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ARTICLE

Proximal and Mineral Composition of the Leaves of *Hyptis capitata* Jacq. Lamiacea.

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Abstract

Proximal analysis revealed significant values of moisture and ash. Energy nutrient carbohydrate was in appreciable level while crude protein, crude fiber and total lipids were in the level of normal diet requirement. The vitamin C was found to be higher in the leaves of H. capitata. Aminoacid profile showed significant amount of essential and non essential aminoacids. The concentration of antinutrients was negligible as compared to nutrients. The mineral analysis displayed that the macroelement potassium was abundant in the leaves.

Keywords: Nutrients, crude protein, crude fiber, anti-nutrients, vitamins, minerals

Introduction

Plants have various nutritional and medicinal values and they provide adequate supply of nutrients useful for the maintenance of health and prevention of diseases (Mohammed & Sharif, 2011). Herbals are clinically validated pharmaceuticals of plant origin having multicomponent composition. These herbs supply flavours and less amount of calories in human diet. Many wild plants possess high minerals, vitamins, fiber and phytochemical contents that make them nutritionally important (Tukan et al., 1998). The nutritional with medicinal potentials have been attributed to the phytochemicals and other chemical constituents.

The plant Hyptis capitata Jacq slightly aromatic perrrenial herb commonly called button weed belongs to Lamiaceae. The plant has some folkloric advantages such as anti-cough, anti-spasmodic, anti-inflammatory and wound healing properties . Apart from the medicinal values, many plants of Lamiaceae are nutritionally very important also. Reports on the nutritional significance of Hyptis capitata is rather meager which prompted the present investigation. The present study attempts to analyse the proximal and mineral composition of leaf of H.capitata Jacq.

Materials and Methods

The study material Hyptis capitata was collected from natural habitat, thoroughly washed and leaves were separated. Fresh samples and dried leaf powder were used for the analysis of nutrients and minerals respectively.

Proximal composition viz., moisture, total ash and PH , total carbohydrate and total lipid, Vitamins A, C and E was determined by standard procedures (WHO, 2002; Roe 1955 ; Bligh and Dyer, 1951 ; IUPAC, 1897). Crude protein was determined by multiplying the value of nitrogen obtained from Kjeldalh's method by a protein factor of 6.25 (FND 2002). The aminoacid profile was carried out following the method of Moore and Stein (1941). Antinutrients such as phytic acid, oxalate and tannin were estimated by AOAC (1990). Mineral composition of the leaf powder such as Ca, Mg, Fe, Mn, Zn and Cu was analysed by Atomic Absorption Spectroscopy method using Perkin Elmer Pinnacle 900 H Model (Allen et al., 1904). The flame photometer method was used to determine the Potassium content. The concentration of phosphorus and sulphur content done by turbidity method.

Results and Discussion

The results of proximal composition (Table-1) showed significant amount of moisture and total ash. The energy nutrient carbohydrate was present at considerably high level (64.63± 4.39). The crude protein content (18.38%) was in agreement with the reports of Pearson (1976).

The low lipid concentration acknowledging observations of Lintas , 1992. The crude fiber (12%) indicated that it may help to reduce the serum cholesterol level (Rodriguez et al., 2006). Ascorbic acid or vitamin C (Table-2) was found in significant amount and may attribute to scavenge free radicals (Harisaranraj et al., 2009). Aminoacid profile (Fig.1) showed that tyrosine was found to be high followed by cysteine and aspartic acid. Tyrosine is an essential component for the production of several important brain chemicals called neurotransmitters including epinephrine and dopamine. The amount of antinutrients (Table-3) in

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Table 1. Proximal composition of leaf of Hyptis capitata Jacq.

PH	Moisture (%)	Total Ash (%)	Crude protein (%)	Crude Fiber (%)	Total carbohydrates (mg g^{-1})	Total lipids (mg g^{-1})
6	81	15.5	18.38	12	64.63±4.39	0.125±0.073

Table 2. Vitamin Composition of leaf of Hyptis capitata Jacq.

Vitamins (mg g^{-1})		
Ascorbic acid (Vitamin C)	β carotene (Vitamin A)	Tocopherol (Vitamin E)
19.92±1.04	0.158±0.003	0.519±0.006

Table 3. Antinutrients of leaf of Hyptis capitata Jacq.

Antinutrients (mg g^{-1})			
Saponin	Oxalate	Phytic acid	Tannin
0.32	0.23	0.155	0.05

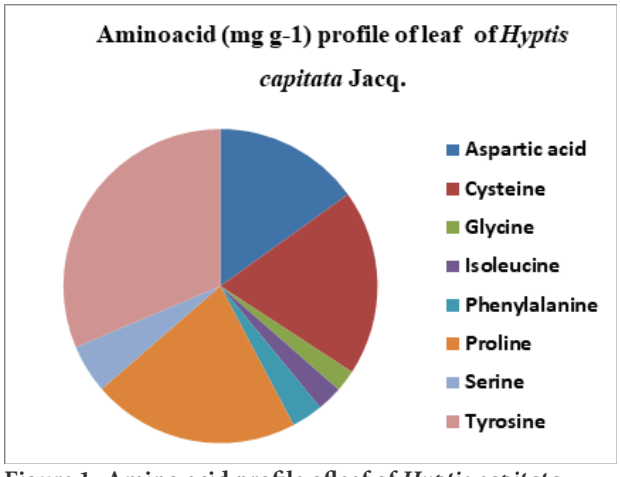

Figure 1- Amino acid profile ofleaf of *Hyptis capitata*.

