Flavonoids as Chemotaxonomic Markers for *Erythroxylum australe*

Emanuel L. Johnson\textsuperscript{a,*} and Walter F. Schmidt\textsuperscript{b}

\textsuperscript{a} USDA ARS Weed Science Laboratory, Bldg. 001, Rm. 329 BARC-W, 10300 Baltimore Avenue, Beltsville, MD 20705-2350. Fax: (301)504-5823. E-mail: johnsonE@ba.ars.usda.gov

\textsuperscript{b} USDA ARS Environmental Chemistry Laboratory, Bldg. 12, Beltsville, MD 20705-2350

* Author for correspondence and reprint requests

Z. Naturforsch. 59c, 769–776 (2004); received May 28/June 25, 2004

Methanolic leaf extracts of *Erythroxylum australe* F. Muell. produced eight O-conjugated flavonoids. Six of the flavonoid aglycones were dihydroisoflavones (all dihydro-orobol derivatives), one a flavanone, eriodictyol, and one a flavonol, quercetin. The major glycosides of the flavonoids included mono-glucosyl-rhamnosyls and dirhamnosyl-glucosides with either 3,5,7 or 3′,4′ linkage or a combination thereof. The array of flavonoids present in *E. australe* suggests kinship to *E. ulei* and linkage to the four cultivated alkaloid-bearing *Erythroxylum*, especially the ancestral *E. coca* var. *coca*. Because of the uniqueness of the flavonoids present in leaf tissue of *E. australe* they are unambiguously useful as chemotaxonomic markers for the taxon.

Key words: *Erythroxylum australe*, Flavanone, Isoflavone