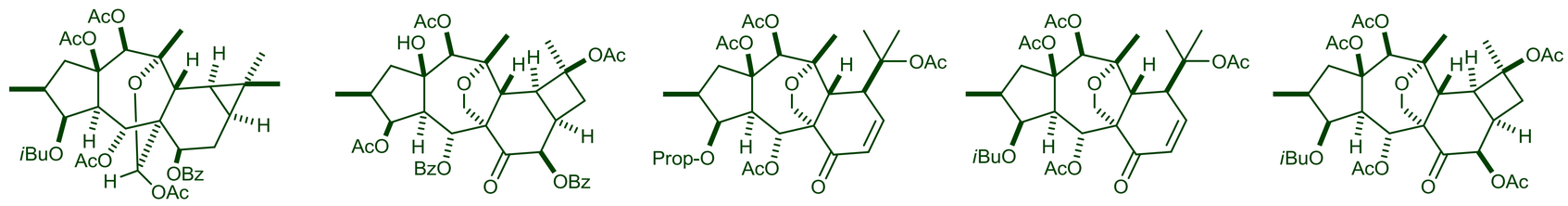
NEW MYRSINANE-RELATED DITERPENES FROM *EUPHORBIA FALCATA*

Andrea Vasas[1], Peter Forgo[1], Edvárd Sulyok[1], Zsófia Nádasdi[1], Annamária Zana[2], Judit Hohmann[1]

[1]Institute of Pharmacognosy, University of Szeged, Eötvös u. 6, H-6720 Szeged, Hungary, [2]Institute of Pharmaceutical Analysis, University of Szeged, Somogyi u. 4, H-6720 Szeged, Hungary (E-mail: hohmann@pharm.u-szeged.hu)

Euphorbia falcata L.

Isolated new natural products



1 **2** **3** **4** **5**

INTRODUCTION

Euphorbiaceae species are well known for the chemical diversity of their isoprenoid constituents. Among isoprenoids, diterpenoids are of particular interest because of their restricted occurrence and broad structural diversity, including the high variety of carbon skeletons. Myrsinane, premyrsinane and cyclomyrsinane diterpenes containing 5/7/6-, 5/7/6/3- and 5/6/7/4-fused ring systems, respectively, occur in the plants in highly oxygenated form, mainly as polyesters. Premyrsinanes and cyclomyrsinanes are relatively rare, to date only from nine *Euphorbia* species were reported such diterpenoids. In our earlier papers six premyrsinane and two cyclomyrsinane diterpenes were published from *E. falcata*, some of them with remarkable multidrog reversing activity. [1, 2]

In continuation of this experiment, the present poster reports the isolation and identification of five new diterpenes from the chloroform-soluble fraction of the MeOH extract prepared from the whole plant of *E. falcata*.

[1] Vasas, A., Sulyok, E., Martins, A., Rédei, D., Forgo, P., Kele, Z., Zupkó, I., Molnár, J., Pinke, G., Hohmann, J. *Tetrahedron* **68**, 1280-1285 (2012)
[2] Vasas, A., Sulyok, E., Martins, A., Rédei, D., Forgo, P., Kele, Z., Zupkó, I., Molnár, J., Pinke, G., Hohmann, J. *Tetrahedron* (in press)

