ASSESSMENT OF MINERAL SOURCES AND NUTRITIONAL STATUS OF THE *IPHIGENIA STELLATA* BLATT. SEEDS, CORMS AND CAPSULES WALLS

ABSTRACT

Iphigenia stellata Blatt. or "Gulabi Bhuichakra" belonging to the family Colchicaceae. Seeds, corms, and capsules were collected in the month of 18thAugust 2021 from Panchgani, District Satara. In the present research findings we have reported about the assessment of mineral sources of the *Iphigenia stellata* Blatt. seeds, corms, and capsules walls. We have investigated 62.52 % moisture in the corms. Highest Carbohydrates- 32.20%, mineral content 13.11% and energy166.47 Kcal/100 g was found in the capsules walls. All the plant parts studied for their nutrient contents and mineral analysis showed valuable amount of the macroelements ,microelements and nutrients while an excellent source of the protein - 16.24% , fat- 1.44% , fiber - 64% and Nitrogen - 2.60 % was recognized in the *Iphigenia stellata* seeds

KEY WORDS: *Iphigenia stellata* Blatt., Seeds, Corms, Capsules walls, Minerals,Nutrients

Introduction

The main intention of the present investigation was to understand mineral sources and nutritional status of the *Iphigenia stellata* Blatt., plant parts such as seeds corms and capsule walls. *Iphigenia stellata* Blatt. is a perennial herb belonging to family Colchicaceae. . Quantitative and qualitative analysis of the moisture, total minerals. crude protein, crude fat, crude fiber , carbohydrates, energy, nitrogen, phosphorous ,potassium, calcium, magnesium, sulphur, iron, manganese, zinc, copper, boron and molybdenum from the seeds, corms and capsule walls is summarized in the research findings. *I. stellata* is commonly known as ranlasun, gulabi bhuichakra, and star grass lily (Ingalhalikar, 2001; MPCC, 2001; Flicker, 2011). Plants consists of corm,stem, leaves ,capsule ,root, seeds and reproduce mainly by tubers or corms . There are six species of *Iphigenia* in India viz *I. indica*, *I. pallida*, *I. stellata*, *I. mysorensis*, *I. magnifica* and *I. sahyadrica* (Gray, 1843; Baker, 1879; Blatter and McGann, 1928; Arekal and Swamy, 1972; Ansari and Rao, 1978).

Materials and Methods

Grown-up plants of *I. stellata* along with the corms were collected in 18thAugust, 2023 from the table land of the Panchgani hill station and brought to the research laboratory of the R.B.Madkholkar Mahavidyalaya,Chandgad. Different parts of the plant were separated and air dried to avoid fungal infection. These plant materials were washed in distilled water and sterilized in 0.1 % $HgCl_2$ for the 20 minutes and they were thoroughly washed with distilled water. Seeds were cleaned and stored in plastic bottles whereas corms and capsule walls were stored in thick plastic bags at room temperature in a cool and dry place. Quantitative and qualitative analysis of the moisture, total minerals. crude protein, crude fat, crude fiber, carbohydrates, energy, nitrogen, phosphorous ,potassium, calcium, magnesium, sulphur, iron,

manganese, zinc, copper, boron and molybdenum was carry out at the Nikhil analytical and research laboratory, Sangali from Maharashtra.

Results and Discussions

Seeds, corms and capsule walls of *I. stellata* exhibited quite a high level of mineral content and nutrient potential. In the present research work, we have recorded a total of 12 minerals content and 7 nutrient constituents from the aerial parts stem and capsule wall along with underground part corm of the *I. stellata* plant species (Table No.1, 2 and 3). These observations tells that maximum amount of the moisture that is 62.52 % moisture was recorded in corms. Highest Carbohydrates-32.20%, mineral content 13.11% and energy166.47 Kcal/100 g was found in the capsules walls. All the plant parts studied for their nutrient contents and mineral analysis showed valuable amount of the macroelements, microelements and nutrients whereas an excellent source of the protein - 16.24% , fat- 1.44% , fibre - 64% and Nitrogen - 2.60 % was recognized in the *Iphigenia stellata* seeds. This research work may provide basic information for the herbal formulations in ayurvedic and allopathic medicine preparations.

Bhogaonkar and Devarkar (2011) performed different tests to detect the presence or absence of phytochemicals in *I. magnifica* and recorded phenolics viz. catechol, hydroquinone, napthol and pyrogallol. They also recorded amino acids, alkaloids, steroids and minerals in *I. magnifica* which may have scope in chemical and pharmaceutical industries and in medicine. Carbohydrates and nutrients are stored in the corms of *Iphigenia indica* which are known as Phalasia or Dholi mooli in tribals, rurals from Aravalli hills of Rajasthan who use the corms as food (Swarnkar and Katewa, 2008). Genus *Iphigenia* has acquired a precious global status due to presence lots of the diverse phytochemicals. According to Noma and Noguchi (1976) qualitative analysis of the *Iphigenia stellata* is considered as a plant containing valuable chemical constituents like nicotamine, protein and may be utilized in the medicinal drugs preparations. According to Boger *et.al.(*2006) *Iphigenia stellata* is well thought-out as a aromatic and medicinal plant which is used in the Pharmaceutical Industries .

