

Phytonutrients and antioxidant activity of extracts of *Leucaena leucocephala* Lam (Wit) and six varieties of *Moringa oleifera* Lam used by the poultry farmers of Burkina Faso.

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1 ABSTRACT

Leucaena leucocephala and *Moringa oleifera* are used in poultry feeds due to their potential nutritional values. The present work aimed to characterize the phytonutrients profile and evaluate the antioxidant potential of various plant specimens. The total phenolic and flavonoid contents of hexanic and methanolic extracts were determined using the Folin-Ciocalteu and aluminium chloride (AlCl₃) colorimetric methods, respectively. The plant samples were analyzed for dry matter, moisture, crude protein, nitrogen, fibre, lipids, energy, ash, minerals, and fatty acid profile using standard procedures. Antioxidant capacity was determined using DPPH, ABTS, and FRAP assays, employing Trolox and quercetin as reference standards. The methanolic extract of *Leucaena leucocephala* exhibited the highest total phenolic content, reaching 27.99 ± 0.24 mgGAE/100mg. However, the hexanic extract of M45-1 presented the best flavonoids contents (9.45 ± 00 QE/100mg). All methanolic extracts showed antioxidant activity in the three assays. The methanolic extract of *Leucaena leucocephala* exhibited a stronger DPPH free radical scavenging capacity than quercetin, with a value of 703.86 ± 0.13 μ mol AAE/g extract. The highest antioxidant activity using the ABTS^{•+} radical inhibition method was recorded for the hexanic extract of M4-1 (8077.22 ± 1.27 μ mol AAE/g) in comparison with Trolox. The methanolic extract of M6-1 (2361.72 ± 00 μ mol AAE/g extract) showed greater Fe³⁺ reducing activity than quercetin. All extracts contained total phenolics and total flavonoids contents. The chemical composition of *Leucaena leucocephala* and *Moringa oleifera* included proteins, nitrogen, ADF, NDF, lipids, energy, essential minerals and polyunsaturated fatty acids. Protein contents in *Leucaena leucocephala* seeds ($37.82 \pm 0.47\%$ dry basis) were high. Due to their phytonutrients composition, *Leucaena leucocephala* and *Moringa oleifera* could be exploited in the poultry feeding.