

**BIOSINTESIS SELULOSA
OLEH BAKTERI *Gluconacetobacter xylinus*
DALAM MEDIA DASAR TEH (*Camellia sinensis* (L.) Kuntze)**

Meika Novarya Larasati

11/316199/BI/08754

INTISARI

Penelitian ini bertujuan untuk mengisolasi dan mengetahui kemampuan strain *G. xylinus* dari produk teh non standar dan kadaluarsa PT Sinar Sosro Ungaran, serta mempelajari pengaruh jenis teh, konsentrasi sukrosa dan urea terhadap aktivitas biosintesis selulosa dan kualitas *nata de tea* yang dihasilkan.

Dalam penelitian ini diperoleh isolat bakteri dari *kombucha* yaitu strain *G. xylinus* KB1 dengan kemampuan pembentukan *nata* terbaik. Pembuatan *nata de tea* dilakukan dengan pembuatan media dengan 3 jenis air teh kadaluarsa dan non standar yaitu Teh Botol Sosro (TBS), S-tee Botol (STB) dan Fruit Tea Botol (FTB). Masing-masing jenis air teh dibagi menjadi 4 kelompok yaitu kontrol, A (sukrosa 5% dan urea 0,3%), B (sukrosa 10% dan urea 0,5%) dan C (sukrosa 15% dan urea 0,7%). Uji perubahan fisikokimia yang dilakukan pada media *nata de tea* meliputi pH, kadar sukrosa, gula pereduksi, karbohidrat total, nitrogen terlarut dan tanin. Uji kualitas fisikawi *nata de tea* meliputi ketebalan, berat basah, berat kering, kadar air, warna dan tekstur.

Data hasil penelitian dianalisis lebih lanjut menggunakan pendekatan korelasi-regresi dan analisis variansi. Berdasarkan analisis korelasi regresi, diketahui bahwa variabel pH, kadar sukrosa, gula pereduksi, karbohidrat total, nitrogen terlarut dan tanin berpengaruh pada kualitas *nata de tea* yang dihasilkan. Berdasarkan analisis variansi, diketahui perlakuan yang menghasilkan *nata de tea* dengan kualitas terbaik adalah kelompok TBS_B dengan penggunaan teh hijau melati, kadar sukrosa 10% dan urea 0,5%.

Kata kunci: *Gluconacetobacter xylinus*, *nata*, selulosa, *kombucha*

**CELLULOSE BIOSYNTHESIS
BY BACTERIA *Gluconacetobacter xylinus*
IN TEA BASED MEDIA (*Camellia sinensis* (L.) Kuntze)**

Meika Novarya Larasati

11/316199/BI/08754

ABSTRACT

The objectives of these studies were to isolate and determine the ability of *G. xylinus* strain from non standard and expired tea products from Sinar Sosro Ungaran company, to study the influence of different types of tea, and to know the concentration of sucrose and urea to the cellulose biosynthesis activity and the quality of *nata de tea* which were produced.

The best *nata*-forming bacteria isolates from *kombucha* namely *G. xylinus* KB1 strain were used in these studies. This research obtained bacteria isolate from *kombucha* namely *G. xylinus* KB1 strain with the best *nata*-forming ability. The production of *nata de tea* performed by making media using 3 kind of expired and non-standard tea water, namely Teh Botol Sosro (TBS), S-tee Botol (STB) and Fruit Tea Botol (FTB). Each type of tea water was divided into 4 groups: control, A (5% sucrose and 0.3% urea), B (10% sucrose and 0.5% urea) and C (15% sucrose and 0.7% urea). Physicochemical changes assay which had been performed to the *nata de tea* media included pH, sucrose, reducing sugar, total carbohydrates, dissolved nitrogen and tannin concentration. Physical quality assay of *nata de tea* included thickness, fresh weight, dry weight, moisture content, color and texture.

The data were analyzed further using correlation-regression approach and variance analysis. Based on regression correlation analysis, it was known that the variables pH, sucrose, reducing sugar, total carbohydrates, nitrogen dissolved and tannin concentration affected the quality of *nata de tea* which had been produced. Based on the analysis of variance, it was known that the best treatment which produced the best quality of *nata de tea* was TBS_B group which used jasmine green tea, 10% sucrose and 0.5% urea.

Keywords: *Gluconacetobacter xylinus*, *nata*, cellulose, *kombucha*