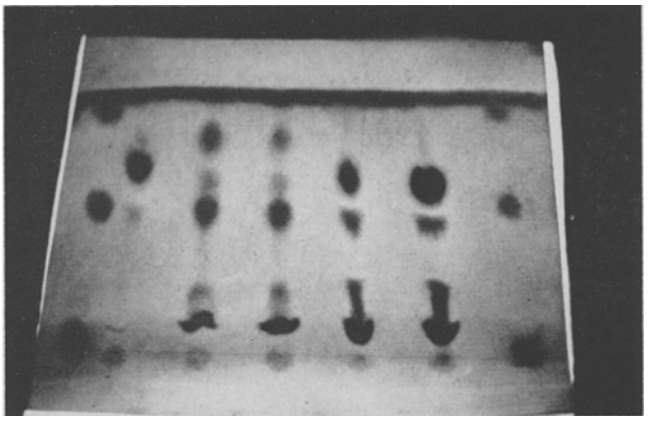

FIG. 12. Paper chromatograph showing results obtained from kale treated with Di-Syston when analyzed by Getz procedure.

oped to the same state of usefulness as that of the Mills procedure for the chlorinated ones. The FDA is working intensively on systems for organophosphates, but these compounds present some more difficult problems than the chlorinated compounds. Whereas all the chlorinated compounds discussed in this paper are relatively highly fat soluble, only some of the organophosphate compounds are fat soluble whereas others are highly water soluble and others have intermediate solubilities. To further complicate this picture, at least from an analytical point of view, many of the fat soluble ones change in or on the plants or animals to more water soluble compounds which are highly significant pharmacologically.

Figure 12 shows a chromatogram done by Getz in FDA laboratories and illustrates some of these changes that take place with some phosphate compounds (3). The spots near the bottom are fat soluble whereas those toward the top are water soluble. This chromatogram shows the changes that take place when Di-Syston is sprayed onto kale plants and the plants are sampled at various times. From left to right

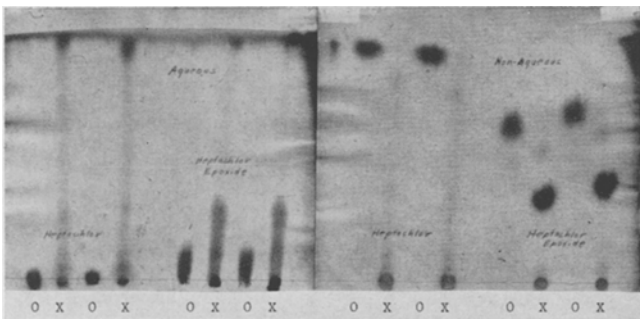

FIG. 13. Paper chromatograms showing effect of ultraviolet light on some chlorinated pesticides. The left chromatogram was developed by Mitchell's aqueous system, and the right one was developed by his non-aqueous system (4). On each chromatogram the four columns on the left half are heptachlor and the four columns on the right half are heptachlor epoxide. O denotes not exposed to UV light; X denotes exposed to UV light.

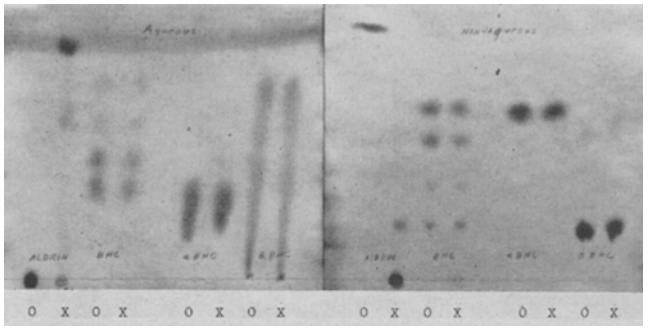

FIG. 14. Paper chromatogram showing effect of ultraviolet light on some chlorinated pesticides. The left chromatogram was developed by Mitchell's aqueous system, and the right one by his non-aqueous system (4). On each chromatogram the first two spots on the left are aldrin, the next two BHC, the next α BHC, and the last pair β BHC. O denotes not exposed to UV light; X denotes exposed to UV light.

the spots represent the conditions at 0, 2, 4, 4, and 15 days after application. It can be seen that a number of compounds form which are much more water soluble than Di-Syston. On each margin at origin is a spot of Di-Syston, the two higher spots on each margin are from Systox thiol sulfone and thiol sulfoxide, each of which is much more water soluble than is Di-Syston.

It is known that some of these phosphates do persist as residues in fats of animals and some oils, and surely must persist to some degree in the fat and oil portions of plants. But there is no system of analysis yet which will show the whole picture.

Figures 13 and 14 show two chromatograms illustrating some other work being done at FDA which may be of significance to fats and oils but as yet is incomplete. Mitchell has been studying the effect of UV light on spots of the chlorinated compounds on paper (4). He has spotted some 150 different compounds and chromatographed them with and without exposure to UV light for a short while. Figure 13 shows the effect obtained using heptachlor and heptachlor epoxide. The left chromatogram was chromatographed by Mitchell's aqueous system and the right one by his non-aqueous system. Obviously there is a marked effect on these compounds. Note that these conditions do not convert heptachlor to heptachlor epoxide and also that heptachlor epoxide does convert to some other compound.

Figure 14 shows aldrin and BHC. Note that aldrin is changed markedly but BHC isomers are unaltered. It is hoped to discover whether these are of significance in practical usage of the chemicals on plants, or whether they change only under the condition to which they were subjected in this experiment.

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• *Erratum*

JAOCS, *40*, page 127, HASHIMOTO et al.: ON THE STRUCTURE OF HIGHLY UNSATURATED FATTY ACIDS OF FISH OILS BY HIGH RESOLUTION NUCLEAR MAGNETIC RESONANCE SPECTRAL ANALYSIS. In the footnotes to Table I, "Ratio B: The proton number of the mixed acid esters having one divinylethane and divinylmethanes," should read: Ratio B: The proton number ratio of the mixed acid esters having one divinylethane and divinylmethanes.

Listing in the Index of the same issue, page 2, should read: On the Structure of Highly Unsaturated Fatty Acids of Fish Oils by High Resolution Nuclear Magnetic Resonance Spectral Analysis, by Tetsutaro Hashimoto, Kenkichi Nukada, Hisako Shiina, and Tomotaro Tsuchiya.