

A6 - Química Aquática

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SIMULATING THE INSECTICIDE CARBOFURAN FATE IN RICE FIELD BY A LEVEL IV FUGACITY MODEL

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The level IV fugacity model applied to the study of the fate of insecticide carbofuran in the rice field is presented. The fugacity model was used to simulate the dynamic distribution of the pesticide in an environmental compartments system composed of air, water, rice plants and sediment. This fugacity model describes the dynamic nature of the pesticide mass distribution, because the processes of transference, advection and degradation in an unsteady state dynamic approach are considered. The algorithm proposed by Paraíba et al. (1999) to numerically simulate the fugacity and concentration in the environmental compartments system was applied (Paraíba, L.C.; Carrasco, J.M.; Bru, R., 1999. Level IV fugacity model by a continuous time control system. Chemosphere, 38(8), 1763-1775). Numerical simulations of concentrations of the insecticide carbofuran in air, water, rice plants and sediment are presented. Results indicated the preferential compartments of the pesticide, facilitating the procedures of sample collection for monitoring the environmental quality, and provided knowledge concerning the fate of insecticide carbofuran in the environment. Experiments in field conditions were carried out to verify the correspondence between simulated and observed values of carbofuran concentration in water.

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Keywords pesticide, fugacity, rice, carbofuran.