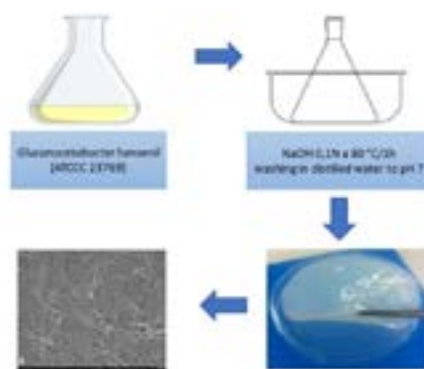


**Production and characterization of nanobacterial cellulose (NBC) synthesized by *Glucanacetobacter hansenii* using corn steep liquor and PRODEX® as nitrogen source**

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Bacterial nanocellulose (BNC) is an extracellular insoluble polysaccharide produced by some strains of *Glucanacetobacter*. BNC is produced by *Glucanacetobacter hansenii* has specific physical and chemical properties that distinguish it from plant cellulose, such as high crystallinity, chemical purity, mechanical strength, biocompatibility which leads BNC to become a new industrial material. Although, to produce BNC on a large scale, culture conditions must be optimized. Many different nutrients have been evaluating. In this work, to evaluate the effect of different culture media, carbon and nitrogen sources were studied, seeking to optimize CB production. Glucose, fructose, inulin, glycerol, lactose, sacarose, mannitol were verified as carbon source using corn steep liquor and a crude yeast extract known commercially as Prodex Lac®, as nitrogen source. After culturing, cells were transferred at a 20% inoculum rate to a 125 mL Erlenmeyer flask containing 20 g/L of the sugar to be investigated, 5 g/L Prodex Lac® (yeast autolysate, nitrogen source) or 5 g/L corn (corn steep liquor, nitrogen source). The cultivation was kept static at 30°C and sampling every 2 days for 12 days. After this period, the membranes formed were washed, dried and characterized (TGA, SEM and FTIR). The results revealed that regardless of the nitrogen source, it was observed that all carbon sources result in the formation of BNC and the best yields were found using fructose and mannitol. In the experiments that used fructose, the concentration of BNC was 2.484 g/L (corn steep liquor) and 4.222 g/L (Prodex Lac®). The good performance of Prodex Lac® can be justified considering it is a crude yeast extract, and the conventional medium for BC cultivation uses yeast extract and peptone as nitrogen sources. The obtained films presented variations in the thermal degradation profile, in comparison to the one reported in the literature. This fact resulted in possible impurities not completely removed with the purification method used. The FTIR analyzes did not differ from the literature, but also showed some bands that indicate impurities in the CB sample.

**Biography**

Ana Paula Testa Pezzin graduated in Chemistry, Master in Chemical Engineering and PhD in Mechanical Engineering from the State University of Campinas. She did postdoctoral studies at the Université Pierre et Marie Curie in Paris / France. She has been a leader in the POLYMERIC MATERIALS GROUP since 2001, working in research lines: Polymeric biomaterials for medical and dental applications; Composites, biocomposites, nanocomposites and bionanocomposites; Modification of biopolymers for different applications and synthesis and characterization of biopolymers by microbial culture. Currently, she is a Professor and Researcher at the University of Joinville Region (UNIVILLE), being a level 2 productivity fellow at CNPq.

**Notes:**

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