

## **Evaluating comparative b-glucan production aptitude of *Saccharomyces cerevisiae*, *Aspergillus oryzae*, *Xanthomonas campestris*, and *Bacillus natto***

### **ABSTRACT**

b-glucan is a natural polysaccharide derivative composed of a group of glucose monomers with b-glycoside bonds that can be synthesized intra- or extra-cellular by various microorganisms such as yeasts, bacteria, and moulds. The study aimed to discover the potential of various microorganisms such as *Saccharomyces cerevisiae*, *Aspergillus oryzae*, *Xanthomonas campestris*, and *Bacillus natto* in producing bglucan. The experimental method used and the data were analyzed descriptively. The four microorganisms above were cultured under a submerged state in Yeast glucose (YG) broth for 120 h at 30 °C with 200 rpm agitation. During the growth, several parameters were examined including total population by optical density, the pH, and glucose contents of growth media. b-glucan was extracted using acidalkaline methods from the growth media then the weight was measured. The results showed that *S. cerevisiae*, *A. oryzae* *X. campestris*, and *B. natto* were prospective for b-glucans production in submerged fermentation up to 120 h. The highest b-glucans yield was shown by *B. natto* (20.38%) with the b-glucans mass of  $1.345 \pm 0.08$  mg and globular diameter of 600 nm. The highest b-glucan mass was achieved by *A. oryzae* of  $82.5 \pm 0.03$  mg with the total population in optical density of 0.1246, a final glucose level of 769 ppm, the pH of 6.67, and yield of 13.97% with a globular diameter of 1400 nm.