

Using the biochar produced from spend mushroom substrate to improve the environmental condition of aquaculture pond

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First Author	
Last Author	
Authors	Lin, JC; Cheng, AC; Shiu, YL; Wong, YC; Yeh, SP; Simangunsong, T; Liu, CH;
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Abstract	<p>This study aims to probe the potential adsorbent of the biochar produced from spent mushroom substrate (SMS), of which pyrolysis temperature is 400 degrees C, in improving the qualities of sediment and water quality in aquaculture pond. In the first trial, the adsorption of biochars to the ammonia-N and nitrite-N in water was evaluated, and the results showed that the SMS-derived biochars had the ability to adsorb ammonia-N rather than nitrite-N. Additionally, the adsorption capability of biochars to ammonia-N decreased as ambient salinity was increased. The SMS-derived biochars can also increase the pH of water. In view of the improvement of sediment, SMS-derived biochars was able to increase sediment pH and decrease the levels of ammonia-N and sulphite in sediments. In field trial, SMS-derived biochars was applied to a red claw crayfish farming. As the SMS-derived biochars had been thrown to the crayfish pond, pond conditions were improved because the pH of water and sediment increased, and the level of ammonia-N in water decreased, and the levels of ammonia-N and sulphide in sediment decreased. Therefore, the SMS-derived biochars was considered great potential as sorbents to adsorb the toxic substances, such as ammonia-N and sulphide in water and sediment.</p>
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Author	TOHAP SIMANGUNSONG, S.Pd, M.Sc.