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Effect of agronomic practices on phytochemicals and nutritional composition of *Moringa oleifera* LamK M Murwa^{1,2}, A R Ndhlala¹, H A Abdelgadir¹, J F Finnie² and J Van Staden²¹Agricultural Research Council- Vegetable and Ornamental Plants, South Africa²University of KwaZulu-Natal, South Africa

Moringa oleifera Lam. is the best known of the 13 species of the genus *Moringaceae*. This experiment was conducted to investigate the effect of spacing and fertilizers on nutrient composition and phytochemicals in *Moringa* leaves. The experiment was laid out in RCBD with four replicates. N: P: K (16%) organic fertilizer was applied at five levels 0 (control), 200, 400, 600 and 800 kg/ha at spacings of 1x1 m and 1x1.5 m. *Moringa* dried leaves were analysed for calcium, potassium, magnesium, phosphorus, sodium, iron, boron, sulphur, magnesium, zinc, protein and Vitamin C content. Total phenolics were measured by Folin-C while total flavonoids were quantified using the vanillin-HCl technique. This study showed that nutrient content, total phenolic and flavonoid contents varies with age, season and are also affected by cultivation practices. Total phenolics varied from 19.39 to 196.21 (mg/GAC/g) and the highest values were found at a treatment where 600 kg/ha fertilizer application at a spacing of 1x1.5 m at harvest 9. Total flavonoids ranged from 0.59 to 3.29 (mg CAT/g) with highest values found in treatment combinations where 600 kg/ha fertilizer rate with spacing of 1x1 m at harvest 8. Vitamin C content ranged from 33.2 to 183.6 mg/100g. This study showed that agronomic practices play a major role on growth and quality of *Moringa oleifera* leaves.

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Asteracantha longifolia ameliorated cypermethrin induced disruption in testosterone synthesis by upregulating pituitary-gonadal hormones and steroidogenic enzymes in male Wistar rats

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Synthetic pyrethroids have emerged as a new class of pesticides/insecticides, showing high efficacy in a wide range of insects and pests, low toxicity to mammals and rapid biodegradability. Recently, these molecules have been listed as endocrine-disrupting compounds, posing a threat to humans. The present study was performed to assess the endocrine disrupting potential of cypermethrin (Cyp) and possible protective role of *Asteracantha Longifolia* (AL) extracts. Cyp exposure decreased epididymal sperm count and sperm motility and increased sperm abnormalities. It also increased testicular Lipid Peroxidation (LPO) and glutathione S transferase (GST) Levels And Decreased Glutathione (GSH), Superoxide Dismutase (SOD), Catalase (CAT), Glutathione Peroxidase (GPx) and Glutathione Reductase (GR). Testosterone (T), Follicles Stimulating Hormone (FSH), Luteinizing Hormone (LH), and Steroidogenic enzyme 3 β Hydroxysteroid Dehydrogenase (3 β HSD), 17 β Hydroxysteroid Dehydrogenase (17 β HSD) levels were also decreased. Histological findings also indicated that Cyp causes vacuolation in lumen and disorganization of Leydig and Sertoli cells. AL extracts successfully attenuated these adverse effects of Cyp and recovered the testicular architecture. The study suggested that AL ameliorated Cyp induced testicular possibly by enhancing antioxidant defense in testicular tissue and upregulating pituitary-gonadal hormones..

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