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CHARACTERIZATION OF BACTERIAL CELLULOSE PRODUCED BY *Gluconacetobacter sucrofermentans* CECT 7291 USED IN THE RESTORATION OF DEGRADED PAPER

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ABSTRACT

Bacterial cellulose (BC) synthesized by Gluconacetobacter sucrofermentans CECT 7291seems to be an ideal candidate to be used in degraded paper restoration. In previous studies optimizing the culture medium, fructose plus yeast extract-corn steep liquor resulted to be the optimal combination of carbon and nitrogen sources. The effect of the addition of 1% ethanol was also evaluated. The present job deals with the physic-mechanical, chemical and structural characterization of the optimal obtained BC layers. To get this goal the obtained cellulose layers were purified with two different methods. In both cases the treatment was finished with an intensive washing with distilled water. The purified cellulose layers were characterized, before and after the treatments, in terms of tear and burst indexes, optical properties, SEM, X- ray diffraction, FTIR, polymerization degree, static and dynamic contact angle, and mercury intrusion porosimetry.