

**TOCOCHROMANOLS, PLASTOQUINONE AND POLYPRENOLS
IN SELECTED PLANT SPECIES FROM CHILEAN PATAGONIA**

KAZIMIERZ STRZAŁKA^{1*}, RENATA SZYMAŃSKA¹, EWA ŚWIEŻEWSKA²,
KAROLINA SKORUPIŃSKA-TUDEK², MARIO SUWALSKY³

¹Department of Plant Physiology and Biochemistry,

Jagiellonian University, ul. Gronostajowa 7, 30-387 Cracow, Poland

²Department of Lipid Biochemistry, Institute of Biochemistry and Biophysics,
Polish Academy of Sciences, ul. Pawinskiego 5a, 02-106 Warsaw, Poland

³Faculty of Chemical Sciences, University of Concepción, Concepción, Chile

*e-mail: strzalka@mol.uj.edu.pl

Received December 10, 2008; revision accepted February 19, 2009

A collection of 14 species of Patagonian plants was evaluated for tocopherol content and composition, plastochromanol, plastoquinone content and polyprenol composition. Total tocopherols varied from 35.77 µg/g in *Mutisia decurrens* to 798 µg/g in *Philesia magellanica*. In most cases tocopherol composition was dominated by α-tocopherol, which accounted for more than 90% of total tocopherols. Of all the investigated species only *Misodendrum punctulatum* showed higher content of γ- than α-tocopherol, which is unusual for mature leaves. Plastochromanol, a homologue of γ-tocotrienol, was found in leaves of 10 of the 14 examined species, and was highest in *Araucaria araucana* leaves (132 µg/g). Total content of PQ-9 (oxidized and reduced) was highest in *Fuchsia magellanica* (774.3 µg/g), *Philesia magellanica* (791 µg/g), *Misodendrum linearifolium* (569 µg/g) and *Amomyrtus luma* (518.5 µg/g). Analysis of polyprenol content in the leaves of investigated plant species revealed detectable amounts (>10 µg/g d.w.) of polyprenyl esters in six of them. Accumulation of free polyprenols was detected only in *Chusquea quila* leaves. Selected organs of *Philesia magellanica* and *Fuchsia magellanica* were further quantitatively analyzed for tocochromanol and polyprenol content. With the methods applied, different patterns of the analyzed compounds were identified in all the samples studied. Our results reveal some trends that may be of taxonomic interest. Some of these species can serve as a rich source of such bioactive compounds as tocochromanols or polyprenols.

Key words: Chromatography, HPLC, Patagonian plants, secondary metabolites, tocopherols, plastochromanol, plastoquinone, polyprenols.