



Effect of polyhexamethylenguanidine hydrochloride complex with surfactants on pathogens of agricultural crops

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Abstract

The study of various properties of complexes and compositions based on surfactants and polymers with biocidal properties is of practical interest. The resulting polycomplexes exhibit more specific properties than the individual components, and can be considered as new high-molecular surfactants. In this regard, the influence of a biocidal polyelectrolyte-polyhexamethylene guanidine hydrochloride (metacid); cationic surfactant – cetyltrimethylammonium bromide (CTAB) and compositions of these substances on the germination of forage crops and infection with brown rust *Puccinia recondita*. According to the results of the study, the most effective indications of productivity and infection were shown by the metacid-CTAB complex, with a mass ratio of 0.01% of aqueous solutions of CTAB and metacid in a mixture of 1:2. At the same time, the germination rate was 94%, and the infection rate was 3%. The surface properties and wettability of aqueous solutions of metacid, CTAB, and the metacid-CTAB complex were also investigated. It was found that, in comparison with the individual component, the metacid-CTAB complex exhibits a significant reduction in the surface tension of aqueous solutions and a good wetting ability. Based on the results of the study of the fungicidal properties of metacid and its associates with CTAB, it was found that the associates suppress the foci of brown rust *Puccinia recondita* on spring wheat and show high biological effectiveness in the composition, causing a decrease in the fungus-affected plants by an average of 70%.

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