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PP90. New unsaturated lactones from the essential oil *of Tordylium apulum* L. (Apiaceae)

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Tordylium apulum L. (Apiaceae) is a wild-growing plant species, widely distributed throughout the Mediterranean area and West Asia. Ethnobotanically speaking, *T. apulum* is mainly used in salads or to flavor savory pies or vegetable soups, while in folk medicine, it was applied to prevent hair-loss and treat 'nervous illnesses', as well as to bring on menstruation and as an expectorant. From a nutraceutical aspect, it was found that *T. apulum* has a high content of *β*-carotene and vitamin E [1]. In this study, we wish to report on the occurrence of two new compounds – two unsaturated lactones – in the essential oil of stems and leaves of *T. apulum*, obtained by hydrodistillation. The plant material was collected in May 2017, near Gevgelija, a city in the south-east of the FYR Macedonia. Initial GC and GC-MS analyses of the *T. apulum* essential-oil sample showed that *γ*-hexadecalactone, *α*-humulene and (5*Z*,9*E*)-farnesyl acetone were the major constituents (24.8%, 13.7%, 8.8%, w/w, respectively). Saturated lactones, *γ*-pentadecalactone, and *γ*-hexadecalactone were tentatively identified based on their mass spectra and retention data. In addition to these, two unsaturated *γ*-lactones were detected: 12-hexadecen-4-olide (4.3%, w/w) and 14-octadecen-4-olide (2.7%, w/w). In order to corroborate the position of the double bonds, the essential-oil sample of *T. apulum* was subjected to dimethyl disulfide (DMDS) derivatization. Characteristic mass fragmentation of DMDS adducts confirmed the position of the double bonds. These two monounsaturated lactones were never previously reported. Related unsaturated lactones occur in nature, such as (4*R*,9*Z*)-hexadec-9-en-4-olide ((*R*)-desmolactone) which is a sex pheromone of multiple taxa in the Cerambycidae genus *Desmocerus* [2], and (–)-(*Z*)-9-octadecene-4-olide (micromolide), isolated from the stem bark of *Micromelum hirsutum*, which showed potent *in vitro* antituberculosis activity [3]. This production of the lactones, both saturated and unsaturated in *T. apulum*, could be the role of adapting to the environment.

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