

E 30 **STUDIES TOWARDS SYNTHESIS OF GLYCYRRHETIC ACID : ACID CATALYSED
REARRANGEMENT OF RING-E OF LUPANE DERIVATIVES**

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Glycyrrhetic acid (3β -hydroxy-11-oxo-olean-12-ene-30-oic acid) is a pentacyclic triterpene of commercial importance. The main source of glycyrrhetic acid is liquorice in which it occurs as the glycoside glycyrrhizic acid.

SECTION E

Present work is concerned with attempts to synthesise glycyrrhetic acid from a available triterpene. Lupane derivatives eg. Lupeol undergo rearrangement of ring E under acid conditions to give systems of the Y-taraxasterol, lupenol, germanicol and *d*-amyrin types. Rearrangement of a lupane derivative suitably substituted at C-30 was considered a key step in this synthesis.

- (i) Lupeol extracted from Getah-Jelutong was converted to 3 β -acetoxy-30-bromolupane, the structure of which was established by spectral characteristics. Acid treatment of this failed to give the expected ring E rearranged product, but yielded 3 β -acetoxy-29-bromolupane by prototropic shift.
- (ii) Betulinic acid was converted to 3 β -acetoxy-30-bromobetulinic acid, the structure of which was established spectroscopically. The acid treatment of this failed to give the expected lactone formed by rearrangement of ring E.
- (iii) Treatment of the methyl ester of 3 β -acetoxy-30-bromobetulinic acid with 98% formic acid gave two main compounds, both of which were found to be lactones formed by rearrangement of ring E. However, spectral characteristics indicated that ring A too has undergone rearrangement during the reaction.