

ABSTRAK

Pembuatan Bioetanol Dari Ketan Putih (*Oryza Sativa*) dan Air Rebusan Kecambah Dengan Variasi Jenis Ragi dan Massa Ragi

(Firman Kevin Simmamora, 2025, 37 Halaman, 6 Tabel, 9 Gambar, 4 Lampiran)

Penelitian ini bertujuan untuk mengetahui pengaruh variasi jenis ragi (ragi tape dan ragi roti) serta massa ragi (10, 15, 20, 25, dan 30 gram) terhadap hasil produksi bioetanol dari ketan putih dan air rebusan kecambah dengan metode fermentasi. Metode penelitian meliputi proses hidrolisis menggunakan asam sulfat (H_2SO_4) 2M, fermentasi anaerob selama 10 hari, dan pemurnian dengan destilasi sederhana. Parameter analisis bioetanol meliputi densitas, indeks bias, dan konsentrasi etanol. Hasil penelitian menunjukkan bahwa penambahan massa ragi sebesar 15 gram, baik ragi tape maupun ragi roti, menghasilkan kadar bioetanol tertinggi. Namun, hasil tersebut belum memenuhi standar mutu bioetanol berdasarkan SNI No. 06-6446.1-2000. Ragi tape cenderung memberikan hasil bioetanol lebih baik dibandingkan ragi roti. Penurunan kadar bioetanol terjadi jika massa ragi melebihi 15 gram, diduga akibat kompetisi mikroorganisme dan akumulasi produk samping yang menghambat proses fermentasi. Untuk mendapatkan hasil sesuai standar, diperlukan optimasi lanjutan pada parameter fermentasi serta proses pemurnian.

Kata Kunci: Bioetanol, Ketan Putih, Air Rebusan Kecambah, Ragi Tape, Ragi Roti, Fermentasi, Destilasi.

ABSTRACT

Production of Bioethanol from White Glutinous Rice (*Oryza sativa*) and Sprout Boiling Water with Variations in Yeast Type and Yeast Mass

(Firman Kevin Simmamora, 37 Pages, 6 Tables, 6 Figures, 4 Appendices)

This research aims to determine the effect of different types of yeast (tape yeast and bread yeast) and yeast mass variations (10, 15, 20, 25, and 30 grams) on the production of bioethanol from white glutinous rice and mung bean sprout decoction water through fermentation. The methodology included hydrolysis using 2M sulfuric acid (H₂SO₄), anaerobic fermentation for 10 days, and purification through simple distillation. The bioethanol was analyzed based on its density, refractive index, and ethanol concentration. The results showed that the addition of 15 grams of yeast, both tape yeast and bread yeast, produced the highest bioethanol concentration. However, the results did not meet the bioethanol quality standards according to SNI No. 06-6446.1-2000. Tape yeast tended to yield higher bioethanol compared to bread yeast. A decrease in ethanol concentration occurred when yeast mass exceeded 15 grams, presumably due to microbial competition and the accumulation of by-products that inhibited fermentation. Further optimization of fermentation parameters and purification processes is necessary to achieve standard-compliant results.

Keywords: *Bioethanol, White Glutinous Rice, Mung Bean Sprout Decoction, Tape Yeast, Bread Yeast, Fermentation, Distillation.*