

ABSTRACT

EFFECT OF COMBINATION CONCENTRATION AND METHOD OF ADDITIONING RED PALM OIL ON ANTIOXIDANT ACTIVITY OF RICE

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RPO (Red Palm Oil) contains high levels of carotenoids and vitamin E (tocopherols and tocotrienols) so that it has the potential to be a good source of antioxidants. Adding RPO into rice cause be expectation that rice will become a functional food with high antioxidants capacity so that it has many health benefits. The purpose of this study was to determine the effect of the combination of RPO concentration and the method of adding RPO to rice on the radical scavenging activity of DPPH, ABTS, and meat system (TBARS). This study was arranged in a non-factorial Complete Randomized Block Design (CRBD) with three replications and 8 treatment combinations consist of C1P1, C2P1, C3P1, C4P1, C1P2, C2P2, C3P2, and C4P2. C is the RPO concentration treatment (C1: 1%, C2: 2%, C3: 3%, C4: 4%) and P is the method of adding RPO (P1: before cooking and P2: after cooking). The data on the radical scavenging activity of the DPPH, ABTS, and meat system (TBARS) methods were analyzed for variance to determine whether there was any effect of the combination of treatments which were then further processed with a 5% DMRT test. The results showed that the combination of RPO concentration and the method of adding RPO to rice had a significant effect on the radical scavenging activity of DPPH, ABTS but had no significant effect on the radical scavenging activity using the meat system method (TBARS). The radical scavenging activity of rice with the addition of RPO with DPPH method ranges from 3.73% -10.41%, the ABTS method ranges from 4.13% -13.5%, and the meat system method (TBARS) ranges from 21% - 34%.

Kata kunci: Antioxidant, ABTS, DPPH, *meat system* (TBARS), red palm oil, white rice

ABSTRAK

PENGARUH KOMBINASI KONSENTRASI DAN CARA PENAMBAHAN MINYAK SAWIT MERAH TERHADAP AKTIVITAS ANTIOKSIDAN NASI

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MSM (Minyak Sawit Merah) mengandung karotenoid dan vitamin E (tokoferol dan tokotrienol) yang tinggi sehingga berpotensi sebagai sumber antioksidan tinggi. Dengan menambahkannya pada nasi, diharapkan nasi menjadi pangan fungsional dengan antioksidan tinggi sehingga memiliki banyak manfaat bagi kesehatan. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh kombinasi konsentrasi MSM dan cara penambahan MSM pada nasi terhadap aktivitas penghambatan radikal DPPH, ABTS, dan *meat system* (TBARS). Penelitian ini disusun dalam Rancangan Acak Kelompok Lengkap (RAKL) non faktorial dengan tiga kali ulangan dan 8 kombinasi perlakuan yaitu C1P1, C2P1, C3P1, C4P1, C1P2, C2P2, C3P2, dan C4P2. C merupakan perlakuan konsentrasi MSM (C1: 1%, C2: 2%, C3: 3%, C4: 4%) dan P merupakan cara penambahan MSM (P1: sebelum pemasakan dan P2: sesudah pemasakan). Data aktivitas penghambatan radikal metode DPPH, ABTS, dan *meat system* (TBARS) dilakukan analisis sidik ragam untuk mengetahui ada tidaknya pengaruh kombinasi perlakuan yang kemudian diolah lebih lanjut dengan uji DMRT 5%. Hasil penelitian menunjukkan bahwa kombinasi konsentrasi MSM dan cara penambahan MSM pada nasi berpengaruh nyata terhadap aktivitas penghambatan radikal DPPH, ABTS namun tidak berpengaruh nyata terhadap aktivitas penghambatan radikal dengan metode *meat system* (TBARS). Aktivitas penghambatan radikal oleh nasi yang ditambahkan MSM metode DPPH berkisar 3,73%-10,41%, metode ABTS berkisar 4,13%-13,5%, dan metode *meat system* (TBARS) berkisar 21% - 34%.

Kata kunci: Antioksidan, ABTS, DPPH, *meat system* (TBARS), minyak sawit merah, nasi putih