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A NOTE ON COMPONENT FATTY ACIDS OF THE OIL FROM THE SEED OF *MOMORDICA CHARANTIA*, LINN.

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Momordica charantia, Linn. (Hindi : Karela) belongs to N.O. Cucurbitaceae. Airan and Shah (*J. Univ. Bombay*, 1942, **11**, 105) reported the fatty acid composition of the seed oil as stearic and oleic acids. As the oil polymerises and gels quickly, Aggarwal (Proc. Sym. Oils Fats & their Utilization, N.C.L, Poona, 1951, p. 257) suspected the presence of a conjugated double bond fatty acid in its composition. The work carried out to determine the fatty acid composition of the oil from the Bombay variety of karela seeds by applying the low-temperature crystallisation and spectroscopic techniques has been summarised in this note. When the work was nearing completion, Chowdhury, Chakrabarty and Mukherji (*Proc. Indian Sci. Cong.*, 1955, Part III, 156) reported the fatty acid composition of the seed oils from two Bengal varieties of *Momordica charantia*.

The karela seeds, on extraction with petroleum ether, yield 26.5% of a clear reddish brown oil having the characteristics: $d^{4°}$, 0.9958 ; n_D^{27}, 1.4984 ; acid value, 3.4 ; sapon. value, 184.1 ; I.V. (Wijs, 2 hrs), 120.4 ; I.V. (R & K modified method), 196.5 ; Diene value (Ellis & Jones), 70.6 ; saturated acids, 28.0 ; unsaponifiable matter, 0.7%.

The fatty acids (100 g.), prepared from the oil by the usual saponification method in the atmosphere of nitrogen, were dissolved in 1000 c.c. of petroleum ether (b.p. 40°-60°) and separated into four fractions by low-temperature crystallisation at 0°, -15° and -25°. The material (20.6 g.) separating at -25° was crystallised from methyl alcohol (90%) by warming at 35°-40° and keeping at 15° when α-elaeostearic acid [m.p. 47-48° ; I.V. (R & K), 245 ; M.W., 279.1 ; $E^{1p.c.}_{1cm}$ value at 268-70 mμ, 1780] was obtained. The acid on irradiation in ultraviolet light in petroleum ether in presence of traces of iodine changed into its β-isomer, m.p. 70-71°.

The α-elaeostearic and linoleic acids in the total fatty acids of the oil from the seeds of *Momordica charantia* were estimated by the ultraviolet spectroscopic method, as reported by Hilditch, Morton and Riley (*Analyst*, 1945, **70**, 68). The procedure also indicated the complete absence of linoleic acid. The saturated acids, obtained after Bertram's permanganate oxidation method of total fatty acid mixture, amounted to 29.8%, having the mean M.W. 285.4. After recrystallisation from dilute alcohol, the specimen melted at 70° which remained unchanged on admixture with an authentic specimen of stearic acid (m.p. 70°-70.5° ; M.W. 284.5). The saturated acids therefore were entirely stearic acid. The total of saturated, elaeostearic and linoleic acids, when subtracted from 100, gave the amount of oleic acid. The presence of linoleic and oleic acids in total fatty acids was confirmed by the isolation of tetrahydroxystearic acid (m.p. 155-56°) and dihydroxystearic acid (m.p. 130-31°) from the alkaline

potassium permanganate oxidation products of the petroleum ether concentrate obtained after removal of the α-elaeostearic acid at -25° (Sullivan and Bailey, *J. Amer. Chem. Soc.*, 1936, **58**, 383).

The fatty acid composition of the oil from the seeds of *Momordica charantia*, Linn. (karela), as obtained by the above analysis, is α-elaeostearic acid, 46.7% ; linoleic acid, 7.7% ; oleic acid, 15.8% and stearic acid, 29.8%.

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