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**DEVELOPMENT OF TECHNOLOGIES FOR OBTAINING ANTIBACTERIAL  
NANOCOMPOSITES FROM PLANT MATERIALS**

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**Introduction.** Microorganism contamination is a critical parameter in many areas, especially those associated with medicine, health care and food production. To solve this problem, a wide range of techniques and technologies is used, but infection still remains possible in most cases [1]. The problem is also a property of bacteria to obtain antibiotic resistance, which makes it very difficult to fight infections. There is an urgent need for new materials with antibacterial activity. One of such potential materials can be nanocomposites, materials consisting of at least two phases, one of which has nanosizes (<100 nm) in at least one dimension. Such materials have a number of features and properties, such as flexibility and versatility, allowing them to be endowed with antibacterial properties as coatings or drug carriers.

The main methods for producing polymeric and composite materials, for example, carbon polymeric materials, are based on the use of hydrocarbon raw materials (oil, gas etc.) and other non-renewable raw materials. In this case, it would be reasonable to replace hydrocarbon raw materials with plant materials. Plant materials are renewable, without harmful impurities, which means it is more environmentally friendly, they are easy to prepare and process compared to hydrocarbon raw materials.

**Main part.** Analysis of literary sources showed that at the moment there are two different ways of using plant materials to obtain nanocomposites:

1) The first method is the replacement of hydrocarbon raw materials with organic raw materials of natural origin, as well as plant waste in the process of pyrolysis. The choice of raw materials is based on the geographical and economic situation.

2) The second method is the so-called "green" synthesis, which involves the use of a living, biological, plant environment in the process of synthesis of nanomaterials. Such methods can be methods using bacteria ([2]), fungi ([3]), yeast ([4]), algae ([5]), plant extracts ([6], [7]) and agro-industrial waste ([8]). Considerable interest is given to these processes, since these methods are environmentally friendly and cost-effective. Recent studies show that extracts of various plants contain various compounds that can potentially be used to obtain high-value chemicals, bioactive compounds, pharmaceuticals, biofuels, biocides, corrosion inhibitors, and drugs[9]. These extracts can be obtained from plant waste from various industries, food waste [10]. This waste contains many valuable components that have the ability to act as an effective, sustainable and environmentally friendly reducing agent of metal ions. In addition, they also have modeling and stabilizing properties, act as a sealing agent and prevent the agglomeration of prepared nanoparticles [11].

**Conclusion.** The analysis of existing methods for obtaining nanocomposites from plant materials has been carried out and methods for obtaining nanocomposites have been proposed.

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