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Green synthesis of bacterial cellulose via acetic acid pre-hydrolysis liquor of agricultural corn stalk used as carbon source

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ABSTRACT

Herein, bacterial cellulose (BC) was synthesized by acetobacter xylinum via organic acid pre-hydrolysis liquor of agricultural corn stalk used as carbon source. Acetic acid was applied to pretreat the corn stalk, then, the prehydrolysate was detoxified by sequential steps of activated carbon and ion exchange resin treatment prior to use as carbon source to cultivate acetobacter xylinum. Moreover, the recovery of acetic acid was achieved for facilitating the reduction of cost. The results revealed that the combination method of detoxification treatment was very effective for synthesis of BC, yield could be up to 2.86 g/L. SEM analysis showed that the diameter size of BC between 20 to 70 nm. In summary, the process that bacterial

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