

Phytotoxic and Photosynthetic Activities of Maduramicin and Maduramicin Methyl Ester

Maria Teresa Gutiérrez-Lugo^a, Blas Lotina-Hennsen^b, Amelia Farrés^c, Sergio Sánchez^d and Rachel Mata^a

^a Departamento de Farmacia, Facultad de Química, Universidad Nacional Autónoma de México, Coyoacán 04510, México, D. F., México

^b Departamento de Bioquímica, Facultad de Química, Universidad Nacional Autónoma de México, Coyoacán 04510, México, D. F., México

^c Departamento de Biotecnología, Facultad de Química, Universidad Nacional Autónoma de México, Coyoacán 04510, México, D. F., México

^d Departamento de Biotecnología, Instituto de Investigaciones Biomédicas, Universidad Nacional Autónoma de México, Coyoacán 04510, México, D. F., México

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The polyether antibiotic maduramicin and its methyl ester derivative inhibited photophosphorylation and proton uptake in isolated spinach chloroplasts. Both compounds also enhanced basal and phosphorylating electron transport and stimulated Mg²⁺-dependent ATPase activity, therefore, they behave as uncouplers of photophosphorylation being the methyl ester derivative more potent than the parent compound. On the other hand, maduramicin inhibited germination and radicle elongation of several crop and weed species. In addition, the antibiotic caused phytotoxic injury and fresh weight reduction to 4-to-6 week old seedlings of two weed and two crop species when applied at 10⁻⁴ M by foliar application in the greenhouse.

Reprint requests to Dr. Lotina-Hennsen or Dr. Rachel Mata. Fax: (525) 6225329.

E-mail: blas@servidor.unam.mx, rachel@servidor.unam.mx