

CELLULOSE PRODUCTION BY *Gluconacetobacter hansenii* IN A MEDIUM CONTAINING AGAVE JUICE

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Bacterial cellulose (BC) consists of pure cellulose with unique properties such as high degree of crystallinity, water retention capacity, tensile strength and moldability. These properties make it possible to apply BC in the food industry, in products such as desserts (coconut cream, low-calorie ice cream, snacks); thickeners; bases for weight reduction and foundation for artificial foods. BC has been produced traditionally by static culture but it has a low productivity. In order to overcome this obstacle, it can be used cultivation of *G. Hansenii* under agitation. Brazil produces annually 2.3 billion liters of agave juice. The agave juice has about 21% of carbohydrates and can be used as an alternative of carbon source in fermentation processes. For this reason cellulose production was evaluated using both static and agitated culture using 2% (v/v) of agave juice as carbon source and 1% (w/v) of yeast extract or ammonium sulfate as nitrogen source. The different media were added of 1% (w/v) mannitol and incubated at 28°C for 120 hours. The addition of mannitol increased cellulose production in all media evaluated. At the static culture, a thick, gelatinous membrane of BC was accumulated on the surface of the culture, while in agitated culture, the pulp was produced as a pellet suspension. The structure of BC produced in an agitated culture was heterogeneous because of the aggregation of BC pellets forming a single large lump. The maximum cellulose production (0.55 g/L) was obtained with medium containing agave juice plus yeast extract and mannitol.