

ABSTRACT

Khadijah Chairani. 24020120130073. **Exploration of *Rhizopus* sp. from Tempe Yeast of Various Regions as Antioxidant Producer.** Under the guidance of Sri Pujiyanto and Arina Tri Lunggani.

Oxidative stress due to the presence of free radicals in the body triggers the onset of disease. Tempeh yeast is a material that can be utilized to produce products with antioxidant content derived from the activity of *Rhizopus* sp. molds that play a role in the fermentation process. *Rhizopus* sp. molds are able to produce β -glucosidase enzymes that cause the transformation of isoflavone compounds in the form of aglycones that act as antioxidants. *Rhizopus* sp. in tempeh yeast has been widely used in the food industry so it is safe for the body. Different types of tempeh yeast will affect the antioxidant activity produced because each type of *Rhizopus* sp. has its own metabolic characteristics. Therefore, the exploration of *Rhizopus* sp. in tempeh yeast from various regions as an antioxidant producer was conducted. This study was conducted with the aim of obtaining *Rhizopus* sp. isolates from tempeh yeast from various regions that have a high ability to produce antioxidants. The research method began with sampling tempeh yeast from 10 different regions, namely Bogor (R1), Boyolali (R2), Kediri (R3), Mojokerto (R4), Surabaya (R5), Nganjuk (R6), Yogyakarta (R7), Bandung (R8), Majalengka (R9), and Wonogiri (R10); isolation and characterization of *Rhizopus* sp. mold. ; fermentation and selection of 10 *Rhizopus* sp. isolates that have the potential as antioxidant producers; production and extraction of selected *Rhizopus* sp. isolates; antioxidant activity test of ethyl acetate extract at various concentrations of 20%, 40%, 60%, 80%, 100% using DPPH method. The results showed that *Rhizopus* sp. was successfully obtained from 10 tempeh yeast from various regions and has the potential as a producer of antioxidant compounds with *Rhizopus* sp. mold isolate from Surabaya (isolate R5) having the highest antioxidant activity with a value of 94.81%. The concentration variation of ethyl acetate extract of isolate R5 20%, 40%, 60%, 80%, and 100% obtained IC₅₀ value of 35.44% (v/v) where to inhibit radicals as much as 50% concentration of 35.44% is required. The low IC₅₀ value indicates high antioxidant activity.

Keywords: *Rhizopus* sp., Antioxidant, Tempe Yeast, DPPH.