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THE USE OF LYPOLITIC MICROORGANISMS *Pseudomonas fluorescens* AND
Penicillium citrinum FOR THE PREPARATION OF OPTICALLY ACTIVE
1-HYDROXYALKYLPHOSPHONATES.

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Lipases are perhaps the most widely used biocatalysts in organic synthesis. In this study lipases were found to catalyse the acetylation of diethyl 1-hydroxyalkylphosphonates, as well as 1-aminoalkylphosphonates. Unfortunately the lack of enantioselectivity was observed despite of the source of enzyme, as well as the type of organic solvent used as the reaction medium. Also the use of lipases for the enantioselective hydrolysis of diethyl O-butyryloxyalkylphosphonates in aqueous media was unsuccessful. Quite oppositively the hydrolysis of these substrates by wide-type strain of *Pseudomonas fluorescens* yielded optically active diethyl 1-hydroxyalkylphosphonates with moderate or good yields and of satisfactory optical purity, as determined by means of n.m.r. analysis of Mosher derivatives. The use of other lypolitic microorganism - *Penicillium citrinum* - was also succesful providing enantiomeric forms of the products obtained from the reaction catalyzed by *Pseudomonas fluorescens*. The substrate specificity of these two microorganisms, is discussed in some detail.

The exogenous lipase produced by *Pseudomonas fluorescens* did not catalyze the hydrolysis of diethyl O-butyryloxyalkylphosphonates. This indicates that some cellular enzymes are most probably responsible for the observed enantioselective hydrolysis