ABSTRACT

Zahrah Syahmina Badzlin.24020222140082.Exploration and Identification Molecular of Inulinolytic Yeast from Potato (Solanum tuberosum L.) Tubers with the Influence of Temperature and pH

Potato tubers (Solanum tuberosum L.) are a natural substrate rich in starch and simple sugars that have the potential to be a habitat for yeast producing the enzyme inulinase. Inulinase (EC 3.2.1.7) is a hydrolase enzyme that catalyzes the cleavage of β 2,1 fructosidic bonds in inulin, producing fructose and fructo oligosaccharides of high value in food biotechnology. This study aims to explore and identify indigenous yeasts from potato tubers as inulinase producers and determine the optimum conditions for enzyme activity based on temperature and pH variations. The research methods include yeast isolation on Potato Dextrose Agar (PDA) media, screening on Inulinase Selective Medium (ISM), enzyme activity assay, and molecular identification. The study was conducted experimentally with a factorial Completely Randomized Design (CRD), three replications, ANOVA analysis at a 5% level (α = 0.05), and Duncan's follow-up test. The results showed 11 yeast isolates on PDA, 5 isolates grew on ISM, and isolate I 11 had the highest activity. Testing of pH variations (4, 5, 6) and temperatures (35℃, 45℃) showed optimum conditions at pH 5 and temperature 35℃ with an activity of 1.76 U/mL. Molecular identification results confirmed isolate I 11 as Candida parapsilosis. ANOVA analysis showed that pH variations had a significant effect on enzyme activity, Duncan's further test confirmed that pH 4 and pH 5 were not significantly different, while pH 6 produced significantly lower activity.

Keywords: *Candida parapsilosis, Inulinase Enzyme, pH, Potato Tubers, Temperature*

Pembimbing I	Pembimbing II
Dr. Drs. Wijanarka, M.Si	Prof. Dr. Dra. Endang Kusdiyantini, DEA
NIP. 196510181991031002	NIP. 195911261988102001