

value of the fresh oil was 21.6 while the acid value after four months was 81.20. The solid is, therefore, a product of the hydrolysis of the glycerides. It has been observed that the free acids in rancid fats and oils have the same composition as the mixed fatty acids.<sup>1</sup> In cotton-seed oil, the major portion consists of the glycerides of linolic (41.7 per cent.), oleic (35.2 per cent.) and palmitic (20.0 per cent.) acids. The fact that pure palmitic acid is deposited could be explained as due to the circumstance that the other free fatty acids are retained in solution by the oil.

Though reference has been made to this deposit by previous workers,<sup>2,3,4,5</sup> the exact nature of the solid has not been definitely mentioned so far. Our observation that palmitic acid, in an almost pure condition, separates out from the oil is significant and supports the view that there is very little of stearic acid, if present at all.

The remarkable difference between solvent-extracted oil which becomes rancid and deposits palmitic acid so quickly as compared with oil obtained by expression, may find explanation in their very different Gossypol contents; the former contains small quantities, whereas the latter brings along with it considerable amounts. Gossypol is a good antioxidant and inhibits rancidity to a high degree.

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<sup>1</sup> Hilditch and Jones, *J. Soc. Chem. Ind.*, 1931, 171, 1.  
— —, Ichapuria, *J. Soc. Chem. Ind. Trans.*, 1938, 45.

<sup>2</sup> Hehner and Mitchell, *Analyst*, 1896, 21, 328.

<sup>3</sup> Victor J. Meyer, *Chem. Zeit.*, 1907, 794.

<sup>4</sup> Jamieson and Baughman, *J. Amer. Chem. Soc.*, 1920, 1204.

<sup>5</sup> Lewkowitsch, *Technology of Oils, Fats and Waxes*, Vol. II, p. 204.

### Variations in the Quality of the Pongamia Oil with Reference to the Occurrence of Karanjin

It has been shown that Karanjin exhibits the properties of the pongamia oil in regard to its effect on skin affections and hence it may be considered to be the active principle of the oil. In the course of our study we have found that it could be obtained readily in a pure condition by extracting the fresh oil<sup>1</sup> (pressed), and the yield is usually about 0.8 to 0.9 per cent. A sample of the oil obtained by solvent extraction yielded a mixture of karanjin and wax.

Examination of genuine samples of pongamia oil, obtained from different places during different seasons of the year, showed considerable variation in the yield of karanjin. One sample obtained in December from the West-coast was remarkably deficient in the active principle. This was at first attributed to variations arising as a result of differences in habitat. A sample of the oil pressed in Waltair and giving a good yield of karanjin also failed to give any karanjin after a storage of five months. The sediment deposited at the bottom of the container, however, contained all the karanjin. The occurrence of karanjin in the deposit along with zinc salts of fatty acids has been noted previously by Manjunath and Rao.<sup>2</sup> We have now found that the entire quantity which was originally present in the oil could be recovered from this source. The precipitation seems to be slow and may be accompanied by some change in the oil which lessens the solubility of karanjin. When the clear oil is then separated, it is devoid of karanjin. This fact should be noted by all those who use pongamia oil for therapeutic purposes.

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<sup>1</sup> N. V. S. Rao, J. V. Rao and T. R. Seshadri, *Proc. Ind. Acad. Sci.*, 1939, 10, 65.

<sup>2</sup> Manjunath and Rao, *J.I.C.S.*, 1938, 25, 653.