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SHORT COMMUNICATION

THE CHEMISTRY OF THE GENUS *CNIDOSCOLUS*—I.

THE FATTY ACID COMPONENTS OF THE SEED OIL

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Abstract—The fatty acids of the seed oil of *Cnidoscolus texanus* (Muell. Arg.) Small were found to be 71% linoleic acid, 15·5% oleic acid, 10% palmitic acid, 3% stearic acid, and smaller amounts of other components as determined by gas chromatography of their methyl esters.

Cnidoscolus texanus (Muell. Arg.) Small, commonly known as 'bull nettle' or 'stinging nettle', has long been known in the southeastern and southwestern United States as an undesirable range plant. The plant is covered with stinging hairs resembling those of common nettles but producing a more lasting sensation upon contact.[1] The large root, which we are presently investigating, contains a cyanogenetic glycoside. The root closely resembles cassava, *Manihot utilissima* Pohl., both in physical appearance and in the presence of a cyanogenetic glycoside.

The seeds closely resemble those of the Castor bean, *Ricinus communis* L., in physical appearance, but unlike the Castor bean and many other Euphorbiaceae, these seeds are nontoxic and edible. This fact prompted our investigation of the seed oil.

Previous studies of the seed and its oil have been made by Cushing and Menaul.[2,3] Menaul states the plant with which he worked was *Jatropha stimulosa*, but because his materials were collected in Oklahoma, and *Jatropha stimulosa* Michx. (*Cnidoscolus stimulosus* (Michx.) Gray) has never been collected in Oklahoma,[4] he undoubtedly studied *Cnidoscolus texanus* (Muell. Arg.) Small. Menaul[3] reported the oil content of the seed as 50 per cent, but the results of our work and that of Cushing[2] indicate a value of approximately 20 per cent. The oil was removed from air dried and finely ground *C. texanus* seeds by pentane extraction. The acids were determined as their methyl esters by gas–liquid chromatography.[5–7] The unsaturated acids were linoleic, 71%, oleic, 15·5%, and linolenic, 0·5%. The saturated acids were palmitic, 10%, stearic, 3%, and traces (0·01–0·1%) of lauric and myristic.

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[3] P. A. MENAUL, *J. Agr. Res.* **26**, 259 (1924).
[4] S. H. ROUSE, M.S. Thesis (Pharmacy), University of Oklahoma (1948).
[5] W. STOFFEL, F. CHU and E. H. AHRENS, *Anal. Chem.* **31**, 307 (1959).
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[7] The methyl esters were determined, in ether solution, using a Microtek GC-1600 gas chromatograph fitted with a 3·3 m, 3 mm stainless steel column, packed with 20% Carbowax 20 M on Anakrom ABS, at 170° through a flame ionization detector. The peaks were identified by peak enhancement techniques, using known samples of esters,[8] and by relative retention times.
[8] Pure samples of methyl linoleate and methyl linolenate were obtained from Calbiochem Company with the aid of funds from the National Science Foundation, Grant GP4439. Other esters were prepared by direct esterification of the corresponding acids.