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PHOTODEGRADATION OF SELECTED HERBICIDES AND INSECTICIDES IN NATURAL WATERS UNDER SUNLIGHT IRRADIATION

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ABSTRACT

The photochemical degradation of various widespread herbicides and insecticides in Greece, belonging to different chemical groups as s-triazines (atrazine, propazine, promethryne), acetanilides (propachlor, propanil), thiocarbamate (molinate) and organophosphorus insecticides (methyl-ethyl parathion, fenitrothion, fenthion) has been studied in various environmental water (river, ground, lake and sea water). Water samples spring from the regions of Ioannina (ground, lake, and river water) and Preveza (Ionian sea), in Northwestern Greece. The degradation kinetics of the above pesticides were monitored under natural conditions (sunlight, temperature e.t.c.) during the period from May to July 1997, and was followed by using GC-techniques. The formated photodegradation byproducts were identified for each compound using a GC-MS instrument. The half-lives vary from 26 to 73 days for the selected herbicides and from 0.7 to 71 days for the selected insecticides showing that the degradation process depends on the constitution of the irradiated data.