

## ABSTRACT

Andhira Ayu Destiana, 24020120120017, **Exploration of *Rhizopus* sp. Local as  $\alpha$ -Amylase Inhibitor Producer for Anti-Diabetes.** Under the guidance of Dr. Sri Pujiyanto, S. Si, M. Si. And Drs. Agung Suprihadi, M. Si.

Treatment for diabetics is done by controlling blood glucose levels.  $\alpha$ -amylase inhibitors can be used as an alternative in overcoming diabetes mellitus by inhibiting the work of the  $\alpha$ -amylase enzyme. Tempeh is a functional food that has the potential to have antidiabetic compounds. Fermentation of tempeh using tempeh starter containing *Rhizopus* sp. fungus is expected to have the potential to produce antidiabetic compounds. The purpose of this study was to isolate *Rhizopus* sp. from various tempeh yeast, test the activity  $\alpha$ -amylase inhibitors from selected isolates, and determine the potential of *Rhizopus* sp. as a producer of  $\alpha$ -amylase inhibitor compounds. The research method begins with sampling in the form of tempeh yeast, isolating and characterizing *Rhizopus* sp. local, selecting isolates that have the potential as  $\alpha$ -amylase inhibitors, making ethyl acetate extracts from *Rhizopus* sp. local and testing  $\alpha$ -amylase inhibitor activity by varying the concentration of ethyl acetate extract samples and measuring absorbance values using a UV/Vis spectrophotometer with a wavelength of 540nm. The results showed that the ten isolates of tempeh yeast with isolate codes R1 (Bogor), R2 (Boyolali), R3 (Kediri), R4 (Mojokerto), R5 (Surabaya), R6 (Nganjuk), R7 (Yogyakarta), R8 (Bandung), R9 (Majalengka), and R10 (Wonogiri) belong to the genus *Rhizopus* sp. *Rhizopus* sp. local from tempeh yeast have the potential as produce of  $\alpha$ -amylase inhibitor compounds. The ten isolates of *Rhizopus* sp. showed that the mold isolate originating from Bogor with the isolate code R1 produced the highest percentage of inhibition with a value of 80,17%. Varying the concentration of ethyl acetate extract R1 (Bogor) 10%, 20%, 30%, 40%, and 50% each obtains an inhibition percentage of 36,56%; 43,84%; 44,24%, 47, 07%; and 53,13%. Isolate R1 (Bogor) was the selected isolate with an  $IC_{50}$  value of 43,47% (v/v). The result of ANOVA analysis showed that the concentration variation of ethyl acetate extract R1 (Bogor) has a significant effect ( $P < 0,05$ ) on  $\alpha$ -amylase inhibitor activity.

Keywords: *Antidiabetic,  $\alpha$ -Amylase Inhibitor, Tempeh Yeast, Rhizopus sp.*