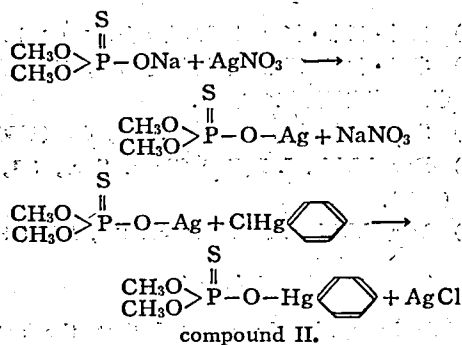


As a result, we could isolate two compound (I and II) from the reaction mixture. It was identified that compound I was *p*-nitrophenyl acetate. Another compound II was seemed to be a new substance containing P, S and Hg. Compound II;

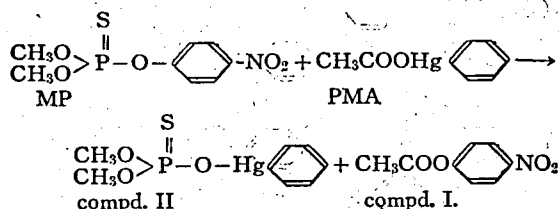
Anal. Found. Hg, 47.35; S, 7.80; P, 7.56%; M. W. 400 (Rast method). Calcd. for $C_8H_{11}O_3SPHg$; Hg, 47.90; S, 7.65; P, 7.40%, M. W. 419. Mp. 84-85°C, white needle crystal. Infrared spectrum is shown in Fig. 1.

Ultraviolet absorption in methyl alcohol, λ_{max} 220 $m\mu$ $\epsilon = 13600$. This crystal is soluble in alcohol, chloroform, acetone, benzene, ether, carbon tetrachloride, slightly soluble in *n*-hexane and water, Solubility in water; 0.13g/100ml at 30°C.

Compound II was synthesized as follows:

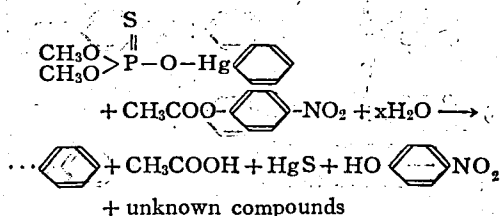


From the above-results, it seems that methyl parathion reacts with PMA as follows.



III. We could isolate benzene, acetic acid, HgS, *p*-nitrophenol and other unknown compound as the reaction product, when the reaction mixture of methyl parathion and PMA was treated with water for four days at 50°C.

It seems that the reaction mixture of methyl parathion and PMA are decomposed with water as follows:



IV. Consequently, we consider that the decomposition of methyl parathion in quartzite dust being mixed with PMA proceeds by the same way as the above-mentioned (II, III).

抄 録

Methylenedioxyphenyl 化合物の 化学構造と共力作用

B. P. Moore and P. S. Hewlett; Insecticidal synergism with the pyrethrins: Studies on the relationship between chemical structure and synergistic activity in the 3,4-methylenedioxyphenyl compounds. J. Sci. Food Agr., 9, 666-672 (1958).

3,4-Methylenedioxyphenyl 基をもつ sesamin, piperonyl butoxide, sesoxane 等はピレトリンの良い共力剤として知られ, 2,3 のものは実用に供されて来た. 化学構造と共力作用との関係については Beroza 等が側鎖の構造と共力作用について, また Prill 等が methylenedioxyphenyl 基の methylene を ethylene にかえて究明を行ったがいづれも完全な結論は得られ

なかった. そこで 3,4-methylenedioxyphenyl alkane 類, 3,4-isopropylidenedioxyphenyl nonane, piperonyl ether 類, sesamol alkanesulphonate 類, pinacol acetal 類を合成して甲虫の一種 (Black Fungus beetle, *Alphitobius laevigatus*) を用いて共力作用について検討した. その結果つぎのような結論を得た.

1) 置換されない methylenedioxy 基が是非必要である. 2) 側鎖 alkyl 基は昆虫外皮への透過をたすける物理的な役目をしているにすぎない. 又炭素数 12 の側鎖の場合エーテル結合 3 ケの時にもっともすぐれていた. 3) 極性基が methylenedioxyphenyl 核に結合すると親油性を減ずるから良くない.

(高原弘和)