

Poster Abstract

Chemical composition of seeds from two New Caledonian plants used for re-vegetation: Identification of unusual isomers of C14:1, C16:1 and C18:1 in their oil

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Abstract

Two New Caledonian plant species, one belonging to the Rhamnaceae, *Alphitonia neocaledonica* (AN) and one belonging to the Proteaceae, *Grevillea exul* var *rubiginosa* (GER) were investigated in order to characterise their seed chemistry. These species are of interest for use in re-vegetation of serpentine soils exploited by nickel mining. The chemical composition of the seeds has been investigated for their protein, sugar and lipid contents. Fatty acids composition was determined using gas chromatography and gas chromatography-mass spectrometry. Moisture content was determined. Moisture content (AN: 4.02%; GER: 7.26%) showed that the seeds are orthodox. The results revealed high contents of lipids, 19.25% and 25.56% followed by proteins, 12.84% and 5.18% and finally

sugars with 1.36% and 2.54% from dry AN and GER seeds respectively. Seed oils were composed predominantly of unsaturated fatty acids (AN: 81%; GER: 94%), represented by the oleic (17%), linoleic (23%) and linolenic (16%) acids in AN. In the case of GER, a high percentage of ω -5 monoenes (65%) were found, in particular the unusual C16:1 ω 5 (45.6%), but also, C14:1 ω 5 (8.5%) and C18:1 ω 5 (9.3%). The unusual monoenes were also present in AN, including C16:1 ω 5 (11.7%). Considering the small number of plants with a similar type of fatty acid profile, these two species are of interest in order to understand their metabolic pathways during germination and the ecological relationship with their serpentinic environment, an environment considered extreme for plant life.