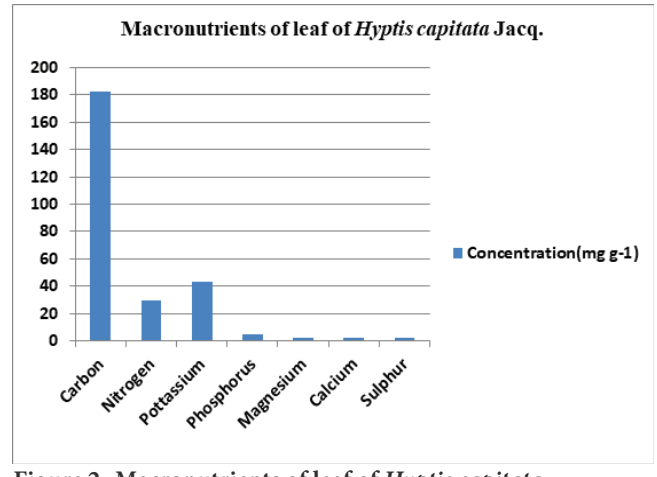

Figure 2- Macronutrients of leaf of *Hyptis capitata*.

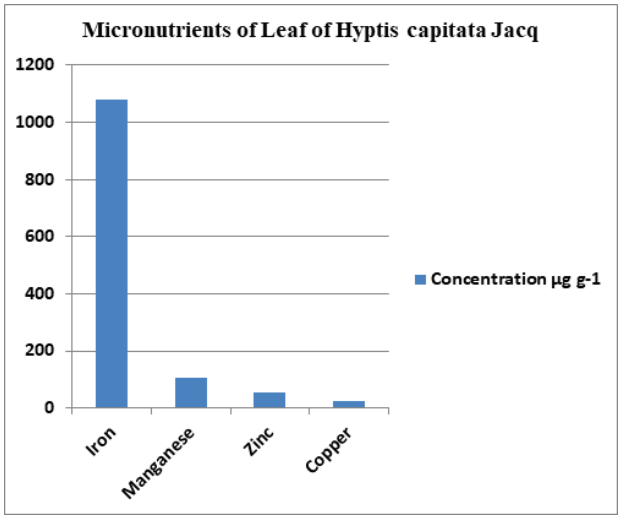

Figure 3- Micronutrients of leaf of *Hyptis capitata*.

the leaf were found to be very low than nutrients.

The mineral composition (Fig.2),macroelements was in descending order C > K > N.> P > Ca >Mg>S and micro-elements were in Fe > Mn> Zn > Cu. Thc high potassium content (43.4 mg g-1) favours in reducing blood pressure. The iron concentration (1080µg g -1) helps in the production of red blood cells. The amount of Zinc (55 µg g -1) obtained was higher than the other medicinally important wound healing plants like Azadirachta indica, Moreinga oleifera and Ocimum sanctum (Rathore & Upadhyay, 2013).It indicating that the leaves of Hyptis capitata posses the power of wound healing and antiulcer activity.

Conclusion

In general, Hyptis capitata Jacq leaves contains an appreciable amount of nutrients, vitamins, lesser amount of antinutrients and moderate amount of mineral supplements attributing to its nutritional potential which may lead to its sustainable utilisation.

References

1. Anonymous. Quality Control methods for medicinal plant material. An

authorized publication of WHO. 1st ed. NewDelhi: AITBS Publishes & Distributors; 2002, 18-21

2. AOAC (1990).Official Method of Analysis 13th edn,Washington DC,Association of Official Analytical Chemists.
3. F.N.D (2002).Food and Nutrition Board,Institute of Medicines,National Academy of sciences.Dietary referenceintake for energy,(Micro-nutrients).online.Available :http//www.nap.odu.
4. Harisaranraj,R.,Suresh,K., and Saravanababu,S (2009).Evaluation of the chemical composition 178.
5. Lintas,C.(1992).Nutritional aspects of fruits and vegetables consumption.Options Mediterraeennes,vol 19:pp-79-87.
6. Pearson,D(1976).Chemical analysis of foods (7th ed) Churchill Livingstone,London,pp: 218-336
7. Rathore,J., Upadhyay Mohit (2013).Investigation on Zinc Concentration in some Medicinal plants.Research Journal of Pharmaceutical sciences. Vol.2(1): pp. 15-17.
8. Rodriguez,A.,Jimmenez,A.,Fernandez-Bolanos,R.,Guillen,R.,Heredia,A (2006).Dietary fibre from vegetable products as source of functional ingredients.Trends in Food Science and Technology .vol.17 : pp 3-15
9. Tukan,SK.,Takkuri,HR.,Al-Eisaw,DM (1998).The use of wild edible plants in Jordanian diet.Int J.Food.Sci.Nutr.vol.45:pp 225-235.