



MODERN PROBLEMS IN EDUCATION AND THEIR SCIENTIFIC
SOLUTIONS
RAW MATERIALS FOR PRODUCTION OF ACTIVATED
CARBON

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Abstract: *this article is about the sources of raw materials necessary for the production of various adsorbents used to reduce the amount of toxic substances that harm the environment, water and air. In the biosphere, there are abundant sources of raw materials for obtaining adsorbents. It is important to obtain activated carbons with effective use of them.*

Key words: *Activated carbon, biomass, adsorption, raw material, cotton boll and cotton stalk.*

Today, due to the rapid development of production, the pollution of the environment, water and air is also increasing. Various heavy metals, surfactants, petroleum products, dyes, cooking substances, etc., are polluting the water and the toxic gases released from them are polluting the air. The role of adsorbents in reducing the amount of such toxic substances is incomparable. Thermally stable, chemically resistant and mechanically strong adsorbents are widely used in various industries due to their high sorption properties. In order to obtain such adsorbents, it is necessary to have a sufficient source of raw materials, or to develop new types of adsorbents with the effective use of common types of raw materials. In recent years, many studies have focused on activated carbons (FU) from biomass sources because of their high specific surface area and micropore size, porous properties, fast and reversible adsorption kinetics, stable regeneration, as well as , sufficient sources of raw materials and their low cost, etc. [1].

Agricultural waste or biosorbents have attracted the attention of many researchers due to their low cost, biodegradability, and efficiency of heavy metal adsorption. Literature analysis shows that there are many studies synthesized from biomass, which are mainly agricultural waste such as coconut shells, pistachio shells, almond shells, peach kernels, rice husks, corn husks, lemon and tangerine peels, pine tree and others [2].

Cotton-based adsorbents are promising materials in the fight against the problem of environmental water pollution with heavy metals. This is due to the cheapness, abundance, biodegradability and efficiency of cotton-based adsorbents. Cotton-based





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adsorbents have been widely studied and many researchers have found them to be effective for the removal of heavy metals [3].

Belarusian researchers have developed a method of processing wood waste, i.e. bark and shavings, into an effective sorbent - activated carbon with a highly developed specific surface due to the presence of micro- and mesopores and low cost compared to known analogues, and founded. The production of such a product will be useful, it will help to reduce the amount of imported raw materials and the amount of waste from the wood processing industry, as well as more effective treatment of polluted air and wastewater [4]. Work [5] shows the possibility of obtaining FU from rice husk. The intended goal was achieved by pyrolysis of raw materials in the temperature range of 500-900°C. A team of Chinese authors [6] used corn straw to synthesize activated carbon. Activated carbon was synthesized from corn stalks through hydrothermal carbonization and a subsequent activation step.

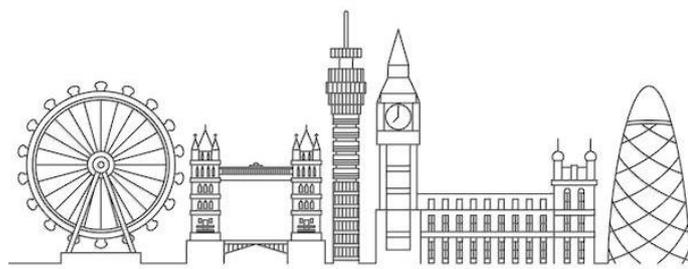
In the literature, there is information about the use of leaf litter as a raw material for the production of activated carbon [7]. Another group of scientists [8] used rapeseed straw for the synthesis of AC. They crushed rapeseed straw and put it in a retort and passed through physical and chemical activation stages. Chemical activation was carried out using steam at 820-850°C.

Scientists of our republic are also doing important work in this regard. Activated charcoal obtained on the basis of apricot and peach seeds was developed for the purification of alkanolamine solutions based on the peel of fruit seeds. An alternative mode of coal production is the carbonization process at a temperature of 800°C for 1 hour, and the activation process with water vapor at a temperature of 850°C for 2 hours. By comparing the physico-chemical, adsorption-structural and technical characteristics of the activated carbons obtained on the basis of apricot and peach seeds with the characteristics of the foreign analogues AG-3 and NX-30 types of activated carbons in practice, its competitive tolerance has been proven [9].

The climate of our republic is suitable for planting cotton in all respects. For this reason, if we take into account the large amount of cotton cultivation, we will have enough cotton stalks, and we can use it as a raw material for obtaining new types of adsorbents.

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