

TITLE: BACTERIAL NANOCELLULOSE PRODUCTION UTILIZING WINE INDUSTRY WASTE.

AUTHORS: NUNES, M.A.; DOS SANTOS, G.L.; SOEIRO, V.S.; CASTANHO, N.R.C.M.; DE MARCO, N.; ROCCO, D.H.E.; BALDO, D.A.; OLIVEIRA Jr., J. M.; CHAUD, M.V.; JOZALA, A.F.

INSTITUTION: UNIVERSIDADE DE SOROCABA – UNISO (RODOVIA RAPOSO TAVARES, 92,5 Km, SOROCABA – SP, BRAZIL)

Bacterial Nanocellulose has been widely application in different areas, such as material for tissue regeneration. However, the production cost is a barrier to apply the large scale production and this add a final value of the bioproduct and making it difficult to apply. The aim of this work was produced the bacterial nanocellulose utilizing an alternative medium composed by wine industry waste. The *Gluconacetobacter xylinus* ATCC 53582 was grown in nanocellulose in standard culture medium Hestrin & Schramm (HS), titled as synthetic base and in an alternative culture medium composed by waste compounds, which were prepared utilizing 100 g of product in 500 mL of distilled water. The 3rd culture medium was prepared utilizing 100 g of product in 500 mL of distilled water supplemented with 0,5g /L of yeast extract. The production were conducted for 15 days at 30°C in static culture. After obtaining the bacterial nanocellulose membranes (BNM), the Glucose and proteins were measured through the enzymatic assay (GOD / POD) and BCA. The results showed BNM production was possible in all proposed culture medium and the faster consumption of glucose was observed in the synthetic base (HS) during the initial fermentation stage and could be linked to the synthesis of gluconic acid by the membrane. For the culture media composed by waste the glucose consumption was slower and the microorganism consumed less than 10% of the total proteins, indicating the *G. xylinus* metabolic pathway prefers carbohydrates (glucose and or fructose). The culture media composed by wine waste can be an alternative with low cost to produce bacterial nanocellulose.