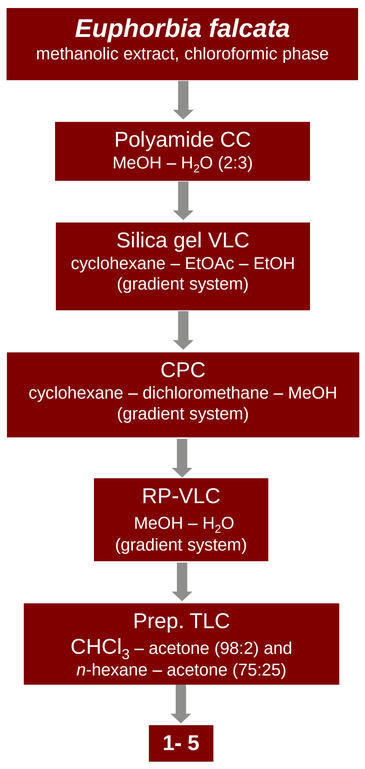


Figure 1. Isolation of compounds **1- 5**

RESULTS

From the MeOH extract of the whole plant of *E. falcata* five compounds (**1-5**) were isolated by combination of CC, VLC, CPC, PLC and HPLC (Fig. 1). The compounds were identified as penta- and hexaesters of myrsinane (**3**, **4**), premyrsinane (**1**) and cyclomyrsinane (**2**, **5**) polyols, esterified with acetic, benzoic, *n*-propanoic and isobutanoic acids. All isolated compounds are new natural products; one of them (**1**) contains a rare hemiacetal moiety.

The structure elucidation was carried out by extensive spectroscopic analysis, including 1D (^{1}H-NMR, JMOD) and 2D NMR (^{1}H-^{1}H COSY, HSQC, and HMBC) (Figs. 2-4) and HRESIMS experiments. The stereochemistry was studied by NOESY measurements (Fig. 5).

The isolated compounds are biogenetically related: premyrsinanes may be derived from epoxylathyranes by intramolecular cyclisation, while myrsinanes and cyclomyrsinanes can be originated by rearrangement of premyrsinanes.

