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**Antioxidant activity and phenolic profile of four Saudi Arabia date palms
(*Phoenix dactylifera* L.) varieties**

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ABSTRACT

Antioxidants as free radical scavengers can combat the oxidative stress that occurs in the body to prevent chronic diseases. Therefore, antioxidant rich foods have a high demand among the healthcare consumers to maintain healthy lifestyle. One of the most potential fruit that are expected to contain high antioxidant compound is *Phoenix dactylifera* that have a lot of varieties. This study was intended to investigate the total phenolic content, antioxidant activity and phenolic profiles of four varieties of *P. dactylifera* (Khudori, Sabaka, Nabtat Ali and Soukari). The flesh of the fruit was extracted using ethanol as the solvent using Soxhlet. Total phenolic content (TPC) was measured by using *Folin-Ciocalteu* calorimetric method and the antioxidant activity was determined by using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) method. Some phenolic acid and flavonoids profiles of the fruit (gallic acid, p-coumaric acid, ferulic acid and quercetin) were analyzed by using High Performance Liquid Chromatography (HPLC). TPC of the fruit was in the range of 5.8 to 3.8 mg gallic acid equivalents (GAE) per 1 g of fruit with Soukari have the highest value. As for the antioxidant activity, Soukari need the lowest concentration (27.41 ± 1.68 mg/ml) to achieve half inhibition concentration (IC₅₀) whereas Khudori need the highest concentration among the four. The HPLC result shows significantly higher amount of gallic acid (15.35 to 8.56 mg/g), and very small amount of ferulic acid (0.19 to 0.006 mg/g) where Soukari have the highest value for all of the compounds. This study demonstrates Soukari variety might possess the highest antioxidant capacities among the four. Further study by using advanced and green extraction method need to be carried out to comprehend and confirm the potential of this fruit to be developed as nutraceutical and functional food.

Keywords: *Phoenix dactylifera*, Antioxidant, Phenolic profile, HPLC.