

Physico-chemico mechanical characteristics of bacterial cellulose produced in fed batch cultivation using waste from beer fermentation broth

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BC membranes were produced by *G. hansenii* PJK in jar fermenters using the waste from beer fermentation broth (WBFB) in fed-batch cultivation. The structure and some properties of BC membrane were investigated. FE-SEM revealed that the reticulated structure of BC fibrils was almost same to the control system (chemically defined medium). The FTIR spectral range, and chemical shifts from CP/MAS (^{13}C -NMR) study were also same to the control system. Nevertheless, BC produced using WBFB exhibited micro-structural changes, namely, a low degree of polymerization and low crystal size compared to control system. CP/MAS ^{13}C NMR analysis revealed that the cellulose Ia and Ib content of the cellulose produced using WBCB was almost same to the control system. The BC produced using WBFB had a lower Young's modulus of sheet, a higher water holding capacity as compared to the control system.