

Creation of lipid shells microcapsules of insecticides based on chlorpyrifos of trade mark GET

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Abstract

In this study, a laboratory synthesis of microencapsulated insecticides based on the active substance chlorpyrifos was performed, where DV was encapsulated in lipid monolamellar shells by a physico-chemical method in the pH range of 5-7. The resulting lipid vesicles showed high stability in the concentrate, the absence of agglomeration of particles of the nanoscale, and resistance to oxidation. Also, a surfactant, a high molecular weight polyvinylpyrrolidone, used to create a primary emulsion, was selected experimentally.

The composition of the shell includes phospholipids, the solvent of the active substance is ethyl alcohol, water acts as a precipitant. This method is easy to use, does not require complicated equipment and high energy costs.

The sizes of the obtained microcapsules were in the range from 50 nanometers to several micrometers. When analyzing particle sizes, there was no tendency for agglomeration, which confirms the presence of solid shells of vesicles.

Stability analysis was carried out by centrifugation, the size analysis of the microcapsules was carried out using a Nanofox device. Also, the dependence of the size of the final microcapsules on the synthesis temperature was investigated and microphotographs of the insecticide samples were made with an increase of 1500x magnification with the microscope *Micromed 2 var. 2-20*.

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