

WATER-SOLUBLE DERIVATIVES OF FULLERENES AND SILICON-CONTAINING SOL-NANOCOMPOSITES AS THE PROMISING NANOMATERIALS FOR CROP PRODUCTION

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Problems of crop production management with different types of preparations are considered in the paper. The complex positive effect of the preparations on crops is described. The possibilities to use different nanostructures and compositions to create new forms of preparations with regulatory, adaptogenic and protective features, intended for seed and growing plants treatment are described. In particular, the information on the influence of nanomaterial fullerene and nanocompositions based on this material on growth, development and productivity of plants in favorable conditions and under the influence of stress factors is provided. The ability of the nanomaterials to enhance the transport of basic macronutrients in plants, to intensify the plant growth and processes of organic and inorganic compounds' transformation in the root environment, to increase productivity and plant resistance to oxidative stress, to improve the quality of crop products are demonstrated. The prospect of further research studying the mechanisms of carbon nanostructures (fullerene derivatives and nanostructured silicon-containing composite materials) influence on the plant to create a highly effective nanopreparations for use in the crop production is shown.

Keywords: biologically active preparations, nanomaterials, seeds, growing plants, resistance to stressor

