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Normal Tetracosanic Acid.

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In connection with studies of the structures of the fatty acids of cerebrosides[1] and their relationship to the lignoceric acid of peanut oil, it became imperative to examine the latter source more carefully than had heretofore been done. The results so far obtained are of sufficient importance to warrant the publication of this note.

In the usual preparation of lignoceric acid from peanut oil, the saturated acids are fractionated from various solvents until the least soluble fraction melts at 80-81°. Further crystallization produces no further change.[2]

In the present experiments a systematic fractional distillation[1] was carried out which might be expected to produce a quite different distribution of the individual acids than would crystallization. Small fractions of highest and lowest volatility, respectively, were removed at each distillation, the large middle fraction serving for the next following distillation. The free acids were then grouped according to molecular weight and melting point and crystallized from large volumes of ether, first at room temperature and finally at 2-5° C.

From the higher fractions an acid was obtained which agrees closely in properties with the normal tetracosanic acid. It melts at 84-85° and its molecular weight by titration is 372. Levene and Taylor[3] found for the synthetic normal acid a melting point of 85-86°. Several crystallizations from ether brought about no further change in the acid. It has been obtained from 2 samples of peanut oil. The agreement in melting point is sufficiently close if one considers the difficulty of separating individual fatty acids in a perfectly pure state from mixtures.

It should be noted that the normal acid was not obtained from lignoceric acid but from the mixture of acids which give rise to lignoceric on repeated fractional crystallization. The relationship to lignoceric acid can only be determined by the preparation of pure lignoceric and its fractional distillation. Experiments on this phase of the problem are in progress.

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[1] Taylor, F. A., and Levene, P. A., *J. Biol. Chem.*, in press.

[2] Levene, P. A., Taylor, F. A., and Haller, H. L., *J. Biol. Chem.*, 1924, lxi, 157.

[3] Levene, P. A., and Taylor, F. A., *J. Biol. Chem.*, 1924, lix, 905.