SYNTHETIC STUDIES WITH DITERPENOIDS

A Thesis

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TABLE OF CONTENTS

ABSTRACT

Chapter one of this thesis reports an investigation of the synthesis of potential amber odorants from abietic acid. The acid catalysed rearrangement of abietic acid afforded two isomeric dienes the structures of which have been elucidated. Compounds containing the diene functionality were found to be unstable. However, removal of the diene system afforded stable compounds which are suited to further synthetic modification. Although the skeletal features possessed by a class of amber odorants were successfully introduced stereochemical control proved difficult. The stereochemistry of two intermediates was unambiguosly assigned by single-crystal X-ray diffraction experiments.

The second chapter describes the successful conversion of totarol into conjugated dienolides possessing the B/C-ring present in type A and type C nagilactones. Consequently totarol may be considered as a useful model for the preparation of the biologically active nagilactones. In the course of this work several unusual rearrangements were observed. The products of rearrangement were characterised by 2-D n.m.r. and single crystal X-ray diffraction experiments and reaction mechanisms are proposed.

The third chapter of this thesis reports the synthesis of the amber odorant, γ-bicyclohomofarnesal, from podocarpic acid. Analogues in which C-19 is functionalised were also prepared. However these compounds were odorless.