

Produksi *Yeast Extract* dari *Spent Brewer's Yeast*

Yeast Extract Production From Spent Brewer's Yeast

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Abstract: Spent brewer's yeasts are a by product of the beer production, containing useful bioactive substances, such as proteins, amino acids, nucleotides, carbohydrates, minerals, and vitamins. Up till now, intact spent brewer's yeast has been used as a supplement to animal feed. High protein content in spent brewer's yeast (45-60% in dry weight) makes it good to be produced into yeast extract (YE) as a protein source. YE consists primarily of amino acids, peptides, nucleotides, and other soluble components, that are needed in microbiological media. This study aims to determine the differences between four physical or mechanical treatments (freezing-thawing, homogenization, glass beads, and combination of freezing-thawing and glass beads) in YE production of the cell disruption and protein content, and the quality of YE produced for microbiological media. Measurements of cell count and dissolved protein content were performed to determine the best physical method, while physical, chemical, and biological parameter measurements were performed to determine the quality of YE. The results showed that the best treatment for cell disruption was combination of freezing-thawing and glass beads with percentage of disrupted cell and soluble protein content of 99.5% and 2.779 mg / ml, respectively. YE from spent brewer's yeast contains soluble protein and α -amino nitrogen as much as 3.671 and 1.352 mg / ml, and total nitrogen and crude protein of 2.21 and 13.81 mg / ml, lower compare to commercial YE. Biological testing data YE from spent brewer's yeast has ability to increase cell density (OD) and number of colonies in *E. coli*, *Staphylococcus epidermidis*, and *Saccharomyces cerevisiae* D.01. Further research on the use of spent brewer's yeast to produce YE using spent brewer's yeast without steam and glass beads with diameter less than 0.5 mm is necessary to improve the yield and quality of the YE.

Keywords: Combination of freezing-thawing and glass beads, physical treatment, spent brewer's yeast, yeast extract

Keterangan:

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