

## COMPARATIVE STUDY OF THE LOCAL VEGETABLE ACTIVATED CARBONS WITH COMMERCIAL ONES FOR ADSORPTION OF METHYLENE BLUE

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**Abstract.** Activated carbons have great applicability in the conditioning of wines: discoloration, removal of foreign taste and smell, correction of organoleptic parameters, etc. Nowadays, the most used activated carbons in the winemaking industry are the activated carbons of Granuacol series (BI, GE, FA), which are of vegetable origin.

The purpose of this work was to compare the structural and sorption characteristics of local vegetal active carbons obtained from apricot stones and nutshells (AC-C and AC-C2, Republic of Moldova) with that of commercial activated carbons (Granuacol BI/GE/FA, Germany).

The physico-chemical characteristics of activated carbons have been evaluated by standard methods (nitrogen sorption-desorption isotherms, thermogravimetric analysis, IR spectroscopy, pH value of carbons suspension). The adsorption capacity of the studied activated carbons was evaluated using methylene blue dye as a reference substance. Equilibrium adsorption data of methylene blue on activated carbons were fitted by using three isotherm models: Langmuir, Freundlich and Sips. In order to analyse the obtained kinetic data three kinetic models: pseudo-first order model, pseudo-second order model, and intraparticle diffusion model were used.

According to the obtained results, the local vegetal active carbon (AC-C) has proven to be comparatively effective with commercial ones (Granuacol series) in removing methylene blue dye from solutions.

**Keywords:** activated carbon, adsorption, isotherms, kinetic model, methylene blue, Langmuir, Freundlich, Sips.

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