

Water treatment by activated carbons produced from agricultural wastes

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The water quality together with high amount of the agricultural wastes are major global problems. The aquatic environment can be affected by chemical pollution both in the short- and long-term, and therefore both acute and chronic effects data should be used as the basis for establishing the quantitative standards for pollution from various pollutants.

There is a huge amount of solid wastes, containing a relatively high content of organics.

Some of these solid wastes, such as agricultural by-products (apricot stone, olive stones, coco-nut, bean pods, etc.) and various sources of biomass (bamboo, straw, etc.) are investigated .

The new one-step method of pyrolysis, including carbonization and activation with water vapor has been applied for production of different synthetic carbon adsorbents and gas for energetic purposes. The adsorption capacity of the obtained activated carbons (ACs) is higher than the ACs, cited in the literature. The results describe the efficiency of the new ACs in the treatment of waters, polluted by arsenic, manganese, mercury, nickel, lead, cadmium, copper, phenols, THMs (trihalometanes). The developed installation of ACs production will help specialists in other fields to implement it.

Using the pyrolyzed residue in primary waste waters treatment could provide a two-fold solution to environmental problems. The volume of solid waste would be reduced, and the treatment of industrial waste waters could be achieved at a reasonable cost. Another advantage of the application of these adsorbents is that there would be no need to regenerate them because of their low production cost.