

Utilization of Extracted *Spirogyra* sp. Media Fermented by *Gluconacetobacter Xylinum* for Cellulose Production as Raw Material for Paper Product

Authors : T. S. Desak Ketut, A.n. Isna, A.a. Ayu, D. P. Ririn, Suharjono Hadiatullah

Abstract : The requirement of paper from year to year rise rapidly. The raising of cellulose requirement in paper production caused increasing of wood requirement with the effect that limited forest areal because of deforestation. Alternative cellulose that can be used for making paper is microbial cellulose. The objective of this research are to know the effectivity fermentation media *Spirogyra* sp. by *Gluconacetobacter xylinum* for cellulose production as material for the making of paper and to know effect composition bacterial cellulose composite product of *Gluconacetobacter xylinum* in *Spirogyra* sp. The method, was used, is as follow, 1) the effect assay from variation composition of fermentation media to bacterial cellulose production by *Gluconacetobacter xylinum*. 2) The effect assay of composition bacterial cellulose fermentation produced by *Gluconacetobacter xylinum* in extracted *Spirogyra* media to paper quality. The result of this research is variation fermentation media *Spirogyra* sp. affect to production of cellulose by *Gluconacetobacter xylinum*. Thus, result showed by the highest value and significantly different in thickness parameter, dry weight and wet weight of nata in sucrose concentration 7,5 % and urea 0,75 %. Composition composite of bacterial cellulose from fermentation product by *Gluconacetobacter xylinum* in media *Spirogyra* sp. affect to paper quality from wet nata and dry nata. Parameters thickness, weight, water absorpsion, density and gramatur showed highest result in sucrose concentration 7,5 % and urea concentration 0,75 %, except paper density from dry nata had highest result in sucrose and urea concentration 0%.

Keywords : cellulose, fermentation media, , *Gluconacetobacter xylinum*, paper, *Spirogyra* sp.

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