

Hydroxamic Acids in *Secale cereale* L. and the Relationship with their Antifeedant and Allelopathic Properties

Sylvia V. Copaja^{a,*}, Elisa Villarroel^a, Héctor R. Bravo^a, Lorena Pizarro^b, and Víctor H. Argandoña^b

^a Departamento de Química, Facultad de Ciencias, Universidad de Chile, Casilla 653, Santiago, Chile. Fax: 56(2)2 71 38 88. E-mail: scopaja@uchile.cl

^b Departamento de Biología, Facultad de Ciencias, Universidad de Chile, Casilla 653, Santiago, Chile

* Author for correspondence and reprint requests

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Contents of the hydroxamic acids 2,4-dihydroxy-1,4-benzoxazin-3-one (DIBOA), and 2,4-dihydroxy-7-methoxy-1,4-benzoxazin-3-one (DIMBOA) in leaves and roots of 14 cultivars of rye, *Secale cereale* L., were determined. Dynamics of accumulation in three cultivars were evaluated. DIBOA was the main cyclic hydroxamic acid in leaves but the contents differed significantly between the cultivars. Both DIBOA and DIMBOA were present in the roots. Maximum concentration of DIBOA in leaves and DIMBOA in roots was reached between 48–54 h and 54–72 h after germination, respectively. Antifeedant activity of DIBOA towards the aphid *Rhopalosiphum padi* and the feeding behavior were studied by electronic recording in barley leaves treated with different contents of DIBOA. The deleterious activity of DIBOA could arise by starvation and/or a toxic effect. Additionally, allelopathic potential of pure DIBOA and aqueous extracts of leaves and roots of rye (Tetra-Baer) on the germination of lettuce (*Lactuca sativa*) and rye (Tetra-Baer) seeds was evaluated. A high percentage of germination inhibition of pure DIBOA and the extracts of leaves and roots was observed. The activity is in agreement with the contents of hydroxamic acids in the plants. The substrates had no allelopathic effect on rye seeds.

Key words: Hydroxamic Acids, Antifeedant, Allelopathy