

A127 New jatrophone diterpenes from *Euphorbia mongolica* and *E. platyphyllos* as modulators of multidrug resistance of tumor cellsD. Rédei^a, D. Csupor^a, J. Hohmann^a, P. Forgo^b, J. Molnár^c, T. Zorig^d, Zs. Hajdú^a and I. Máthé^a^a Department of Pharmacognosy, University of Szeged, Eötvös u. 6., 6720 Szeged, Hungary. ^b Department of Organic Chemistry, Dóm tér 8., 6720 Szeged, Hungary. ^c Department of Medical Microbiology, Dóm tér 10., 6720 Szeged, Hungary. ^d Institute of Medicinal Research, Sector of Pharmacy, 211213 Ulaanbatar, Mongolia.

Resistance to multiple anticancer drugs has emerged as a major problem in current medicine, and therefore, there is a great clinical interest in developing compounds that overcome these resistances. In our previous work we have reported the isolation of macrocyclic diterpenes from Hungarian *Euphorbia* species, which are promising modulators of multidrug resistance (MDR) of tumor cells (1). With the aim to find further efficient anti-MDR agents from the genus *Euphorbia*, we have examined the diterpene constituents of *E. mongolica* Prokh. and *E. platyphyllos* L.

E. platyphyllos is an annual herb indigenous to South- and Central Europe, and used in the ancient medicine for the treatment of warts and various human cancers. *E. mongolica* is distributed in South-Mongolia and traditionally used in Mongolia to treat inflammation, warts and tumors. In contrast to their medicinal benefit, no previous data on the chemical compositions of the species were reported.

From the dried, powdered plant materials lipophilic extracts were prepared and tested on mouse lymphoma cells infected with pHa MDR1/A retrovirus by using the rhodamine 123 exclusion test. The extracts displayed marked effects in inhibiting the efflux pump activity of multidrug resistant lymphoma cells. From the active extracts seven diterpene polyesters based on the jatrophone skeleton were isolated using different chromatographic methods (CC, VLC, preparative TLC and HPLC). The structures were elucidated by HRESIMS and NMR spectroscopy, including ¹H NMR, JMOD, ¹H-¹H COSY, HSQC, HMBC and NOESY experiments. The anti-MDR activity of the isolated compounds was tested on the above mentioned test, and many compounds were found to modulate intracellular drug accumulation.

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A128 Chemical and productionbiological investigations of perennial Lamiaceae speciesE. Varga^a, K. Veres^a, Zs. Hajdú^a, É. Németh^b, G. Janicsák^c and I. Máthé^{a,c}^a Department of Pharmacognosy, University of Szeged, Eötvös str.6, H-6720 Szeged, Hungary. ^b Szent István University, Department of Medicinal and Aromatic Plants; Villanyi str. 29., H-1114 Budapest, Hungary. ^c Institute of Ecology and Botany of the Hungarian Academy of Sciences; Alkotmány str. 2., H-2163 Vácrátót, Hungary.

In the course of our ongoing investigations of perennial, polymorphic Lamiaceae species, three varieties of *Hyssopus officinalis* ssp. *officinalis* L., and two subspecies of *Origanum vulgare* L., were examined. These essential oil containing plants serve not only as spice but they are used in many countries in folk medicine. Both of them have beneficial effect on respiratory diseases; in addition, *O. vulgare* has appreciable anti-inflammatory and analgesic action. Previous phytochemical investigations of these plants revealed the presence of rosmarinic acid, having considerable antioxidant activity (1, 2).

The most important production indices, morphological, and chemical characters, the correlation between these properties, and their dependence upon the genotype and the generation were studied.

Quantity and quality of volatile oils obtained by water steam distillation (WSD) and Supercritical Fluid Extraction (SFE) with CO₂ were analyzed by GC and GC-MS. Rosmarinic acid contents of whole plants and of separated plant organs in several phenological phases were also measured using densitometry.

It was confirmed that the selection for the uniformity of flower colour and the high volatile oil content does not guarantee the homogeneity in the chemical composition. A correlation between the volatile oil content, the method applied for the extraction, and the oil composition was observed. A method was established to eliminate the uncertainties. Correlations were found between the production properties, the content of biologically active compounds, and the phenological stages of the plants, respectively. The degree of the accumulation of volatile oil and rosmarinic acid is independent from each other. Both of them depend on the phenological stage of the plant. Results of the examinations of the stability gave useful information for quality control.

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