ANTIOXIDANT CAPACITIES OF SELECTED *MUSA ACUMINATA* PEELS

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ABSTRACT

The effect of solvent type, solvent concentration and extraction time on antioxidant capacity of pisang berangan (PB) (unripe and ripe) and pisang mas (PM) (unripe and ripe) peels were determined using 2,2-diphenyl-1-picrylhydrazyl radical scavenging (DPPH•), 2,2'-azino-bis(3-ethylbenzthiazoline-6-sulphonic acid) radical ($ABTS^{\bullet+}$) scavenging ability, β-carotene bleaching (BCB), and total phenolic content (TPC) using Folin-Ciocalteu method. Result from single factor experiment indicated that 70% methanol with 1 hour extraction time contributed to highest DPPH• scavenging activity in PB (unripe and ripe). Meanwhile, 90% ethanolic extract with 2 hours extraction time resulted in highest DPPH• scavenging activity in PM (unripe and ripe). In optimal parameter screening, TPC was significantly higher in PM (unripe) (19.73 ± 0.20 mg GAE/g) followed by PM (ripe) (13.30 ± 0.23 mg GAE/g), PB (unripe) (12.18 ± 0.10 mg GAE/g), and PB (ripe) (7.01 ± 0.29 mg GAE/g). PM (unripe) had the high DPPH• scavenging activity followed by PM (ripe), PB (unripe) and PB (ripe). The $ABTS^{\bullet+}$ inhibition activity was in the descending order of: tocopherol = BHA > ascorbic acid > PM (unripe) > PM (ripe) > PB (unripe) > PB (ripe) accordingly. PM (unripe) showed the highest antioxidant activity compared to BHA, tocopherol and ascorbic acid, second higher in PB (unripe), PM (ripe), and lastly PB (ripe) for BCB test. Besides, results show that TPC was strongly correlated to DPPH, ABTS and BCB ($R^2 > 0.990$) all samples. In conclusion, PM (unripe) was the most potential dietary antioxidants.