

**Study of anti-nutritional compounds, antioxidant activity and fatty acid composition of *Moringa (Moringa oleifera Lam.)* foliage**

ABSTRACT

The study was conducted to investigate the effects of cutting intervals on the anti-nutritional factors, antioxidant activity and fatty acid composition of *Moringa (Moringa oleifera Lam.)* foliage. An established *Moringa* plot dividing into 12 equal plots was subjected to 3 different maturity stages of harvesting at 4, 6 and 8 weeks in a completely randomized block design experiment. It was found that the level of total phenol and tannin (mg tannic acid equivalent/g dry weight) at 4 (51.86 and 34.90), 6 (43.89, and 27.96) and 8 (29.00 and 16.66) weeks of maturity decreased significantly. Similarly, with the increase of maturity the level of condensed tannin significantly decreased (0.23, 0.17 and 0.14 mg catechin equivalent/g dry weight, respectively). In the case of antioxidant activity, significantly higher DPPH inhibition activity was found after 4 weeks (60.1 %) compared to 6 and 8 weeks of maturity (56.0 and 53.4 %, respectively). However, the fatty acid composition of *Moringa* foliage was significantly affected with harvesting stage of maturity. It contained the highest level of  $\alpha$ -linolenic acid followed by palmitic acid, linoleic acid, stearic acid and oleic acid, respectively (48.71, 21.65, 13.07, 5.89 and 4.63 % of the total identified fatty acids, respectively). The average level of poly unsaturated fatty acid (PUFA) (61.78 %) was about three times higher than the level of saturated fatty acids (31.24 %). In conclusion, harvesting of *Moringa* foliage at 8 weeks interval would have less anti-nutritional factors with more PUFA and antioxidant activities.

**Keyword:** *Moringa oleifera*; Anti-nutritional factors; Antioxidant activity; Fatty acid composition

