S Y N O P S I S

Synopsis of the Dissertation entitled "Synthesis of ar-juvabione" being submitted by Shri B.P. Kavitake for the degree of Master of Philosophy.

The dissertation consists of two chapters and embodies accounts of insect Juvenile Hormone analogues in chapter I and a new synthesis of ar-juvabione in chapter II.

The dissertation begins with a brief review on insect juvenile hormone analogues which have attracted considerable attention recently as third generation pesticides. After a brief introduction to insect hormones the review proceeds to describe different structural features of juvenile hormone analogues. Activity assay methods, structure activity relationship, specificity and mode of action are discussed. The chapter concludes with a brief comment on the potential of juvenile hormone analogues as pesticides.

In chapter II, the synthesis of ar-juvabione is described starting from 3-phenylbutyric acid prepared from benzene and crotonic acid by Friedel-Crafts reaction. The reaction of isobutyllithium with 3-phenylbutyric acid in dry ether gave 2-phenyl-6-methylheptan-4-one. The same ketone was also prepared from styryl isobutyl ketone by the conjugate Grignard addition

of methylmagnesium iodide. The styryl isobutyl ketone required was prepared by the aldol condensation of benzaldehyde with isobutyl methyl ketone. Carboxylation of 2-phenyl-6-methyl heptan-4-one with oxalyl chloride and aluminium chloride in carbondisulphide gave ar-todomatuic acid, a naturally occurring sesquiterpene acid recently isolated from the Douglas fir. The ar-todomatuic acid was esterified with methanol and sulphuric acid to yield ar-juvabione.