Triterpenoid and steroid coumponds isolated from leaves of *Hyperacanthus thouvenotii* (Rubiaceae), endemic plant from Madagascar

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INTRODUCTION

Family	Rubiaceae
Genus	*Hyperacanthus*
Nb. of repertoried species [1, 2]	52
Endemic species [1, 2]	50 Madagascar ; 2 Africa
Described species & Accepted name [1,3,4,5,6]	9 ; 2
Nb. of chemical | biological reports [7, 8, 9]	Ø ; 1 ; 1 ; 1
Investigated species	***H. thouvenotii***

Figure 1: State of the art of *Hyperacanthus* genus

Figure 2: *Hyperacanthus thouvenotii* Rakotonas. & A.P. Davis

OBJECTIVES

To isolate and identify compounds from *H. thouvenotii*

To valorize plant and its molecules for therapeutic and chimiotaxonomic purposes

METHODS

Extraction

Successive extractions of leaves of *H. thouvenotii* by maceration using differrent polarity solvent :

- Dichloromethan → dichloromethan extract
- Methanol → methanolic extract

Fractionation and isolation*

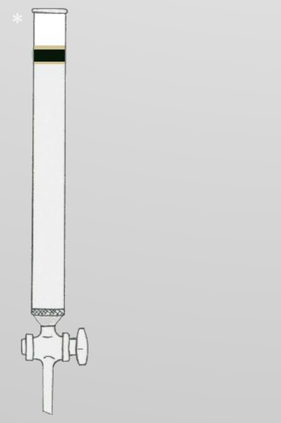
by a series of open column chromatography with silica gel.

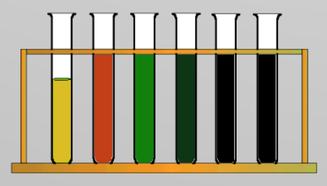
Chromatography assesments**

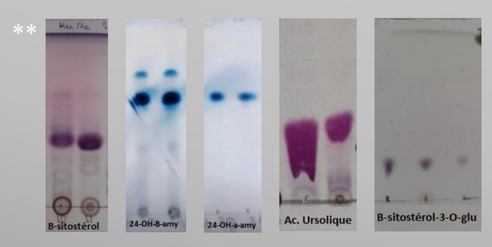
by TLC to monitor fractionation and purity verification for isolated compounds.

Structural elucidation

by GC/MS and NMR spectroscopy.



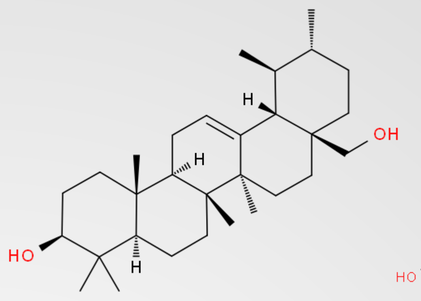




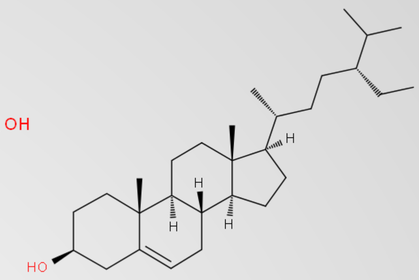
RESULTS

Five triterpenoids as like Uvaol, Moretenol, 24-hydroxy-α-amyrin, 24-hydroxy-β-amyrin, ursolic acid and one sterol coumpond β-sitosterol have been identified in dichloromethan extract.

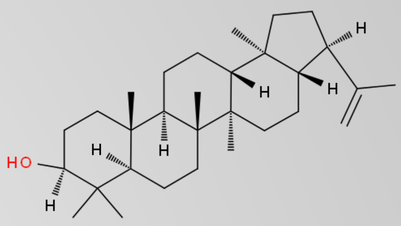
One sterol glucoside has been isolated in methanolic extract : β-sitosterol-3-*O*-glucoside.



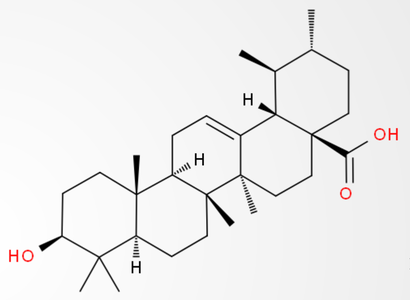
Uvaol



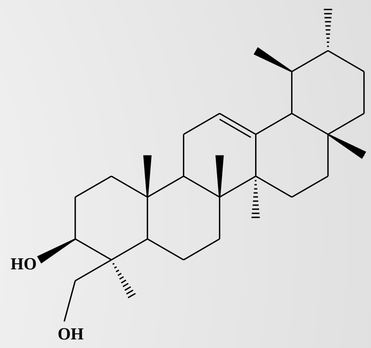
β-sitosterol



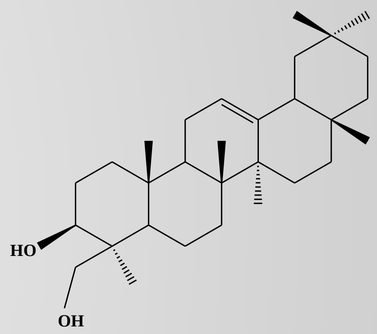
Moretenol



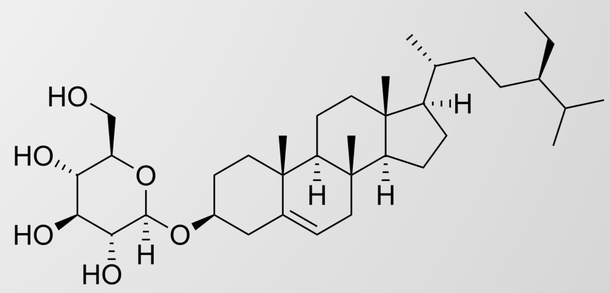
Ursolic acid



24-hydroxy-α-amyrin



24-hydroxy-β-amyrin



β-sitosterol-3-*O*-glucoside

Figure 3 : Chemical structures of triterpens et steroids isolated and identified in *H. thouvenotii*

CONCLUSION

Sterols and triterpens were reported for the first time in *Hyperacanthus* genus

REFERENCES

[1] D. Bridson, E. Robbrecht (1985). Kew Bull. **40**, 273-286
[2] F. Rakotonasolo (2007). Dissertation, University of Antananarivo, 241p.
[3] F. Rakotonasolo, A.P. Davis (2001). Kew Bull. **56**, 945-953
[4] F. Rakotonasolo, A.P. Davis (2002). Kew Bull. **57**, 955-962
[5] F. Rakotonasolo, A.P. Davis (2004). Novon **14**, 327-331
[6] F. Rakotonasolo, A.P. Davis (2006). Taxon **55**, 387-396
[7] V.E. Razafintsalama et *al.* (2017). S. Afr. J. Bot. **112**, 303-306
[8] S.M. Mahlo, H. Chauke (2012) Afr. J. Biotechnol. **11**, 10141-10145
[9] S.M. Mahlo, H. Chauke (2013) J. Med. Plants Res. **7**, 2777-2782

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