PLANT MATERIAL.—Root bark was collected in the Kalsinth province in the northeast of Thailand in April 1982. Voucher herbarium specimens of the plant were identified and deposited at the Botany Section, Botany and Weed Science Division, Department of Agriculture, Ministry of Agriculture and Cooperatives, Bangken, Bangkok, Thailand.

EXTRACTION, ISOLATION, AND IDENTIFICATION.—The pulverized, dried root bark (2.8 kg) was extracted by refluxing with 20 liters of hexane for 17 h. The hexane extract was decanted and evaporated on a rotary evaporatory to give a gummy residue (56 g). Analytical tlc (silica gel, petroleum ether-Et_2O, 10:2) allowed several compounds to be detected, which gave color reactions indicative of coumarins and/or alkaloids.

A portion of gummy residue (5 g) was chromatographed on a 2.5×37 cm column containing 60 g of silica gel G 60 (230-400 mesh). The column was initially eluted with petroleum ether-Et_2O (10:2), and 43 fractions (F_1-F_{43}), of 25 ml each, were collected; elution with Et_2O produced fractions F_{44}-F_{54} of the same volume. After tlc analysis, the fractions which contained major amounts of a single compound were combined and concentrated to dryness in vacuo. Crystallization of the purified compounds was effected using Et_2O and MeOH.

The crystallized compounds were identified by spectral data (uv, ir, ^{1}H-nmr, and eims) and by comparisons with authentic samples. Fractions F_{12}-F_{17} yielded heptaphylline (yellow crystals, 39.6 mg) 0.016% yield, mp 171-172° (1); F_{18}-F_{20} yielded clausarin (71.7 mg) 0.029%, mp 198-202° (2); F_{22}-H_{29} yielded dentatin (600 mg) 0.24%, mp 95° (3); F_{39}-F_{41} yielded osthol (150 mg) 0.061%, mp 78-81° (4); F_{46} yielded xanthoxyletin (300 mg) 0.12% yield, mp 132-124° (5), and F_{47}-F_{48} yielded nordentatin (56 mg) 0.023%, mp 183-186° (3). *Clausena excavata* Burm. f. (*Clausena lunulata* Hayata) has recently yielded some of the same compounds (6). The spectral data are available upon request to the senior author.

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ISOLATION OF SOLASODINE FROM THE FRUITS OF *SOLANUM ASPERUM* AND *SOLANUM PALUDOSUM*

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Solasodine, an important starting material for the partial synthesis of many useful steroidal hormones, has been encountered in many species of *Solanum* (1). We wish to report here the isolation of solasodine from the unripe fruits of *Solanum asperum* Vahl var. *angustifolium* and *Solanum paludosum* Moric, two of the yet uninvestigated species growing abundantly in the coastal plain of northeastern Brazil. While the total crude glycoalkaloid fraction from the fruits of *S. paludosum* upon hydrolysis furnished pure solasodine in 0.67% yield, that from *S. asperum* was found to be a mixture of several alkaloids, with solasodine as the major constituent (0.24%).

EXPERIMENTAL

PLANT MATERIAL.—The fruits of *S. asperum* were collected in January 1983, from an area 50 km due west from João Pessoa and the fruits of *S. paludosum* were collected from the campus of the Universidade

Federal da Paraiba, João Pessoa, also in January 1983. The herbarium specimens are kept at the LPX Herbarium of the Universidade Federal da Paraiba.

EXTRACTION AND PURIFICATION OF SOLASODINE.—The dried and ground fruits of *S. asperum* (730 g) were boiled with EtOH-H_2O-HOAc (90:7:3) and filtered. The process was repeated several times, and the combined filtrate after concentration in vacuo was treated in the usual way (2) to furnish a crude mixture of free bases (4.05 g). Tlc showed a mixture of three compounds. Column chromatography gave solasodine (3.1 g), mp 198-200°, as the major constituent, which was identified by comparison (mmp, ir, ms) with an authentic sample.

The fresh fruits of *S. paludosum* (539 g) were subjected to the same extraction procedure to give a free base, which, upon crystallization, furnished solasodine (3.62 g) as the sole product.

The full details of isolation are available from the author upon request.

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NATIVE AMERICAN FOOD AND MEDICINAL PLANTS, 5. ISOLATION OF THE LIPID ALTERING VISNAGIN FROM *MUSINEON DIVARICATUM*[1]

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While investigating the coumarin profile of *Musineon divaricatum* Pursh. (1), we isolated a small amount of the known furanochromone visnagin. Examination of the ^{1}H-nmr, ms, and ir spectra for our isolate led to the identification of visnagin as the structure of this compound, and comparison with literature data (2,3) confirmed the identification.

Visnagin is previously known from but two plants, *Ammi visnaga* (Umbelliferae) (4) and *Cimicifuga dahurica* (Ranunculaceae) (5). Originally objects of study for their spasmolytic and vasodilating activities, visnagin and its structural analogs have recently developed new significance for their lipid altering activity, i.e., their capacity to affect the relative levels of high density and low density lipoproteins (6,7).

EXPERIMENTAL

Isolation of Visnagin.—The preparation and initial chromatographic separation of the extracts of *M. divaricatum* are described elsewhere (1). Visnagin was isolated from Florisil column fraction 10, eluted with EtOAc-MeOH (49:1). Gel permeation chromatography of this fraction through Sephadex LH-20 and Bio-Beads S-X8 yielded 6 mg of visnagin as a white solid, mp 135-139°, lit. mp 142-145° (4,5).

Full details of the isolation and identification are available on request to the senior author.

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