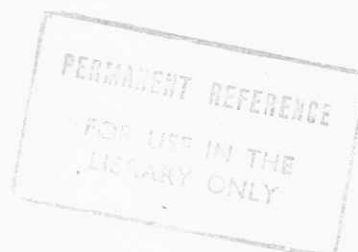


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TRITERPENES FROM *PLEUROSTYLIA OPPOSITA*  
AND *EUONYMUS REVOLUTUS* (CELASTRACEAE)



A THESIS PRESENTED  
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## ABSTRACT

This thesis describes the isolation and structure elucidation of triterpenes from two plants, Pleurostylia opposita and Euonymus revolutus, belonging to the family Celastraceae. A summary of the distribution of D:A-friedooleananes, lupanes and oleananes, as well as a survey of the biological effect of plant extracts from the Celastraceae are included in the thesis.

A novel lupene isolated from the stem bark of P. opposita was assigned the structure  $6\beta$ -hydroxylup-20(29)-en-3-one on the basis of spectroscopic data and chemical interconversions. The structure was confirmed by relating it to  $6\beta$ -hydroxylupenes isolated earlier from the same plant. Six triterpenes were isolated and identified from the leaves of P. opposita. D:A-Friedooleanan-3-one and D:A-friedooleanan- $3\beta$ -ol were the major constituents of this extract.

A D:A-friedooleanane isolated from the benzene extract of the stem bark of E. revolutus was assigned the structure 28-hydroxy-3-oxo-D:A-friedooleanan-29-al on the basis of spectroscopic data.

Fourteen triterpenes and sitosterol were isolated from the dichloromethane extract of the stem bark of E. revolutus. The triterpenes isolated included ten friedelanes, three lupanes and one oleanane. Lupenes

have not been reported previously from the genus Euonymus. The extract contained nine triterpene acids including four new compounds which have not been reported earlier. Two new vicinally dioxygenated friedelanes were assigned the structures  $3\alpha$ -hydroxy-2-oxo-D:A-friedooleanan-28-oic acid and  $2\alpha$ -hydroxy-3-oxo-D:A-friedooleanan-28-oic acid on the basis of spectroscopic data, conversion to 3-oxo-canophyllic acid and by a partial synthesis of methyl  $2\alpha$ -acetoxy-3-oxo-D:A-friedooleanan-28-oate from methyl 3-oxo-canophyllate. The structure of the new lupene was established to be  $2\alpha, 3\alpha$ -dihydroxylup-20(29)-en-28-oic acid by spectral data and by relating it to methyl-3-oxo-betulonate.  $^{13}\text{C}$ -NMR data were consistent with the proposed structure of the lupene. The fourth compound was assigned the structure 29-hydroxy-3-oxo-D:A-friedooleanan-28-oic acid with the help of spectral data and the structure was confirmed by chemical conversion to known friedelanes such as  $3\alpha$ -hydroxy-D:A-friedooleanan-28-oic acid and 3,29-dioxo-D:A-friedooleanan-28-oic acid.

A sugar alcohol, dulcitol was the major constituent in the methanol extract of both plants.