Two New Flavonol Glycosides and a Metabolite Profile ofBryophyllum pinnatum, a Phytotherapeutic Used in Obstetrics and Gynaecology

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Bryophyllum pinnatum is a succulent perennial plant native to Madagascar which is used in anthroposophical medicine to treat psychiatric disorders and as a tocolytic agent to prevent premature labour. We performed a metabolite profiling study in order to obtain a comprehensive picture of the constituents in B. pinnatum leaves and to identify chromatographic markers for quality control and safety assessment of medicinal preparations. Preliminary HPLC-PDA-ESIMS analyses revealed that flavonoid glycosides were the main UV-absorbing constituents in the MeOH extract of B. pinnatum. Two phenolic glucosides, syringic acid -D-glucopyranosyl ester (1) and 4-O–D-glucopyranosyl-cis-p-coumaric acid (2), as well as nine flavonoids (3-11) including kaempferol, quercetin, myricetin, acacetin, and diosmetin glycosides were unambiguously identified by H-1 and 2DNMR analysis after isolation from a MeOH extract. The flavonol glycosides quercetin 3-O–L-arabinopyranosyl-(12)–L-rhamnopyranoside 7-O–D-glucopyranoside (3) and myricetin 3-O–L-arabinopyranosyl-(12)–L-rhamnopyranoside (4) were new natural products. With the aid of HPLC-PDA-APCIMS and authentic references isolated from the related species B. daigremontianum, the presence of four bufadienolides, bersaldegenin-1-acetate (12), bryophyllin A (13), bersaldegenin-3-acetate (14), and bersaldegenin-1,3,5-orthoacetate (15) was detected in B. pinnatum.

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