

Triterpenes Isolated From Hexane Leaf Extract of *Cheiloclinium cognatum* (Celastraceae)

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Introduction

Celastraceae family comprises 97 genera and over 1200 species. Plants of this family are widely used in folk medicine for treating ulcers, inflammations, pain and asthma.^{1,2} Hippocrataceae subfamily includes 24 genera and 360 species, including *Cheiloclinium cognatum*, which is endemic in the Brazilian Cerrado and popularly known as bacupari-da-mata. Its leaves are used for treating fever and edema. A previous study on *C. cognatum* dichloromethane bark root extract showed a potential anti-inflammatory and analgesic activity. The quinone methide tingenol and tingenone were isolated and characterized. To these pentacyclic triterpenes was attributed expressive trypanocidal activity.³⁻⁵ The phytochemical study of *C. cognatum* leaves has, so far, led to the isolation and characterization of six triterpenes, squalene (1), 3 β -stearyloxy-urs-12-ene (2), friedelin (3), friedelan-3 β -ol (4), 29-hydroxy-friedelin (5), and 3,4-seco-friedelan-3-oic acid (6) (Fig.1).

Results and Discussion

Leaves of *C. cognatum* were collected in Montes Claros, MG, in 2014. After dried at room temperature, the leaves were grounded into powder and macerated in hexane for a week. The extract solution was filtered and the solvent was recovered in rotavapor. The extraction process was repeated for three times. The hexane extract (20.2 g) was subjected to silica gel column chromatography (CC) using as eluent hexane, chloroform, ethyl acetate and methanol, according to the increase in solvent polarity. It was collected 210 fractions of 200 mL which were, afterwards, grouped into 30 groups based on profile similarity on thin layer chromatography (TLC). The group AC was subjected to analysis through GC-MS. Only one peak was observed in the chromatogram. The characterization was made comparing the peak fragmentation profile in MS to the equipment database. By this analysis it was possible to identify compound 1. Group AJ was subjected to another CC by which 2 was isolated. Group AM was washed

up with hexane and acetone, filtered and the solid was characterized as 3. Group AN was washed up with hexane and filtered. The solid obtained was subjected to CC, leading to the isolation of 4. Group AW was treated with hexane, filtered and the resulted solid was subjected to CC. Thus, compounds 5 and 6 were isolated. Constituents 2 to 6 were characterized through ¹H and ¹³C NMR, including DEPT 135 spectral data.

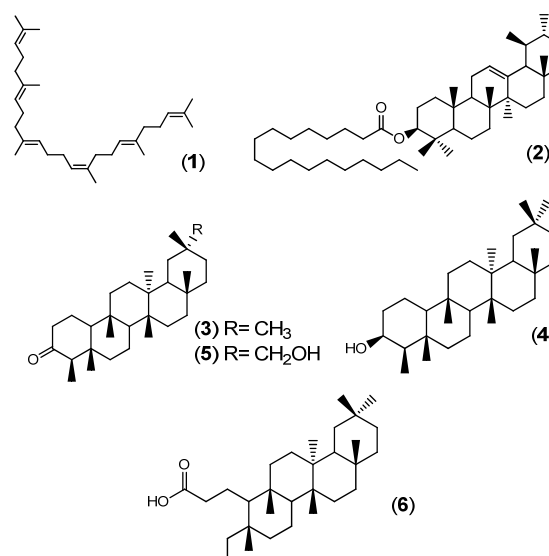


Figure 1. Chemical structures of triterpenes 1 to 6.

Conclusion

From phytochemical studies on *C. cognatum* hexane leaf extract were identified the following triterpenes, squalene (1), 3 β -stearyloxy-urs-12-ene (2), friedelin (3), friedelan-3 β -ol (4), 29-hydroxy-friedelin (5), 3,4-seco-friedelan-3-oic acid (6). The Compounds 2 to 6 are pentacyclic triterpenes that was first time isolated from species of *Cheiloclinium* genus.

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