crease the second cut to obtain more of the high residual lint results in producing off grade lint of low cellulose content which is unacceptable for chemical industry because of high bran and hull content.

Type II will yield a higher percentage of grade #2 lint which, while lacking the small percentage of extra long fibers of hill lint, will be smooth, uniform, and bright in color. The roundness and uniformity of the seed make it possible to obtain a greater relative total yield as a result of thorough delinting. In the second cut linters a very high percentage of the residual lint can be cut without excessively contaminating the product with hull particles. Type I are abnormal seed which exceed in the desirable qualities of typical delta seed. The amount of long fiber present greatly exceeds the short fuzz and in consequence a very high proportion of first cut, of good quality, could be made. Only a negligible amount of fiber remained on the seed after the second cut was made.

The conclusion drawn from this study is that the determination of lint on cottonseed by analysis, while successful from the laboratory standpoint, does not and cannot indicate lint value to the mill. The determination of residual lint on seed cannot be relied upon to indicate the efficiency of the delinting operation or the quality of the product, because of variations of seed size and shape which are inconstant not only between mills but at a single mill. In analysing cottonseed for total lint during an entire crushing season it was found that for each 1% increase the actual yield increased by approximately 40 pounds per ton. But as it has been shown that lint yield is so dependent on natural seed and fiber characteristics other than the amount of lint present, it cannot be assumed that on any single lot of cottonseed the total lint by analysis is any indication of the amount or quality of available linters. It is quite possible that in milling two lots of seed the one with the lower total lint would give the higher yield. There is little in common between lint by analysis and lint by nature.

The Presence of Long Chain Aliphatic Alcohols in the African Palm. (Elaeis Guineensis)

Abstract

Attention is called to the occurrence of Long Chain Aliphatic Alcohols in the unsaponifiable fraction of African palm oil. A short description of the isolation of these compounds and the evidence obtained is presented. The constants of the separated sterols are given and compared with those of other research workers.

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DURING the investigation of the unsaponifiable fraction of an African palm oil a dark red precipitate from petroleum ether solution was obtained. In trying to free this residue from the expected sterols by boiling with concentrated alcohol, the slight solubility of the compound was revealed even in extreme dilution. The hot filtrate showed a tendency to gelatinize, during cooling. After separation from the carotene, repeated crystallization from hot methanol, finally with the addition of charcoal, yielded a white waxy residue. The compound is insoluble in water, slightly soluble in alcohol and in petroleum ether, but quite soluble in acetone and ethyl ether. Melting in contact with boiling water and then cooling to room temperature gives a yellow white wax. The melting point of different preparations of the crude substance was 83.4 — 86.0° C. The melting point after purification by recrystallization from ethyl ether was 85.5° C. The acetyl ester was prepared by acetylation with acetic anhydride. Repeated crystallization from hot alcohol yielded the following fractions:

(1) *Acetate*	*M.P.°C*
(1) Fraction	67.1,
(2) Fraction	68.6
(3) Fraction	69.6
(4) Fraction	73.5

The saponification number of the fourth fraction was 116.8; Mol. W. calculated from this value 479.20; Mol. W. calculated for $C_{30}H_{61}OH$, 438.5. The alcohol regenerated from the acetyl ester melts at 85.5° C. after repeated crystallization. Mol. W. for the alcohol prepared in this manner determined, according to the method of Rast, was found to be 437.5.

Alcohols having the constants recorded above, have been reported from many plant sources and have been shown by Chibnall, et al., to consist of difficultly separable mixture of alcohols having a mean molecular weight corresponding to $C_{30}H_{61}OH$. (See The Constitution of the Primary Alcohols, Fatty Acids, and Paraffins Present in Plant and Insect Waxes by Chibnall, Piper, Pollard, Williams, and Sahai. Biochem. Jour. 28, 2189-2208 (1934).

From the data presented the presence of long chain aliphatic alcohols has been concluded.

The palm oil sterols after repeated recrystallization from methanol finally with the addition of charcoal had the following characteristics: colorless, plates, M. P. 136.5° C., spec. rotation $(\alpha)_D^{23}$ — — 43.2° in chloroform. Acetylation with acetic anhydride yielded an acetate melting at 130.5° C. Having a saponification number of 136.5 and a specific rotation $(\alpha)_D^{20}$ — — 37.2° in chloroform.

These data agree with those reported by K. S. Markley and M. B. Matmack in science, Vol. 80, No. 2070, page 206. These authors found for the sterols, M. P. 136.6 — 137.0° C. and a specific rotation in chloroform $(\alpha)_D^{20}$ — — 41.66°; for the acetate M. P. 130.5 — 131.5° C., the specific rotation — 36.5°.

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