

BRIEF REPORTS

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NOTE ON THE DECOMPOSITION PRODUCTS IN CHAULMOOGRA OILS

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The article by Paget, Trevan and Attwood on the irritant constituent of antileprotic oils which appeared in the April-July, 1934, issue of this JOURNAL is of much interest, especially with regard to the syrupy yellow oily fraction in which, they find, resides the greater part of the irritant character of the oils and their derivatives. During a period of seven years when I worked with chaulmoogra oils at the Culion Leper Colony I often noted the occurrence of such a syrupy oil, and gave it some attention though no complete study was made.

Fractionations of its lead salts showed it to be a mixture of at least two acids other than hydnocarpic and chaulmoogric acids, some of which are held in solution in the oil. Attempts to separate it into its constituents by the use of solvents and lead salts were unsuccessful.

Not only is this yellow syrupy acid mixture to be obtained from the mixed fatty acids of the original chaulmoogra oil, but it also appears after a time in highly purified, separated hydnocarpic and chaulmoogric acids, due to a gradual decomposition. The decomposition is more rapid in the presence of air and light than otherwise, and of course more rapid if the acid is allowed to remain in small crystals than when it is melted into a solid cake. If a small amount of a pure acid is sealed in a relatively large container (such as a quart mason jar) and opened after a period of months, air rushes into the jar indicating that oxidation has actually taken place.

The production of the syrupy acids is undoubtedly more rapid under tropical conditions than under temperate zone conditions, such as obtain in England. It appears to take place at a more rapid pace in a mixture of the total fatty acids than in the purified individual acids. However, pure acids undergo the change, especially the less stable hydnocarpic acid. Four years ago we put up a stoppered but not air-tight bottle of pure hydnocarpic acid in loose crystalline

flakes, and this, kept at room temperature at Culion, has almost completely decomposed into the yellow syrupy acid mixture at the end of four years. A similar bottle of pure chaulmoogric acid put up at the same time shows only a slight yellowing of the crystal flakes.

The ethyl esters do not seem to be any more stable than the free acids. Pure ethyl hydnocarpate and pure ethyl chaulmoograte which had been kept in closed, but not completely air-tight, bottles for two years have recently been converted back into the free acids. After the acids had been crystallized out the mother liquor contained this same yellow syrupy acid mixture in some quantity, though the acids from which the esters had been made were as pure as it was possible to make them.

This interesting observation of Paget and his co-workers suggests a number of experiments that might be of considerable importance from the clinical viewpoint.