

Nutritional Characteristics, Phytochemical and Antimicrobial Potential of Leaf Protein Concentrates from Huckleberry

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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 can 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 Huckleberry 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 of the leaf protein concentrates 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 results of the mineral analysis showed that the sample contains 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; $0.041 \pm 0.00\text{mg}/100\text{g}$ while cadmium was 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, steroid, Terpenoid, cordial glycosides, Glycosides, Quinones, Anthocyanin, phytosterols, and phenols. Ethanolic extracts of the Huckleberry leaf protein concentrates showed that it contains bioactive compounds that are capable of eradicating some tested microorganisms; Staphylococcus aureus, Streptococcus pyogenes, Streptococcus faecalis, Pseudomonas aeruginosa, Klebisidiae pneumonia and Proteus merabilis. The results of the analysis of leaf protein concentrates of Huckleberry showed that the sample contains high nutrient and mineral constituents and phytochemical compounds that could make the sample useful for medicinal activities.

Keywords : huckleberry, mentha piperita, phytochemical, leaf protein concentrates, nutritional characteristics

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