

## NOTES

**Chemical Investigation of *Onosma hispidum* Wall**

SHAMSHAD AHMAD and P. C. JAIN\*

*Department of Chemistry, Meerut College, Meerut-250 001, India*Chemical investigation of *Onosma hispidum* wall is reported.

*Onosma hispidum* has been reported to be the source of Ratanjot, a red dye yielding root, commonly used for colouring food stuffs, oils and medicinal preparations. Bruised roots are used as an application to eruptions. Leaves possess alternative properties and the flowers are prescribed as a cardiac stimulant and in rheumatism and palpitation of the heart<sup>1,2</sup>. In view of its ready availability in Indian markets present chemical investigation was carried out.

Dried roots of *Onosma hispidum* were exhaustively extracted with hot ethanol, concentrated to dryness under reduced pressure and taken into methanol and left it in refrigerator. A reddish brown mass settled down, which on charcoal treatment and subsequent crystallization yielded colourless crystals m.pt. 268–70°. On acetylation with acetic anhydride-pyridine (1 : 3) and usual work up gave an acetate, m.pt. 278–80°. Melting point of the compound, when mixed with an authentic sample of ursolic acid acetate, did not show any depression in m.pt. This acetate on methylation with diazomethane in an ethereal solution gave an acetyl methyl ester, m.pt. 226–28°. The NMR spectra of this acetyl methyl ester showed seven methyl in the range of  $\delta$ 0.8–1.1, one acetoxyl at  $\delta$ 2.15, one ester methyl at  $\delta$ 3.6, a proton  $\alpha$  to the acetoxyl as multiplet centred around  $\delta$ 4.6 and one olefinic proton centred at  $\delta$ 5.5 as an unresolved broad signal. These data were in favour of a monohydroxy triterpene monocarboxylic acid. A comparison of the physical data of the compound and its derivatives with an authentic sample of urosolic acid and its derivatives established the identity of the compound as urosolic acid.

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