

11,12-Dehydrovelloziolone, a Minor
Constituent of *Vellozia caput-ardeae*

Angelo C. Pinto*, Anibal L. Pereira* and
João V. Comasseto**

*Núcleo de Pesquisas de Produtos Naturais,
Bloco H, CCS, Cidade Universitária, UFRJ,
21941, Rio de Janeiro; ** Instituto de Quí-
mica, Cidade Universitária, USP, Cx. Pos-
tal 20780, São Paulo

Abstract: A new seco-diterpenoid, isolated
from *Vellozia caput-ardeae*, is characterized
by spectral analysis and chemical synthesis
from a known compound.

A careful investigation of the mother
liquors from the isolation of the major diter-
penoid constituents of *Vellozia caput-ardeae*
L. B. Smith & Ayensu¹⁻³ indicated the presence
of a minor amount of a new seco-diterpene,
11,12-dehydrovelloziolone (1).

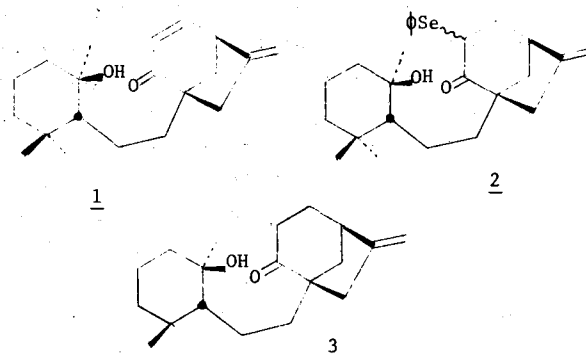
The molecular formula of **1** [(C₂₀H₃₀O₂),
colorless oil, [α]_D²⁵ = -16.1 (c = 0.77 CHCl₃)] was
inferred from low-resolution MS data. The IR
spectrum of **1** showed absorptions for hydroxyl
(3509cm⁻¹), enone (1675cm⁻¹) and vinylidene
(885cm⁻¹) moieties. The UV data (λ _{max}^{MeOH} 227 nm)
pinpointed the pattern of the enone function
(only one β residue).

The ¹H n.m.r. spectrum (CDCl₃, 100 MHz)
showed three methyl singlets at 0.76, 0.92 and
1.22 ppm and two methine signals, a doublet
(J = 9 Hz) at 5.86 ppm and a double doublet (J =
9 and 2 Hz) at 7.14 ppm, related to the α - and
 β - protons of the enone moiety, respectively.
Irradiation of the signal at 7.14 ppm caused
a broad methine multiplet at 3.40 ppm to
collapse into a double doublet, showing that
the β -proton of the enone moiety is spin-
coupled to a methine, on its turn neighbored
by two protons. Two doublets at 4.81 ppm
(J = 2 Hz) and 5.04 ppm (J = 2 Hz) are assigned to
the vinylidene protons.

The similarity between the spectral data of
the new diterpenoid and velloziolone (3), pre-
viously isolated from the same botanical source²,

gave support for postulation of structure **1**.
In order to confirm unequivocally our assign-
ments the conversion of **3** into **1** was under-
taken.

Thus, reaction of **3** with LDA and phenyl-
selenyl bromide⁴ in dry THF at -78°C afforded
ketoalcohol **2** which, on treatment with hydrogen
peroxide at room temperature, furnished a
product whose spectral and chromatographic
properties were identical in all aspects with
those shown by seco-diterpenoid **1**.



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