

CHEMISTRY OF SOME NOVEL

FRIEDELANE TRITERPENOIDS

FROM KOKDONA ZEYLANICA THW.

A Thesis presented by

N. P. DHAMMIKA NANAYAKKARA

in partial fulfilment of the

requirement for the award of

DOCTOR OF PHILOSOPHY

of

University of Peradeniya

October 1980,

Research Laboratory,
Department of Chemistry,
University of Peradeniya,
Peradeniya,
Sri Lanka.

345015

Abstract

This thesis is composed of two parts. The first part consists of the isolation and structure elucidation of eleven friedelane derivatives from Kokoona zeylanica Thw. of the family Celastraceae. Of these, eight compounds were found to be new, belonging to three series according to their oxygenation pattern. The kokoonol series consisted of three compounds namely kokoonol (friedelan-3-one-27-ol), kokoononol (friedelan-3,21-dione-27-ol) and kokoondiol (friedelan-3-one-21 α ,27-diol); while the zeylanol series contained three compounds, zeylanol (friedelan-3-one-6 β -ol), zeylanonol (friedelan-3,21-dione-6 β -ol) and zeylandiol (friedelan-3-one-6 β ,21 β -diol); kokzeylanol (friedelan-3-one-6 β ,27-diol) and kokzeylanonol (friedelan-3,21-dione-6 β ,27-diol) constituted the third series, the kokzeylanol series.

The compounds belonging to each series were chemically interrelated and their structures were determined with the help of spectroscopic data. Photolysis of those containing the 21-keto group aided not only the location of this group but also the determination of the C-27 hydroxy function. In their chemical correlations two recently described reduction methods were applied to deoxygenate 6-hydroxy,21-hydroxy and 27-hydroxy function.

In the second part of this thesis the assignment of the C-13 n.m.r. signals of nine compounds friedelin, friedelan-21-one, friedelan-6-one, friedelan-27-ol, friedelan-3,21-dione, friedelan-3,6-dione, friedelan-3,6,21-trione, friedelan-3-

one-27-ol (kokoonol), friedelan-3,21-dione-27-ol (kokoonol) are discussed. The partially relaxed fourier transform (PFRT) spectra and lanthanide induced shift (LIS) data were used in the assignment of the carbon atoms of these compounds.