

E2-14: Chemical constituents of *Uncaria elliptica* collected from two sites

W D Chandrasena¹, T K K Diyabalanage¹ G P Wannigama¹, U L B Jayasinghe², W H M W Herath³, A Weerasuriya⁴,

(¹Dept. of Chemistry, Univ. of Peradeniya, ²Institute of Fundamental Studies, Kandy, ³Medical Research Institute, Colombo 8, ⁴Royal Botanic Gardens, Peradeniya)

Uncaria elliptica R.Br. ex G. Don (Rubiaceae) is a woody climber which grows mainly in the wet lowland forests of Sri Lanka. It is the only species of *Uncaria* to be found in the island.

A study of the terpenoids and alkaloids of specimens of *U.elliptica* collected from 2 different sites was undertaken.

In the investigation of the plant for terpenoids, the powdered woody part was defatted with petrol and the residue was extracted with acetone. The latter extract was taken up in ether, the alkaloids removed by acid wash and the residue chromatographed on silica.

In the investigation of the plant for alkaloids, the defatted bark was moistened with ammonia, the alkaloids taken up in ethyl acetate and separated by chromatography over alumina.

The specimen of *U.elliptica* collected, from the Udawattakelle forest reserve near Kandy (lower montane zone) gave β - sitosterol, ursolic acid and the following ursene carboxylic acids:

1. Uncaric acid (3 β ,6 β , 19 α -trihydroxyurs -12-en-28-oic acid) (yield 0.007%), 2. diketouncaric acid (3,6-dioxo-19 α -hydroxyurs-12-en-28-oic acid) (yield 0.0009%), 3. diacetyluncaric acid (3 β , 6 β -diacetoxy-19 α hydroxyurs-12-en-28-oic acid (yield 0.0007%).

The structures given for the 3 ursene carboxylic acids are those after revision in 1995.

The plant specimen collected from the Kanneliya forest reserve (wet lowland forest zone) gave β -sitosterol and uncaric acid (yield 0.003%). However diketouncaric acid and diacetyluncaric acid were found in trace quantities only.

In the investigation for alkaloids, the bark of the plant collected from the Udawattakelle forest reserve gave formosanine, mitraphylline, roxburgine D & roxburgine X, the latter being of unknown stereochemistry. However the plant collected from the Kanneliya forest reserve gave formosanine, mitraphylline and ajmalicine but no roxburgines.

All compounds have been identified by IR, NMR, MS and in the case of diketo and diacetyl uncaric acids by chemical conversions.

With due regard to sampling technique variables such as maturity, microenvironment, the season of harvesting and other possible effects like diseases, it can be concluded that the variation in the chemical composition of 2 specimens of the same plant species may be due to the ecological differences between the 2 sites. Hence the plants collected from the Udawattakelle forest reserve and the Kanneliya forest reserve may be classed as ecotypes/varieties of the same species.