

I. INTRODUCTION.

Glycerides of erucic acid are present in large amounts in oils from three species of the genus *Brassica* (Nat. Ord. Cruciferae) and also in the oil from the seeds of *Tropaeolum majus* (Arch. Pharm., 1899, 273, 471) (Nat. Ord. C. colzae). In addition they are met with in certain fish oils including whale and cod-liver oils (Bull., Chem. Zeit., 1869, 996; Ber., 1906, 39, 3570) and according to Neville (J. Chem. Soc., 1912, 101, 1104) approximately 18.6 per cent. of the total fatty acid from the dry roots of the common beet (*Beta vulgaris*) consists of erucic acid.

The presence of large amounts of glycerides of erucic acid in an oil produces a low saponification value and hence a relatively high molecular weight; a low specific gravity and a refractive index-iodine value curve for the hydrogenated oils which lies above that of oils containing only C₁₆ and C₁₈ acids (*This Journal*, 1924, 7, 82).

Other species belonging to the natural order Cruciferae yield oil-bearing seeds, e.g., garden cress (*Lepidium sativum*, Linn.), radish (*Raphanus sativus*, Linn.) and the oils from these have relatively low saponification values (Crossley and Le Sueur, *J. Soc. Chem. Ind.*, 1898, 17, 992) and hence may contain glycerides of erucic acid.

The three species of *Brassica* yielding large amounts of erucic acid glycerides are rape, mustard and jamba; varieties of all three are common in India. The study of varieties of these three plants was begun in 1921 and at that time practically nothing was known as to the percentage of the various acids present in the mixed acids from the different oils; the investigation was undertaken with the object of ascertaining these percentages and also of studying the refractive index-iodine value curves for the hardened oils. During the course of the work, Tayama (*J. Chem. Ind. Japan*, 1922, 25, 1044) published a paper in which the percentage of erucic acid in the mixed acids from a sample of Japanese rape oil is given as 65.

The three varieties of *Brassica* we have investigated are

1. *Brassica campestris*, Var. *napus* Linn. The genuine rape or colza, and usually known in India as sarson.
2. *Brassica juncea* H. or *Sinapis juncea*, Linn. The Indian black mustard known as rai.
3. *Eruca sativa*, Lam. The jamba or rocket seed known generally in India as tori.

The *Tropaeolum majus* seeds were imported, and obtained from the Empress Gardens, Poona. As the oil obtained by extraction with ether was only 7 per cent. of the weight of the seeds, it was not found possible to undertake a complete examination of the oil.