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CLEANED WASTEWATER IRRIGATION IN AGRICULTURE

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The municipal wastewater is the main type of wastewater which will be treated and irrigated in agriculture. There are two parts on this thesis. The first part is literature part and second part is research and experiment part. The literature part describes the method of wastewater treatment and main components of municipal wastewater, such as chemical and physical parameters, wastewater process, activated sludge biological treatment and methods of reclaimed water reuse in agriculture. The purpose of experiment is to research the difference of surfactant degradation in different solvent. In this case, the samples which contain LAS, LAS + Penconazole and Topas had been added in two different solvent, one is distilled water and another one is Danube river water. The aim is to find the interaction between active ingredients and Danube river water. So, the distilled water group is a parallel series. It will help us to find the distinction of two groups. Theoretically, the speed of degradation in Danube river water group should be faster than distilled water group. Because of the organic substances which have been produced by living organism can accelerate the nature degradation processes. All of the samples were measured by GC and HPLC-MS. The solubility of penconazole in water is 73 mg/L. In Dichloromethane (DCM), the solubility is 500 g/L. In this case, it has to be extracted and concentrated into DCM. The oven temperature is 300 °C in GC and carrier gas is hydrogen. All of the samples had been filtered before sampling. Related to the nice solubility of LAS in water, the LAS and LAS+ Penconazole samples will be analyzed by HPLC. Each of parameter was measured 3 times by HPLC. The GC measurement processes only did one time due to the long tension time. The results what had got showed that the speed of degradation in Danube river water group was faster than distilled water group whatever the components are LAS or Penconazole. But penconazole has longer degradation time. Cleaned wastewater can be used for irrigation in agriculture and natural environment can accelerate the degradation processes.

Keywords: Wastewater treatment, Surfactant, Adjuvants, Active ingredient, Degradation, Irrigation, Agriculture.

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