Iridoid and phenylethanoid glycosides in the New Zealand sun hebes (Veronica; Plantaginaceae)

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The sun hebes are a small clade of New Zealand Veronica formerly classified as Heliohebe. The water-soluble compounds of Veronica pentasepala, Veronica raoulii and Veronica hulkeana were studied and 30 compounds including 15 iridoid glucosides, 12 phenylethanoid glycosides, the acetophenone glucoside pungenin, the mannitol ester hebitol II and mannitol were isolated. Of these, five were previously unknown in the literature: dihydroverminoside and 3,3',4,4'-tetrahydroxy-α-truxillic acid 6-O-catalpyl diester, named heliosepaloside, as well as three phenylethanoid glycoside esters heliosides D, E and F, all derivatives of aragoside. The esters of cinnamic acid derivatives with iridoid and phenylethanoid glycosides and an unusually high concentration of verminoside were found to be the most distinctive chemotaxonomic characters of the sun hebes. The chemical profiles of the species were compared and used to assess the phylogenetic relationships in the group.

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