

ABSTRACT

Catharina Friska Mujana 24020120140149. **Evaluation of Total Phenolic and Flavonoids, and Antioxidant Activity of *Calocybe indica* Mushroom Strains with Various Fractions.** Under the guidance of Wijanarka and Rini Riffiani.

Diseases in the human body can be triggered by oxidative stress, which is a condition of imbalance between free radicals and antioxidants sourced from by-products of the body's metabolic processes. One source of antioxidants that can overcome oxidative stress is *Calocybe indica*, which is a macro fungus cultivated in the tropics and contains secondary metabolites, one of which is phenolic compounds. The purpose of this research is to determine the fraction and strain of *Calocybe indica* that produces the best total phenolic, flavonoid, and antioxidant activity, identify results that show significant differences and significantly different, and analyze the closeness of the correlation relationship in *Calocybe indica*. This research used a completely randomized design with three repetitions. The fractions and strains of *Calocybe indica* used were ethyl acetate fraction (C₁) which is semi-polar and water fraction (C₂) which is polar and *Calocybe indica* parental strain (Y₁) derived from tissue culture technique (strain resulting from the best purified mushroom fruiting body) and strain 9x13 (Y₂) derived from breeding program technique (strain resulting from mating between 2 monokaryons; strain C-09×C-13). *Calocybe indica* strains were dried and powdered, then macerated with 70% ethanol, and fractionated. Determination of phenolic content was measured by Folin-Ciocalteu method, flavonoid content by colorimetric test, and antioxidant activity by DPPH test and iron ion reducing power test. Based on the results of the research, it can be concluded that the fraction and strain of *Calocybe indica* that produces total phenolics and flavonoids, as well as the best antioxidant activity is C₂Y₂ (water fraction, strain 9x13), as evidenced by the IC₅₀ DPPH of 140.991 µL/mL and the reducing power of absorbance of 0.346 at 700 nm, as well as phenolic and flavonoid content reaching 50.393 mg GAE/g and 41.019 mg QE/g, where the results of each parameter show significantly different and significantly different. The results of Pearson correlation analysis showed a very strong relationship with the correlation coefficient (r) values of 0.955 (phenolic with flavonoids), -0.869 (phenolic with DPPH), -0.904 (flavonoids with DPPH), 0.960 (phenolic with reducing power), 0.979 (flavonoids with reducing power), and -0.921 (DPPH with reducing power), respectively.

Keywords: Antioxidants, Calocybe indica, fraction, tissue culture, breeding program.