

Nutritional Characteristics, Phytochemical and Antimicrobial Properties Vaccinium Pavifolium (Ericacea) Leaf Protein Concentrates

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Abstract : Problems associated with protein malnutrition are still prevalent in third-world countries, leading to the constant search for plants that could serve as nutrients and medicinal purposes. Huckleberry is one of the plants that has been proven useful locally in the treatment of numerous ailments and diseases. A fresh sample of the plant (*Vaccinium pavifolium*) was collected from a vegetable garden situated near the Erelu dam of the Emmanuel Alayande College of Education Campus, Oyo. The sample was authenticated at the Forestry Research Institute of Nigeria (FRIN) Ibadan. The leaves of the plant were plucked and processed for leaf protein concentrates before proximate composition, mineral analysis phytochemical and antimicrobial properties were determined using a standard method of analysis. The results of proximate constituents showed; moisture content; $9.89 \pm 0.051\text{g}/100\text{g}$, Ash; $3.23 \pm 0.12\text{g}/100\text{g}$, crude fat; $3.96 \pm 0.11\text{g}/100\text{g}$ and $61.27 \pm 0.56\text{g}/100\text{g}$ of Nitrogen free extractive. The mineral analysis of the sample showed; Mg; $0.081 \pm 0.00\text{mg}/100\text{g}$, Ca; $42.30 \pm 0.05\text{mg}/100\text{g}$, Na; $27.57 \pm 0.09\text{mg}/100\text{g}$, K; $6.81 \pm 0.01\text{mg}/100\text{g}$, P; $8.90 \pm 0.03\text{mg}/100\text{g}$, Fe; $0.51 \pm 0.00\text{mg}/100\text{g}$, Zn; $0.021 \pm 0.00\text{mg}/100\text{g}$, Cd; $0.04 \pm 0.04\text{mg}/100\text{g}$, Pb; $0.002 \pm 0.00\text{mg}/100\text{g}$, Cr; $0.041 \pm 0.00\text{mg}/100\text{g}$ Cadmium and Mercury were not detected in the sample. The result of phytochemical analysis of leaf protein concentrates of the Huckleberry showed the presence of Alkaloid, Saponin, Flavonoid, Tanin, Coumarin, Steroids, Terpenoids, Cardiac glycosides, Glycosides, Quinones, Anthocyanin, phytosterols, and phenols. Ethanolic extracts of the *Vaccinium parvifolium* L. leaf protein concentrates showed that it contains bioactive compounds that are capable of combating the following microorganisms; *Staphylococcus aureus*, *Streptococcus pyogenes*, *Streptococcus faecalis*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae* and *Proteus mirabilis*. The results of the analysis of *Vaccinium parvifolium* L. leaf protein concentrates showed that the sample contains valuable nutrient and mineral constituents, and phytochemical compounds that could make the sample useful for medicinal activities.

Keywords : leaf protein concentrates, *vaccinium parvifolium*, nutritional characteristics, mineral composition, antimicrobial activity

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