MANGIFERIN IN SOME SPECIES OF THE GENUS *Hypericum*

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Mangiferin, a xanthone C-glucoside, was first isolated from *Mangifera indica* L. [1], and isomangiferin from *Anemarrhena asphodeloides* Bunge [2]. Then both compounds were found in other plants. The genera *Iris* L. and *Hedysarum* L. have been studied for their contents of these isomers in most detail [3-5].

The biological activity of mangiferin makes the search for sources of natural raw material for its isolation urgent [3], and the distribution of the xanthones in higher plants is of interest for the purposes of chemosystematics [6]. All this could not but draw our attention to this group of compounds, since a large number of xanthones has been detected in representatives of the family Guttiferae. In the most numerous genus *Hypericum* L., maculatoxanthone has been found, having been isolated from *H. maculatum* Cranz [7], and the presence of mangiferin in *H. humifusum* L. has been established chromatographically [8].

When 12 species of the genus *Hypericum* growing in the territory of the People's Republic of Bulgaria were investigated, mangiferin was detected in four species, being present in largest amount in the herb *H. aucherii* Jaub. et Spach.

Mangiferin was isolated from the epigeal part of *H. aucherii* collected in the flowering period of the Eastern Rhodopes mountains. The raw material was treated with chloroform to eliminate ballast substances, and the combined phenolic substances were extracted with 95%, and then with 70%, ethanol. The ethanolic extracts were concentrated and were additionally purified with chloroform. The purified extract was repeatedly treated with ethyl acetate. The solvent was distilled off, and the residue was dissolved in 80% ethanol. The precipitate that deposited after cooling was recrystallized from 80% ethanol. The yield of mangiferin from air-dry raw material was 0.1%.

The substance obtained, $C_{19}H_{18}O_{11}$, had mp 264-266°C (decomp.); $\lambda_{max}^{CH_3OH}$ 242, 258, 317, 367 nm (log ε 4.31, 4.40, 4.11, 3.99); $\lambda_{max}^{CH_3ONa}$ 241, 273, 393 nm; R_f 0.53 [butan-1-ol-acetic acid—water (40:10:22)], 0.40 (15% acetic acid), and 0.16 (water). From its physicochemical properties and a comparison with an authentic sample, it was identified as mangiferin (1,3,6,7-tetrahydroxyxanthone 2-C-glucoside).

In addition to *H. aucherii* from the section Olygostema, mangiferin is present in *H. barbatum* Jacq. and *H. rumeliacum* Boiss. From the section Drosocarpium, and also in *H. maculatum* (*H. quadrangulum* L.) from the section Hypericum. Other species of these sections are of interest for the search for mangiferin, and so are representatives of other sections. This is the first time that mangiferin has been detected in these species.

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