

The Structure of a Ring-A-*seco*-nor-Triterpenol from *Hoya australis* Leaf Wax

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The main triterpenol, isolated from the alcohol fraction of very old green leaves of *Hoya australis* R.Br. ex Traill. has been identified as 3,4-*seco*-3-nor-olean-12-en-1-ol by mass spectral and NMR data.

In a previous publication the isolation and partial structure of a new β -amyrin-derived *seco*-nor-triterpenol from the leaf wax of *Hoya australis* was described [1]. Recently we isolated related compounds from the leaf wax of other *Hoya* species [2], one of which was identified as the $C_{4(23)}$ -saturated *seco*-A-acid methyl ester of β -amyrin [3].

Results and Discussion

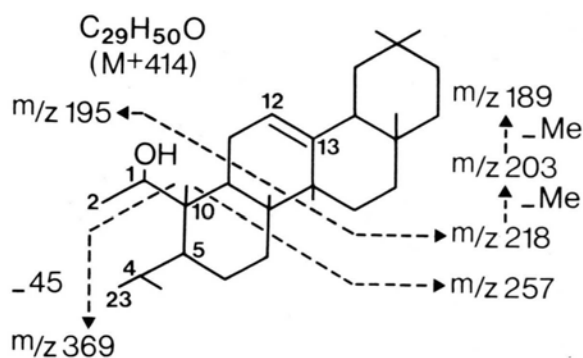
With the knowledge of the mass spectral behaviour of the above mentioned triterpenoid *seco*-acids and of now available literature on the mass spectrometry of *seco*-ring-A-triterpenoids [4, 5] we again interpreted the analytical data of the *seco*-nor-triterpenol from *Hoya australis* and concluded that it has the depicted structure.

The mass spectral fragment m/z 369, characteristic for *seco*-A-derivatives [4] is formed by the loss of C_2H_5O , the upper remainder of ring A comprising the carbon numbers 1 and 2. The hydroxyl group is thus located on this part. Because NMR data point to a methyl group next to it, it must be on C_1 . Location of the hydroxyl group on the other part of the A-ring, e.g. on C_4 is ruled out as no C-3 fragment bearing oxygen is lost which would then be the case.

Although this structure represents a new natural occurring triterpenol, its structural features are not new. The $C_{4(23)}$ -saturated configuration is rather unusual in the respect that most natural ring-A-

seco-derivatives instead have a $C_{4(23)}$ double bond. But also our $C_{4(23)}$ -saturated *seco*-acid methyl esters isolated from *Hoya lacunosa* leaf wax [3] and the 3,4-*seco*-lup-20(29)en-3oic acid methyl ester isolated from *Caralluma burchardii* (belonging to the family of the Asclepiadaceae too) by Castro *et al.* [5] have an isopropyl group at C_5 . The hydroxyl group at C_1 has been found earlier in isocalaminthadiol, a 3,4-*seco*-ursene isolated from the genus *Satureia* (Labiatae) by Romeo *et al.* [6].

The accumulation in the wax of old green leaves of *Hoya* species of pentacyclic triterpenols, the derived 3-ketones, the 3,4-*seco*-acid methyl ester derivatives and the C_1 -hydroxy-*seco*-nor-alcohols (2,3) makes it likely that these compounds – in this order – represent intermediates of a biogenetic oxidative route leading to ring-A degraded triterpenoids.



Structure and mass fragmentation pattern of 3,4-*seco*-3-nor-olean-12-en-1-ol, isolated from *Hoya australis* leaf wax.

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