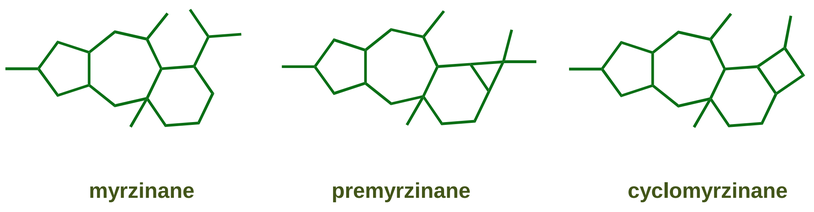


Figure 2. ^{1}H-NMR and JMOD spectra of compound **4**

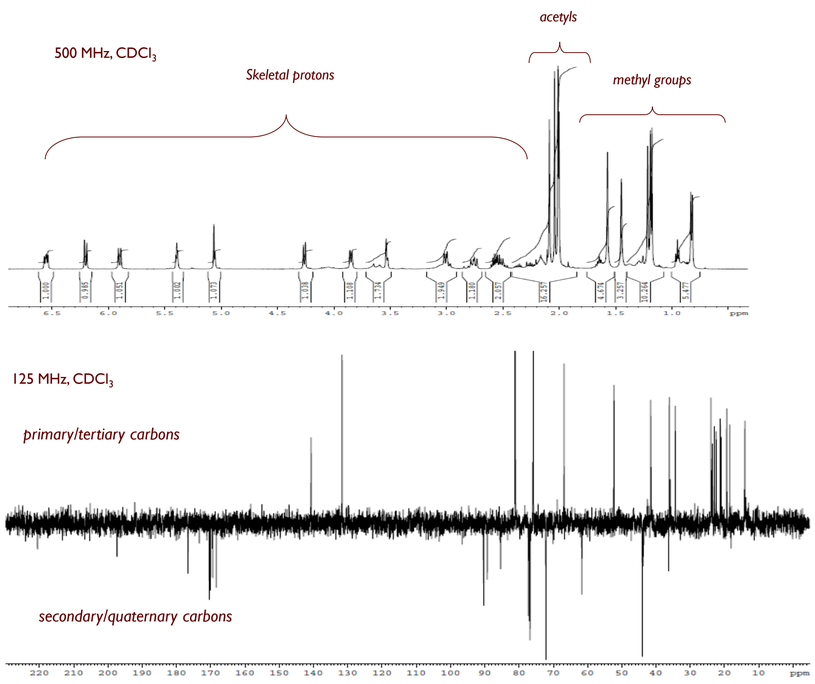


Figure 3. ^{1}H-^{1}H COSY spectrum of compound **4**

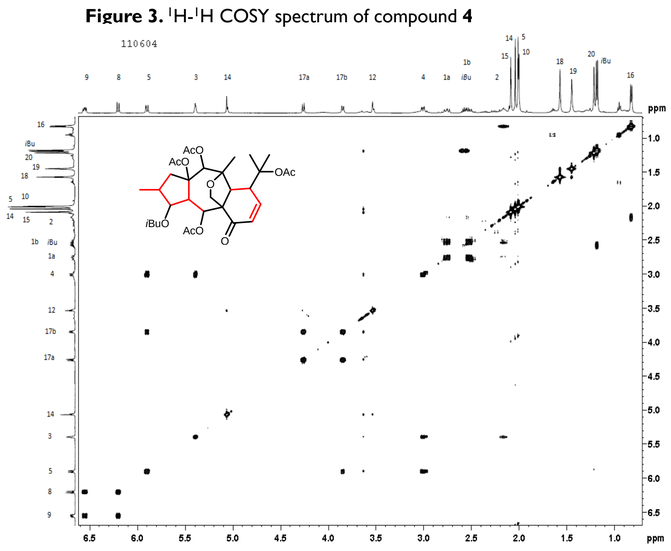
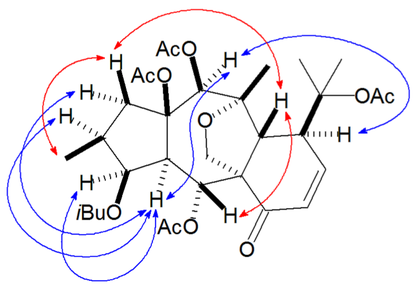
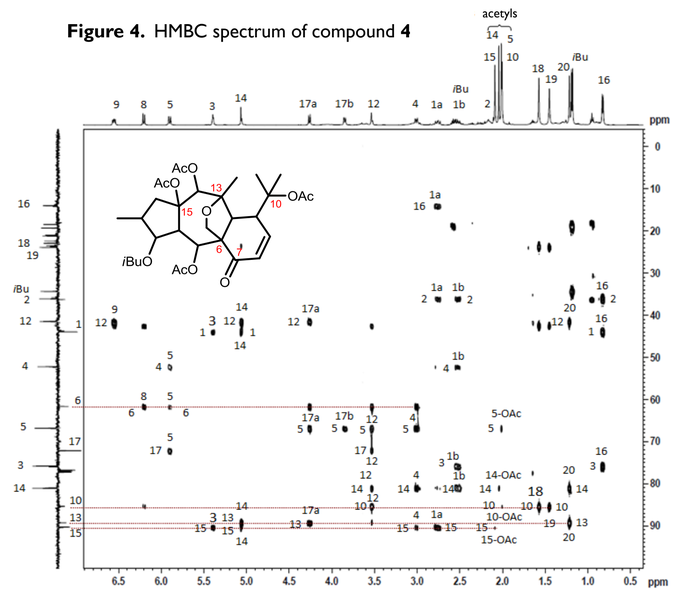


Figure 5. NOESY correlations of compound **4**



Overhauser-effects proving *α*-stereochemistry
Overhauser-effects proving *β*-stereochemistry

Figure 4. HMBC spectrum of compound **4**



Acknowledgements: This work was supported by the New Hungary Development Plan projects TÁMOP-4.2.1/B-09/1/KONV-2010-0005 and TÁMOP-4.2.2/B-10/1-2010-0012. A. Vasas acknowledges the award of a János Bolyai scholarship of the Hungarian Academy of Sciences.

ICNPR International Congress on Natural Products Research 2012