

ABSTRACT

Research on the manufacture of slow release urea fertilizer membranes based on chitosan-polyvinyl alcohol alloy has been carried out with the aim of producing CS/PVA modified membranes as slow release urea fertilizers, producing data on the chemical and physical characterization of CS/PVA membranes producing data on the capabilities of membranes in applications as slow release fertilizer. The results obtained in this research are that the chitosan and PVA alloy membrane was successfully made as proven by the results of the cluster test using FTIR which was characterized by a shift in NH absorption from 1580 cm^{-1} to 1587 cm^{-1} and OH absorption from 3294 cm^{-1} to 3280 cm^{-1} . 1. Increasing the composition of PVA in the membrane also increases absorption capacity, degree of swelling, porosity, degradation resistance, hydrophilicity and pH resistance but reduces weight and thickness. The results of the slow release capability test for each membrane variation indicate that the greater the PVA composition, the stronger the membrane's resistance to degradation and acid and the faster the urea is released from the membrane with a release reaching 107-156 ppm out of 1000 ppm for 30 days.

Key words: chitosan, membrane, polyvinyl alcohol, slow release fertilizer, UV-Vis spectrophotometer, urea