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POTENTIAL OF SOME WILD LEAFY VEGETABLES AS NATURAL SOURCE FOR SUPPLEMENTATION OF MICRONUTRIENTS IN VEGETARIAN DIETS OF SANTHAL PARGANA AREA OF JHARKHAND

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ABSTRACT

Jharkhand is land of forest and hills. Tribal and other people residing in the area are dependent on forest produces besides agriculture. Many potherbs are consumed by the population of this area as nutritional supplement. Most of them are growing as weed. Some of these potherbs are sold in the village markets either fresh or in dried state. Authors have surveyed these village markets with an aim to identify scientifically those potherbs and also to get information about their medicinal value. Present communication reports about the micronutrient of some less known potherbs which are wild in nature in Santhal Pargana area.

Key Words: Potherbs, Food Supplement, Micronutrient, Jharkhand

INTRODUCTION

Leafy vegetables generally a good source of vitamins, mineral and essential micronutrients in human body throughout the world. Scanty information are available in respect to this important aspect, earlier Gopalan *et al.*, (1921-1925) had analyzed some essential micronutrient content in leafy vegetables and also in few wild species of plant in India.

Cereal based staple food (rice and millets) are more popular in Jharkhand. These diets have poor bioavailability of iron and zinc Chiplonkar *et al.*, (1993); Joshi and Agte (1995) leading to wide prevalence of iron – deficiency, anemia and Vitamin A Draper (1996). Recently innovation such as bio-fortification of iron in cereal crops have been given emphasis, but result was not encouraging, with high application of ferrous sulphate only 5 to 7mgkg⁻¹ Fe content was increased in edible part of paddy this technique also are very costly and have a risk of producing iron toxicity on plant and may also pose a problem of non-acceptability due to change of colour, taste and quality in the fortified edible product. Mucosal cell damaging effects of unabsorbed ferrous sulphate in faecal matter have been indicated in healthy volunteers supplemented with highly bio-available iron as 100 mg ferrous sulphate Lund *et al.*, (1999). So, natural micronutrient-rich foods like green leafy vegetables (potherbs) should turn out to be a better strategy. This fact has been also emphasized in the recent WHO guidelines for remedying iron deficiency through existing eating patterns Walker (1998). Considering these aspect a systematic approach have been undertaken to study the micronutrients viz Fe, Cu, Zn and Mn in some less known wild potherbs commonly intake in daily diet by local people in Jharkhand.

MATERIALS AND METHOD

Eleven species of less known wild leafy vegetables were collected from randomly selected villages (Kathikund, Nijhor, Gopikandar, Rangamission and Dumka proper) of Dumka district during (2009 - 2011). Plants were identified scientifically after considering Haines (1921-1925) and Ghosh (1971) recent nomenclatures of these taxa were confirmed on the basis of Singh *et al.*, (2001). The plant materials collected were processed for cleaning, washing and drying as per prescribed scientific method. The materials were oven dried at 50°C for 4 days and kept in airtight containers. 0.5 gm processed plant

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samples digested with 10 ml tri-acid (HNO_3 ; HClO_4 ; H_2SO_4 in 10:4:1 ratio) and final volume was made 50 ml. analysis of cationic micronutrient was done in Atomic absorption spectrophotometer (ECIL – 4141) using specific cathode lamps at Birsa Agriculture University, Kanke, Ranchi.

RESULTS AND DISCUSSION

The results of micronutrient analysis of fifteen non conventional leafy vegetables are presented in Table -1. It was noted that these vegetables are good source of micronutrients. Iron content varied from 2.24 to 19.9 mgkg^{-1} among all tested cultivars of plant species. In respect to Zinc content *Portulaca tuberosa* Roxb.(1.07 mgkg^{-1}), *Aerva lanata* (L.) Juss. (1.02 mgkg^{-1}), *Begonia picta* Sm(0.82 mgkg^{-1}). and *Croton roxburghii* Balak(0.80 mgkg^{-1}) showed higher values indicating them as a good source of this vital trace element (Nageshwar Rao & Narshing Rao⁸). Strangely *Ampelocissus tomentosa* Planch (0.20 mgkg^{-1}) contain least Zinc content. Copper content was found highest in *Begonia picta* Sm(2.5 mgkg^{-1}) while lowest content of Cu was observed in *Leucas cephalotes*(0.14 mgkg^{-1}).

Table 1: Micronutrient content (mgkg^{-1}) of some wild leafy vegetables

S. N.	Botanical Name [Vernacular Name]	Iron Fe	Zinc Zn	Copper Cu	Manganese Mn
01	<i>Ampelocissus tomentosa</i> Planch.(Vitaceae)/ [Mat-matia sag]	2.24	0.20	0.60	0.72
02	<i>Melochia corchorifolia</i> L. (Sterculiaceae)/ [Dela sag]	4.16	0.30	0.60	4.32
03	<i>Limnophila rugosa</i> (Roth)Merr. (Scrophulariaceae)/ [Kado sag]	8.18	0.29	0.80	17.00
04	<i>Olex scandens</i> Roxb.(Olacaceae) / [Bhadoria sag.]	9.50	0.25	0.40	2.45
05	<i>Catharanthus pusillus</i> (Murr.)Don (Apocynaceae)/ [Marchi sag]	9.82	0.79	0.27	3.09
06	<i>Leucas cephalotes</i> (Koenig ex Roth)Spreng.(Lamiaceae) / [Dhruw sag]	19.9	0.38	0.14	2.71
07	<i>Bryonopsis lacinosa</i> (L.) Naud.(Cucurbitaceae) / [Toktoyan sag]	5.30	0.45	0.80	2.40
08	<i>Crotalaria medcagenea</i> Lamk (Fabaceae) / [Tonang mung sag]	6.20	0.46	1.80	3.47
09	<i>Celosia argentia</i> L.(Amaranthaceae) / [siliari sag]	6.04	0.80	0.17	2.54
10	<i>Begonia picta</i> Sm.(Begoniaceae) / [Pakhna sag]	10.90	0.82	2.50	9.50
11	<i>Croton roxburghii</i> Balak.(Euphorbiaceae)/ [Kuti sag]	9.57	0.81	0.32	4.88
12	<i>Aerva lanata</i> (L.) Juss. (Amaranthaceae) / [Ledra sag]	3.70	1.02	0.90	6.94
13	<i>Portulaca tuberosa</i> Roxb. (Portulacaceae)/[Dail ara]	9.17	1.07	0.30	0.29
14	<i>Rumex dentatus</i> L. (Polygonaceae) / [Tissa palak arxa]	9.82	0.79	0.27	3.09
15	<i>Medicago polymorpha</i> L. (Fabaceae) / [Bindo sag]	6.89	0.56	0.16	0.54

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Manganese content in all tested 15 plant species was varied from 0.29 (*Portulaca tuberosa* Roxb.) to 17.00(*Limnophila rugosa* (Roth)Merr.) mgkg⁻¹, wide variation of Mn accumulation in plant species showed the genetic potential of wild tested plant species and need detail survey and study on this important aspect.

The present result indicates the potentiality of these leafy vegetables as source of unconventional foods. Being wild, they also are easily accessible and cheaper vegetable sources.

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