

INTERACTION BETWEEN β – CYCLODEXTRIN AND SELECTED FUNGICIDES IN WATER

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Cyclodextrins are inexpensive enzyme-modified starch derivatives, which have been industrialny produced. Most popular consist of 6, 7 or 8 glucose units combined with α -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. Binding strength depends on how well the 'host-guest' complex fits together and on specific local interactions between surface atoms This unique property of CDs which stems from their cavitary structures led to wide uses in pharmaceuticals, foods, chemicals, cosmetics and pesticides. Cyclodextrins are able to increse solubility of the guest fungicides inserted into their cavities .

Plant protection products play a very important role in agriculture. Pesticides are used in public health to kill vectors of disease, such as mosquitoes, and in agriculture, to kill pests and fungi that damage crops. These compaunds are necessary in closed cultures where high humidity and favorable temperatures cause rapid growth of many species of fungi. Fungicides

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 these research was to study the impact β -cyclodextrin to increase the water solubility examined (tebuconazole, difenylamine) fungicides. For the determination of concentration of pesticides we used UV-VIS spectrophotometer Specord 50. To examine the complex formation between fungicides and cyclodextrins we used isothermal titration calorimetry (ITC). 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 .