

Characterization and identification of pyrrolizidine alkaloids from leaves of *Crotalaria trichotoma*.

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Purpose of study: Plants of the genus *Crotalaria* are known to produce a secondary metabolites class referred pyrrolizidine alkaloids (PAs). These compounds have numerous biological activities, such as: antibacterial activity, acetylcholinesterase, insecticide and nematicide [1,2]. In this sense, the objective of this study is to characterize and identify PAs present in *C. trichotoma* sheets for biological tests in control of nematodes.

Methods

The dried leaves of *C. trichotoma* after ground, were subjected to maceration in 96% ethanol and then subjected to partition acid - based [3]. The total alkaloid extract, in free base form was fractionated on column chromatography (silica gel 60) and eluted with CH₂Cl₂: MeOH thus obtaining the purified and semi purified fractions. One of these semi purified fractions was subjected to semi-preparative HPLC using a C18 column with DAD-UV detection (213 nm). The mobile phase was water: acetonitrile (90:10) with 0.05% NH₄OH. The semi-purified and purified fractions were analyzed by spectroscopic techniques such as GC - MS and ¹H and ¹³C NMR.

Results

From Leaves of *Crotalaria trichotoma* were identified 8 PAs that were classified in four groups categorized by Hartmann and Witte[4], namely: senecionine, monocrotaline, triangularine and miscellaneous. The compounds were identified by comparing the fragmentation pattern of the compounds described in the literature[3]. These eight, two compounds are the senecionine like and one monocrotaline like both with unknown chemical structures. The other five identified PAs are: monocrotaline, incanine like, trichodesmine like, 14 - methyl monocrotaline and 7 - Octanoyl retronecine. Through preparative HPLC were isolated incanine like and a senecione like of unknown structure.

Conclusion

Due to the structural complexity of PAs the unique identity of the compound with unknown structure is been determined by 1D and 2D NMR.

References:

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