

CONSTITUENTS OF *HELENIMUM SCORZONERAEFOLIUM*<sup>1</sup>

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Previous studies of *Helenium scorzoneraefolium* (DC.) Gray (Compositae) collected in the surroundings of Mexico City reported the isolation of one unidentified isomer of helenalin (1) as well as helenalin and linifolin A (2). In order to establish the variability in its chemical composition, we have now investigated a population of this species collected in the state of Chiapas, México.

Column chromatography of aerial parts of *H. scorzoneraefolium* afforded four sesquiterpene lactones, which were identified by comparison with the reported spectral and physical data as linifolin A (1), helenalin (3, 4) bigelovin (5), and mexicanin I (6). Their <sup>1</sup>H-nmr spectra were directly compared with the published spectra (7). Helenalin was compared with an authentic sample. Furthermore, the flavone 6-methoxyluteolin (eupafolin, nepetin, 5,7,3',4'-tetrahydroxy-6-methoxyflavone) (8) was also isolated and characterized by comparing the physical and spectral data of this and its tetracetyl derivative with those reported in the literature (8, 9).

## EXPERIMENTAL

Ground, dried aerial parts of *H. scorzoneraefolium* (720 g) collected in San Cristobal las Casas, Chiapas, México (voucher specimen deposited in the Herbarium of the Instituto de Biología, UNAM, AOH 205) afforded 11.7, 12.7, and 13.9 g of syrup after extraction with hexane, CHCl<sub>3</sub>, and Me<sub>2</sub>CO, respectively. The CHCl<sub>3</sub> syrup was chromatographed on a Si gel column (Merck G, 7 cm diameter × 15 cm) operated with vacuum. Elution with EtOAc-hexane (3:17) yielded 0.813 g of bigelovin, 1.325 g of linifolin A, and 1.84 g of helenalin, respectively. The Me<sub>2</sub>CO extract was chromatographed as above using Me<sub>2</sub>CO/hexane mixtures as eluent. Fractions eluted with Me<sub>2</sub>CO-hexane (3:17) gave mexicanin I (272 mg). Also, 115, mg of 6-methoxyluteolin was obtained from fractions eluted with Me<sub>2</sub>CO-hexane (1:4).

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