PREPARATION OF BIOCHAR AND ACTIVATED CARBON FROM COCOA POD HUSK BY USING MICROWAVE AS AMMONIUM CARRIER IN UREA-BASED FERTILIZER

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ABSTRACT
Biochar (CPH_BCHAR) and activated carbon was prepared from Cocoa pod husk (CPH_AC) under microwave activation. The optimization of carbonization and activation step was performed at different microwave input power and irradiation time. Porous texture, surface and functional characteristics were analysed by N_2 adsorption, scanning electron microscopy and Fourier transform infrared spectroscopy. The adsorbents have been used to study the retention and release of NH^{4+} from urea hydrolysis. Adsorption isotherm was fitted by Freundlich, Langmuir and Temkin isotherm models. This research shows biochar and activated carbon from CPH is a potential substrate that can be exploited to develop slow release N fertilizer with higher use efficiency and less environmental hazards.