

**STABILITAS DAN AKTIVITAS ANTIOKSIDAN
EKSTRAK ANTOSIANIN BERAS HITAM (*Oryza sativa*)
DAN KETAN HITAM (*Oryza sativa glutinosa*) SELAMA PENYIMPANAN
PADA BERBAGAI KONDISI SUHU DAN pH**

INTISARI

Ekstrak antosianin beras hitam varietas Melik Jawa dan ketan hitam varietas Setail telah diketahui mempunyai aktivitas antioksidan yang berpotensi sebagai pangan fungsional. Stabilitas antosianin selama penyimpanan mempunyai pengaruh terhadap nilai fungsional antosianin yang diekstrak dari berbagai tanaman. Beberapa faktor yang mempengaruhi stabilitas antosianin selama penyimpanan antara lain suhu, waktu, dan pH. Dalam penelitian ini akan dipelajari laju degradasi kadar antosianin serta perubahan aktivitas antioksidan ekstrak antosianin beras hitam dan ketan hitam yang disimpan selama 4 minggu pada suhu dingin yaitu 5, 10 dan 15 °C serta pada suhu ruang yaitu 25, 30 dan 35 °C. Selain itu, pada penelitian ini juga akan dipelajari pengaruh pH terhadap kestabilan ekstrak antosianin beras hitam dan ketan hitam. Tujuan penelitian ini adalah untuk menentukan stabilitas dan aktivitas antioksidan ekstrak antosianin beras hitam (EAB) dibandingkan dengan ekstrak antosianin ketan hitam (EAK) selama penyimpanan.

Beberapa parameter yang akan dikaji pada penelitian ini antara lain karakteristik beras hitam dan ketan hitam, kadar total antosianin (metode *pH differential*), aktivitas antioksidan (metode DPPH dan FRAP), serta laju degradasi kadar total antosianin selama penyimpanan (metode Arrhenius). Penyimpanan pada suhu ruang dapat meningkatkan stabilitas antosianin sehingga waktu paruhnya 6 kali lebih lama dibandingkan penyimpanan pada suhu dingin. Begitu pula dengan aktivitas antosianin yang dinyatakan dalam % RSA DPPH dan nilai FRAP EAB dan EAK pada penyimpanan suhu dingin lebih baik dibandingkan suhu ruang. Makin tinggi nilai pH EAB dan EAK maka stabilitas antosianin selama penyimpanan makin rendah. Aktivitas antioksidan EAB dan EAK juga menurun seiring dengan peningkatan pH. Ditinjau dari sumber antosianin, EAK mempunyai kadar antosianin lebih tinggi dibandingkan EAB, namun stabilitas dan aktivitas antioksidan EAB lebih baik dibandingkan EAK.

Kata Kunci : Antosianin, beras hitam, ketan hitam, antioksidan, penyimpanan

**STABILITY AND ANTIOXIDANT ACTIVITY
OF ANTHOCYANIN EXTRACTS OF BLACK RICE (*Oryza sativa*) AND
BLACK GLUTINOUS RICE (*Oryza sativa glutinosa*)
DURING STORAGE IN VARIOUS TEMPERATURE AND pH VALUE**

ABSTRACT

Anthocyanin extracts of black rice variety Melik Java and black glutinous rice variety Setail have been proved to show antioxidant activities that have potency as a functional food. Anthocyanin stability during storage has an influence on the functional value of anthocyanins extracted from various plants. Several factors that affect the stability of anthocyanins during storage are temperature, time, and acidity-alkalinity. This study observed the degradation rate of anthocyanin and changes in the antioxidant activity of anthocyanin extracts of black rice and black glutinous rice that were stored for 4 weeks at cold temperatures (5, 10 and 15 °C) and at room temperatures (25, 30 and 35 °C). In addition, this study also examined the effect of acidity on the stability of black rice anthocyanin extracts (BRAE) and black glutinous rice anthocyanin extract (BGR AE). This study aimed to determine the stability and antioxidant activity of BRAE compared with BGR AE.

Several parameters that were studied in this research include the characteristics of black rice and black glutinous rice, total anthocyanin content (pH-differential method), antioxidant activity (DPPH and FRAP methods), as well as degradation rate of anthocyanin during storage (Arrhenius method). Storage at cold temperature was able to increase anthocyanin stability, thus its half-life was longer than storage at room temperature. Similarly, anthocyanin activity expressed in % RSA DPPH and FRAP values of BRAE and BGR AE on cold temperature storage was better than room temperature storage. The higher the pH values of BRAE and BGR AE, the lower the anthocyanin stability during storage. BRAE and BGR AE antioxidant activities were also decreased with increasing pH. Based on the source of anthocyanins, BGR AE has higher anthocyanin content than BRAE, but the stability and antioxidant activity of BRAE was better than BGR AE.

Keywords: Anthocyanins, black rice, black glutinous rice, antioxidant, storage