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Effect of bed height on efficiency of adsorption of odors from sewage sludge using modified biochars from organic waste materials as an adsorbent

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ABSTRACT

The paper presents the research on odor removal on biochars produced from municipal sewage sludge and beekeeping waste in the pyrolysis process and activated with $ZnCl_2$. Tests of odor neutralization were also carried out using the commercial activated carbon (AC) Organosorb 200-1 Wi, to compare its adsorption capacity with biochars from waste. The results of the studies confirm that modified biochar derived from sewage sludge and other organic waste is an efficient sorbent in the removal of odors. Biochars produced from beekeeping waste and sewage sludge in the process of pyrolysis and activation with $ZnCl_2$ are efficient, and may be compared with commercial AC Organosorb 200-1 Wi. The efficiency of the adsorption process E (%) depending on bed height H (mm) is sufficiently described by the mathematical formula of Langmuir's isotherm, which is confirmed by the coefficients of quality of estimation.

Keywords: Odor removal; Adsorption; Pyrolysis; Organic waste

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