

POSTER PRESENTATIONS

ISOLATION OF TRACHELANTHAMINE N-OXIDE ALKALOID FROM *Heliotropium lasiocarpum*

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Heliotropium lasiocarpum is an annual poisonous herb belonging to the family Boraginaceae. Previous phytochemical studies have shown that the stems and leaves contain up to 0.4% alkaloids, whereas the seeds contain approximately 1.0% alkaloids.

The aerial parts of *H. lasiocarpum* were collected during the flowering stage in 2022 from the foothill region of Yangiyer District, Syrdarya Region, Uzbekistan. The air-dried and powdered plant material was extracted with 80% methanol using a multifunctional ultrasonic extraction system. The extraction was carried out seven times at 30°C, with each extraction lasting 30 min.

The crude alkaloid extract was further fractionated according to solvent polarity into CHCl₃-, EtOAc-, and n-BuOH-soluble alkaloid fractions. The ethyl acetate (EtOAc) alkaloid fraction was subjected to silica gel column chromatography (SiO₂, 60–100 µm, sample-to-sorbent ratio 1:30) to isolate individual alkaloids. Elution was performed with a CHCl₃–MeOH solvent system using a gradient from 200:1 to 1:1.

As a result, compound 1 was isolated (19.0 mg, corresponding to 0.0019% of the dry plant material). The compound possessed the molecular formula C₁₅H₂₇NO₅ and exhibited a melting point of 165–167°C. Its ESI-MS spectrum (positive ion mode) showed a protonated molecular ion peak at *m/z* 300.4681 [M+H]⁺, which is consistent with the molecular formula C₁₅H₂₈NO₅ (calculated *m/z* 300.4015).

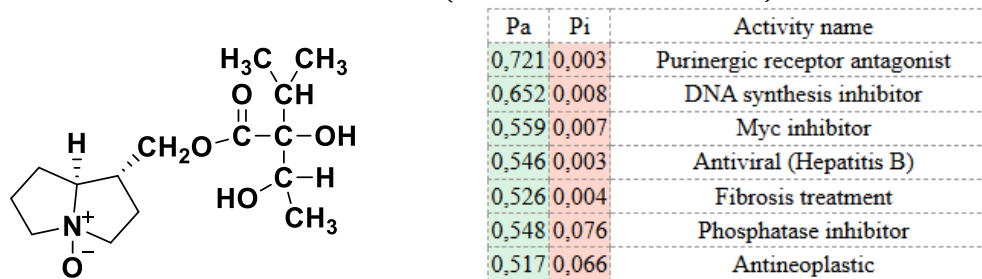


Figure 1. Chemical structure of the isolated alkaloid and their predicted biological activities obtained using the PASS Online prediction program.

The structure of the isolated alkaloid was unequivocally established by IR, mass spectrometry (MS), and NMR spectroscopy. Pyrrolizidine alkaloid trachelanthamine (**1**) was isolated from *Heliotropium lasiocarpum* for the first time (Figure 1).

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