345, 298 and 277 nm; and with NaOAc 387, 355, 267, and 256 (sh) nm; and with NaOAc–H_3BO_3 no appreciable change. Controlled acid hydrolysis yielded no intermediate glycoside, and the final products were glucose and an aglycone the same as apigenin. For comparable values see Ref. [3]. Compound (**2**) was indistinguishable from an authentic sample of apigenin 7-*O*-glucoside.

Compound (**3**) was dull brown under UV radiation and the color did not change in ammonia vapor. Spectral data were those of a 4',7-disubstituted luteolin. The λ_{max} in EtOH were 342, 268 and 253 nm; with NaOEt 382 (decrease in extinction), 295 (sh) and 268 nm; with $AlCl_3$ 385, 351, 295 (sh), 276 and 268 (sh) nm; and with NaOAc or NaOAc–H_3BO_3 no appreciable change. Controlled acid hydrolysis yielded no intermediate glycoside, and the final products were glucose and an aglycone spectrally and chromatographically the same as luteolin 4'-methyl ether (diosmetin) [3]. The MS fragmentation pattern of the aglycone and an authentic sample of diosmetin were identical and showed that the molecular ion was at *m/e* 300. Principal fragments were observed at *m/e* 285, 271, 257, and 229. All the above criteria indicated that (**3**) was diosmetin 7-*O*-glucoside.

Compound (**4**) was deep purple under UV radiation and the color changed to yellow in ammonia vapor. Spectral data were those of a 7-substituted luteolin. The λ_{max} in EtOH were 350, 267 (sh) and 255 nm; with NaOEt 393, 295 (sh) and 264 nm; with $AlCl_3$ 404, 365 (sh), 295 (sh), and 274 nm; with NaOAc 411, 365 (sh), 266 (sh), 258 nm; and with NaOAc–H_3BO_3 377 and 260 nm. Controlled acid hydrolysis yielded no intermediate glycoside, and the final products were glucose and an aglycone spectrally and chromatographically the same as luteolin [3]. Compound (**4**) was indistinguishable from an authentic sample of luteolin 7-*O*-glucoside.

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LINIFOLIN A AND HELENALIN FROM *HELENIUM AROMATICUM**

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Plant. Helenium aromaticum (Hook) L. H. Bailey [syn. *Cephalophora aromatica* (Hook.) Schrader, *Graemia aromatica* Hook.] *Source.* Garden of Pharmacognosy, Institute of Biology and Pharmacy, Poznań (Specimen 353/73; deposited in the Herbarium of Garden of Pharmacognosy, Institute of Biology and Pharmacy, Poznań) grown from the seeds obtained from the Botanical Garden, University of Uppsala,

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Sweden. *Previous work.* Isolation of aromatin, aromaticin, mexicanin I and helenalin from *H. aromaticum* [1]. Isolation of helenalin from several species of the Compositae family [2], its structure [3]; stereostructure [4]; X-ray determination of bromohelenalin [5]. Isolation of linifolin A from *H. linifolium* Rydb. [6]; its structure [6]; stereostructure [7].

Present work. From the above-ground flowering part a lactonic fraction was isolated according to the previously described procedure [8]. The fraction gave, on chromatography on silica gel, linifolin A, mp 197–199°, $[\alpha]_D^{20}$ +30·4° (MeOH), $C_{17}H_{20}O_5$ (M^+ at *m/e* 304. Found: C, 66·87; H, 6·55. Calc: C, 67,09; H, 6·62%), IR ($CHCl_3$): 1760, 1712, 1661, 1154 cm^{-1}; CD (MeOH): $\Delta\epsilon_{338}$ −1·81; $\Delta\epsilon_{276}$ ±0; $\Delta\epsilon_{228}$ +26·07; $\Delta\epsilon_{218}$ ±0; $\Delta\epsilon_{208}$ −16·33, identical (mp, IR, $[\alpha]_D$, MS and PMR) with the described data of linifolin A [7]. From further fractions helenalin was isolated, mp 159–161°, $[\alpha]_D^{20}$ −70·0° (MeOH), $C_{15}H_{18}O_4$ (M^+ at *m/e* 262. Found: C, 68·41; H, 7·09. Calc: C, 68·68; H, 6·92%) IR ($CHCl_3$): 3610, 3500, 1764, 1705, 1658, 1156 cm^{-1}. CD (MeOH): $\Delta\epsilon_{326}$ −1·80; $\Delta\epsilon_{283}$ −0·44; $\Delta\epsilon_{240}$ −3·02; $\Delta\epsilon_{231}$ ±0; $\Delta\epsilon_{218}$ +4·31, identical (mp, mmp, IR, $[\alpha]_D$, MS and PMR) with an authentic sample.

Some South-American species of *Helenium* differ from North-American representatives of this genus only by minor morphological characters of the flower heads, but not always in their chemical components. It is of interest, therefore, that the detected linifolin A and helenalin are characteristic of *H. linifolium* Rydb. [6] from Texas and other North-American species [2]. It is also noteworthy that mexicanin I, aromatin and aromaticin which have been isolated from *H. aromaticum* of Chilean origin [1] were not detected in the plants of the same species cultivated in Poland. (Sheets of *H. aromaticum* from Poland were compared with those of *H. aromaticum* of Chilean origin which are deposited in the Herbarium of the National Museum in Prague and were found identical in all respects.) However, the separation of South-American *Helenium* taxa to an independent genus, *Cephalophora* Cav. [e.g. *Cephalophora aromatica* (Hook) Schrader] does not seem to be substantiated. On the contrary, the incorporation of *H. aromaticum* in the section Cephalophora (Cav.) Hoffmann, seems sufficient to us for the accentuation of the slightly different organisation of the flower heads.

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TRIGALACTOSYL DIGLYCERIDE OF PUMPKIN

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Key Word Index—*Cucurbita maxima*; Cucurbitaceae; pumpkin; trigalactosyl diglyceride; glycolipid.

Monogalactosyl diglyceride, digalactosyl diglyceride, sulfoquinovosyl diglyceride and trigalactosyl diglyceride (TGD) are known to be the main glyceroglycolipids occurring in plant kingdom. Although structures of the former three were well clarified [1, 2], that of TGD has not conclusively