

**INTERACTION BETWEEN  $\beta$ -CYCLODEXTRIN  
AND SELECTED FUNGICIDE AND PESTICIDE IN WATER**

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Cyclodextrins are cyclic oligosaccharides. Most popular consist of 6, 7 or 8 glucose units combined with  $\alpha$ -1,4-glicoside bonds forming a torus structure. These compounds, due to their characteristic structure, hydrophobic interior and external polar part of molecule, includes hydrophobic ligands. This unique property of CDs which stems from their cavitory structures led to wide uses in pharmaceuticals, foods, chemicals, cosmetics and pesticides.

Pesticides are substances meant for attracting, seducing, and then destroying, or mitigating any pest. They are a class of biocide. These compounds are necessary in closed cultures where high humidity and favorable temperatures

cause rapid growth of many species of fungi. Fungicides and herbicides are sparingly soluble in water. Most commercially available products contains biologically active compounds dissolved in organic solvents, which are often neutral to the environment, human and animal health.

The main goal of our research was to study the impact of  $\beta$ -cyclo-dextrin to increase the water solubility examined (tebuconazole, MCPA) plant protection products. To examine the complex formation between biocides and cyclodextrins we used isothermal titration calorimetry (ITC). For the determination of concentration of pesticides we used UV-VIS spectrophotometer Specord 50. The set of parameters of interaction given by these methods brings information about the strength and the energetic aspects of complex formation between CDs and fungicides.