

**Antidiabetic and antioxidant capacities of local banana peels extract by using subcritical water extraction technique.**

ABSTRACT

Banana peels has been shown to possess strong antioxidant which may exhibit protective responses against reactive oxygen species through free radicals scavenging and breaking the autoxidative chain reaction and restore the 'redox homeostasis' state. Subcritical water extraction method was used by using water as the solvent and increasing the temperature to between 100 and 374°C and keeping the pressure high enough to maintain the liquid state allowing the dielectric constant ( $\epsilon$ ) of water becomes like that of an organic solvent, like ethanol or methanol. The extract was collected by using temperatures of 100 °C, 150 °C, 180 °C and 200 °C with 30, 60, 90 and 120 minutes for the investigation of antioxidative compounds and antioxidant activity. The TPC ranged widely from 20.93 to 66.39 mg GAE/g for Pisang Tanduk and 43.64 to 151.40 mg GAE/g for Pisang Cavendish peel extract. While TFC of Pisang Tanduk ranged from 1.94 to 17.19 RE/g and for Pisang Cavendish it was as low from 3.80 to as high as 72.45 RE/g. Radical scavenging activities (inhibition of DPPH) of the extracts ranged from 36.96 to 85.60% for Pisang Tanduk and from 52.26 to 93.68%. Inhibition of ABST scavenging activity showed 97.14 to 99.03% inhibition for Pisang Tanduk. For Pisang Cavendish, it showed from 73.02 to 98.86% inhibition. Although both banana peel extracts appeared to have low TPC and TFC, its antioxidant activities were ranked moderate to high. This implies that antioxidative compounds other than phenolics and flavonoids were probably responsible for inhibition of DPPH.

**Keyword:** Antioxidants; Banana peel; Phenolic compounds; Non-conventional extraction; Subcritical water extraction