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NOTE

A New Steroidal Alkaloid from the Leaves of *Pistacia atlantica subsp. Mutica* of Iranian Origin

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A new sterodial alkaloid named pistacimidelor has been isolated from the leaves of *Pistacia mutica* and characterized as 3β-dimethylamino-con-5-enin-18-one-19β,22β-dimethyl (**1**).

Key Words: Alkaloids, *Pistacia mutica*, Pistacimidelor, Steroid.

Pistacia atalantica subsp. mutica (anacardiacea) is a typical Iranian medicinal plant. The fruit is used to treat amoebic dysentery, diarrhoea, asthma and some other disorders[1,2]. Bibliographies on the work done on different aspects of this plant have been published and the isolation of a number of compounds have been reported[3]. On account of its interesting chemistry and biological activity *P. mutica* subject to alkaloid studies.

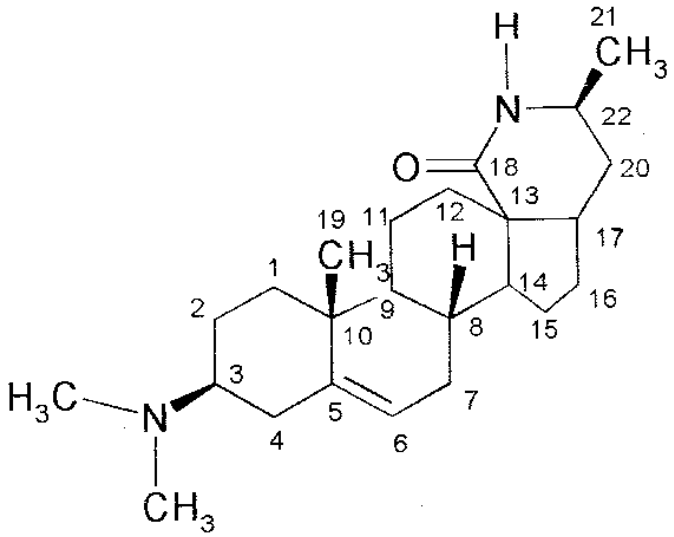
This communication describes the isolation and structure elucidation of a new steroidal alkaloid (**1**) from the leaves of the plant.

The leaves of *P. mutica* were procured from around city Aligoudarz and authenticated by Dr. N. Akbari, Botany Department of Lorestan university. A voucher specimen (B.No.-65/4) was deposited in the faculty of medicinal plants herbarium of Botany Department, Lorestan university.

Extraction and isolation

The leaves were dried in air powdered. The gound leaves (2.5 kg) were soxhlet extracted with methanol and concentrated to yield 50 mL of brown oil.

The marc was re-extracted with 95 % EtOH to yield 10.2 g of dark brown viscous mass which was treated with dilute HCl. The soluble portion was washed with $CHCl_3$, made alkaline (pH = 8.5) with ammonium hydroxide and extracted with $CHCl_3$. After evaporation of the solvent to dryness, the viscous dark brown mass (total alkaloid residue) was chromatographed over silica gel column. Elution with benzene:ethyl acetate:diethyl amine (6:3:1)[4] and recrystallization from ethanol gave 25 mg (yield; 0.0032 %) of **1**.



Pistacimidelor (1)

IR spectra were recorded on shimadzu IR-240 and shimadzu FT-IR 240 spectrophotometers, respectively. The H-NMR spectra were recorded in $CDCl_3$ at 500 Hz on a Bruker Drx-500 Avance NMR spectrometer. The MS spectra was recorded on a INCOSSO, FINNIGA MAT. Mass spectrometer. Column chromatography was carried out using SiO_2 gel (E. Merk, type 60, 70-230 mesh) and purity of compound was checked on precoated SiO_2 gel (GH-254 TLC plates, 20 x 20 cm, 0.25 mm thick).

IR bands (KBr, cm^{-1}): 3410, 2950, 2845, 2450, 2480, 1728, 1365, 1149, 1037, 813, 728, 543. ^1H NMR (500 MHz, $CDCl_3$): δ 5.0-4.5 (1H, dd, H-6α), 3.50 (1H, d, H-20α), 3.09 (1H, S, D_2O exchangeable, NH), 4.004 (1H, m, H-9α), 2.05 (3H, S, Nme2), 2.45 (1H, m, H-7α), 2.42 (1H, m, H-7β), 2.25 (1H, d, H-4β), 2.29 (1H, m, H-14α), 1.77 (1H, m, H-8β), 1.67 (1H, m, H-11α), 2.21 (1H, m, H-2α), 1.52 (1H, m, H-15α), 1.47 (1H, m, H-16α), 1.45 (1H, d, H-21α), 1.36 (1H, dddd, H-1α), 1.31 (1H, m, H-11β), 1.25 (1H, m, H-15α), 1.14 (1H, m, H-2β), 1.13 (1H, m, H-17α), 0.97 (3H, s, Me-19).

Compound(**1**), named piscimidelor was obtained by silica-gel column chromatography as coloreless crystals. Its IR spectrum showed characteristic bands for secondary amino (3410 cm^{-1}) and six member cyclic amid (1728 cm) groups. Its mass spectrum showed a molecular ion peak at m/z 370 consistent with the molecular formula $C_{24}H_{38}N_2O$. The appearance of the ease peak at m/z 71 $[C_3H_5NO]^+$ and the fragments m/z 152 [C8, 14-C12,13 fission]$^+$, 81[152-71]$^+$ suggested the presence of a 18-keto-18-epimino group characteristics of alkaloids of the conanine series[5]. The spectrum also showed peaks at m/z 111 [C23-C5,10-C7,8 fission]$^+$ 97[111-CH_2]$^+$,

99,271 [C1,10-C4,5, fission]$^+$, 55 [99-Nme2]$^+$, 84[99-Me]$^+$, 69[84-Me]$^+$, 119[271-152]$^+$, 81[152-71]$^+$, 218[M-152]$^+$, 354[M-Me]$^+$, 327[M-Nme2]$^+$ suggesting the existence of NMe2 group in ring at C-3 and *tri*-substituted olefinic linkage at C-5. The H-NMR spectrum displayed a one-proton double doublet at δ 5.45 for C-6 vinylic protons C-3 methine multiplet at δ 3.61 and a one-proton double quartet at δ 4.004 assigned to C-22 axial methane proton. A three proton deshielded doublet at δ 1.45 was ascribed to C-21 methyl function. A three-proton singlet at δ 1.92, at δ 2.04 and 2.05 confirmed the attachment of methyl groups with the secondary amino function at C-3. The chemical shifts were compared with those of conessine derivatives[6]. A D_2O exchangeable NH proton was discernible at δ 3.09, the remaining methine and ethylene singlet resonated between δ 2.45 and δ 1.09.

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