SUMMARY

For many years xanthates and xanthic acid esters have been used as weed killers. Also it has been widely used in the textile industry for manufacturing of rayons. Acyl and aroyl xanthates are relatively unstable compounds, so a little information is available concerning to its preparation and properties.

The present work deals with the preparation, photochemical and thermal reactions of afew acyl and aroyl xanthates.

Chapter I contains a brief review of the photochemical and thermal transformations of some organic sulphur compounds.

In Chapter II, the results of our studies concerning the photochemical and thermal decomposition of benzoyl and chloro-substituted benzoyl xanthates are discussed. The reaction of benzoyl and chloro-substituted benzoyl chloride with Potassium-O-alkyl xanthates around 0^{o} gave corresponding O-alkyl-S-aroyl xanthates. Irradiation of O-alkyl-S-benzoyl xanthates in benzene solution resulted in the formation of benzoyl disulphide whereas sunlight photolysis of O-ethyl-S-aroyl xanthates gave in

each case different products. Thermal decomposition of O-alkyl-S-benzoyl xanthates gave benzoyl disulphide, corresponding ester and carbon disulphide. The reactions of a few aroyl xanthates with aromatic amines have also been studied.

Chapter III deals with the reaction of symmetrical phthaloyl dichloride with potassium-O-alkyl xanthates. In each case, the corresponding unsymmetrical phthaloyl dixanthate was formed, whereas using acetone as the solvent, the dixanthate could be formed along with the considerable yield of thiophthalic anhydride. Reactions of symmetrical phthaloyl dichloride with excess of potassium-O-alkyl xanthates resulted in the formation of anhydrosulphide of alkyl xanthicacid and thiophthalic anhydride. Photolysis of unsymmetrical phthaloyl dixanthates gave chiefly trans-biphthalyl. The thermal decomposition of these xanthates yielded a mixture of several products, consisting of trans-biphthalyl, thipphthalic anhydride, carbonyl sulphide and the corresponding O,S-dialkyl xanthates. Reactions of unsymmetrical phthaloyl dixanthates with hydrazine hydrate and hydrogen peroxide gave phthalaz-1,4-dione and phthalic acid respectively.

8 Chapter IV deals with the results of photochemical and thermal decomposition of O-alkyl-S-phthalylglycyl and S-phthalylalanyl xanthates derived from amino acids. Reactions of phthalyl glycyl and phthalylalanyl chloride with potassium-O-alkyl xanthates in ether gave the corresponding phthalimido xanthates. However, the formation of thioanhydride was observed using acetone as solvent. Irradiation of O-alkyl-S-phthalyl glycyl xanthates resulted in N-phthalimidomethyl xanthates. Whereas O-alkyl-S-phthalyl alanyl xanthates, on irradiation gave a mixture of products consisting of xanthic acid disulphide, phthalylalanine and the thioanhydride. Thermal decomposition of O-alkyl-S-phthalylglycyl and S-phthalylalanyl xanthates gave the corresponding esters and carbon disulphide.