

**REMOVAL OF PESTICIDE RESIDUES FROM WATER SOLUTIONS BY  
ADSORPTION ON PILLARED MONTMORILLONITES AND  
MESOPOROUS ALUMINUM PHOSPHATES**

**T. SAKELLARIDES, I. KONSTANTINOOU and T. ALBANIS**

*Department of Chemistry, University of Ioannina, Ioannina 45110*

**ABSTRACT**

Al-pillared montmorillonite (eaza), Fe-Al-pillared montmorillonite (ecfaza) and mesoporous alumina aluminium phosphates (AAPs) were contacted with aqueous solutions of ten selected pesticides, at a concentration range between 1 and 20 mg/litre, in batch equilibrium experiments, in order to determine their adsorption properties. The selected compounds were ethyl parathion, methyl parathion, fenitrothion, fenthion (organophosphorus insecticides), atrazine, prometryne, propazine, propachlor, propanil, molinate (herbicides). The removal of organophosphorus compounds by the adsorbents increasing in order methyl parathion < fenitrothion < ethyl parathion. Eaza material adsorbs 96.4% of ethyl parathion, 92.3% of fenthion, 92.3% of fenitrothion and 87.6% of methyl parathion, at equilibrium. The removed amounts of the studied herbicides by using the pillared clay materials reaches 95.3% for atrazine, 98.5% for prometryne, 92.2% for propazine, 60.9% for propachlor, 86.8% for propanil and 70.2% for molinate.