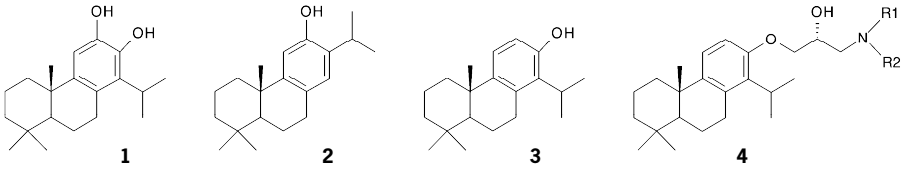
B111 Isolation, characterisation and chemical modification of related analogues of abietane and totarane diterpenes with antiplasmodial activity from *Harpagophytum procumbens*

C. Clarkson [a], W.E. Campbell [a], P.J. Smith [a] and K. Chibale [b]

[a] Pharmacology Division, Department of Medicine, University of Cape Town, Observatory, 7925, Cape Town, South Africa. [b] Department of Chemistry, University of Cape Town, Private Bag, Rondebosch, 7700, Cape Town, South Africa.

Reliance on traditional medicines (largely plant based) in the developing world is considerable and represents a wealth of information not only as chemotherapeutic agents, but also as a potential source of novel antimalarial drugs. In the course of our research on the antimalarial activity of traditional medicines, we investigated the *in vitro* antiplasmodial activity of one of South Africa's medicinal plants, *Harpagophytum procumbens*, also commonly known as Devil's Claw. Bioassay guided fractionation led to the isolation, identification and full characterisation of the totarane diterpene (**1**) and the abietane diterpene (**2**), which showed significant *in vitro* antiplasmodial activity (IC_{50} <1µg/ml) against both drug sensitive and resistant strains of *Plasmodium falciparum*. Although the compounds are known, they are not known to possess antiplasmodial activity and have different structural features to current antimalarial drugs. *In vitro* cytotoxicity screenings showed that the compounds were not toxic to mammalian cells (CHO and HEPG2) at the concentrations required to kill the parasites. Chemical modification of a commercially available analogue totarol (**3**), led to 5 new synthetic β-amino alcohol derivatives of the general structure (**4**), which were tested for *in vitro* cytotoxicity and antiplasmodial activity. Although the compounds showed an improved activity and were equally active against drug sensitive (D10) and resistant (K1) strains of *P. falciparum*, no definite structure-activity conclusions could be made at this stage. Considering their antiplasmodial activity and lack of toxicity, the isolated compounds are promising templates for the development of a novel group of antimalarial drugs.



1 **2** **3** **4**

B112 A new branched acylated glycoside luteolin from *Mentha x piperita* leaves

H.N. Michael; F.E. Kandil and J.Y. Salib

Chemistry of Tanning Materials and Proteins Department, National Research Centre, Dokki, Cairo, Egypt.

Mentha x piperita (Labiatae) has many medicinal and daily uses; infusion of its leaves is stomachic, aphrodisiac, carminative, appetizer especially when mixed with tea (1). In the past ten years, there have been several studies on the flavonoid constituents of family Labiatae (2,3). The 5,6-dihydroxy flavone and free flavone aglycones were isolated from *Mentha x piperita* (4,5). The aqueous acetone extract of *M. piperita* leaves afforded one new flavone glycoside luteolin-7-O-3^G ($3^{""}$ acetyl rhamnosyl) rutinoside besides the known flavonoids: luteolin-7-O-glucoside, 7-O-rhamnoside and 7-O-rutinoside with the three aglycones; luteolin, chrysoeriol and diosmetin.

All the above isolated compounds were isolated and purified using different physical and chemical methods and their structures were elucidated using ^1H and ^{13}C-NMR spectroscopy.

References: 1. Boulos, L. (1983) Medicinal Plants of North Africa Reference publications, Inc. Michigan 48001, U.S.A. **2.** Tomas-Barberan,F.A. and Wollenweber, E. (1990) Plant Syst. Evol., 173: 109. **3.** Tomas-Barberan,F.A. and Gil, M.I. (1990) Rev. Latinoam. Quim., 21: 134. **4.** Voirin, B. and Bayet, C. (1992) Phytochemistry, 31: 2299. **5.** Passannanti, S. et.al. (1990) Fitoterapia 61: 54.