There is no any documentation about quantitative analysis of the mineral sources and nutritional status of the *Iphigenia stellata* Blatt. This piece of the work is our first report concern with the mineral evaluation and nutritional stuff quantity in the *Iphigenia stellata* Blatt. and the content of these bioactive molecules is significant in the *Iphigenia stellata* Blatt. seeds, corms and capsules walls.

Collection of the plant specimens *Iphigenia stellata* blatt. from the panchgani table land

Map of the Panchgani tableland

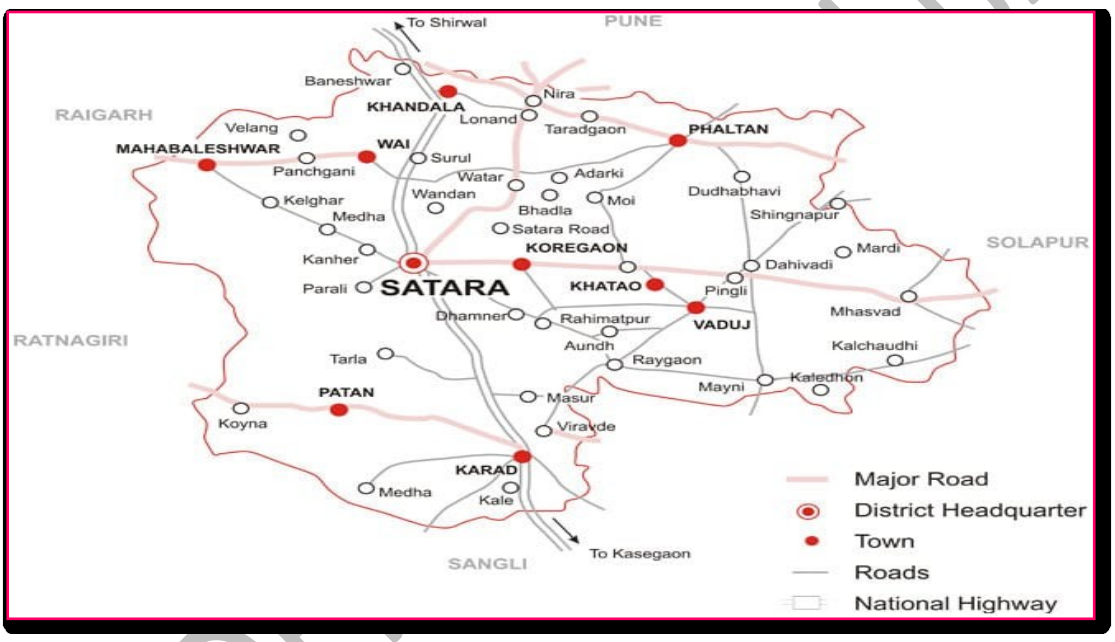

Table 1- Assessement of mineral sources and nutritional status from *Iphigenia stellata* Blatt. seeds

Sr.	Parameter	Unit	Value
1.	Moisture	%	11.69
2.	Total Minerals	%	04.02

3.	Crude Protein	%	16.24
4.	Crude Fat	%	01.44
5.	Crude Fiber	%	64.00
6.	Carbohydrate	%	02.61
7.	Energy	kcal/100g	88.36
8.	Nitrogen	%	02.60
9.	Phosphorous	mg/100g	258.98
10.	Potassium	mg/100g	568.87
11.	Calcium	mg/100g	67.05
12.	Magnesium	mg/100g	118.77
13.	Sulphur	mg/100g	73.95
14.	Iron	ppm	658.65
15.	Manganese	ppm	21.45
16.	Zinc	ppm	23.66
17.	Copper	ppm	08.44
18.	Boron	ppm	04.78
19.	Molybdenum	ppm	00.19

Photograph -1- *Iphigenia stellata* Blatt. seeds collection from the Panchgani table land

Table 2- Assessment of mineral sources and nutritional status from *Iphigenia stellata* Blatt. corms

Sr.	Parameter	Unit	Value
1.	Moisture	%	61.52

2.	Total Minerals	%	03.18
3.	Crude Protein	%	05.39
4.	Crude Fat	%	01.28
5.	Crude Fiber	%	01.86
6.	Carbohydrate	%	26.77
7.	Energy	kcal/100g	140.16
8.	Nitrogen	%	00.86
9.	Phosphorous	mg/100g	20.21
10.	Potassium	mg/100g	253.62
11.	Calcium	mg/100g	70.55
12.	Magnesium	mg/100g	26.94
13.	Sulphur	mg/100g	86.76
14.	Iron	ppm	788.71
15.	Manganese	ppm	25.58
16.	Zinc	ppm	04.33
17.	Copper	ppm	02.32
18.	Boron	ppm	03.78
19.	Molybdenum	ppm	00.03

Photograph -2- *Iphigenia stellata* Blatt. corms collection from the Panchgani table land

Table 3 - Assessment of mineral sources and nutritional status from *Iphigenia stellata* Blatt. Capsule Wall

Sr.	Parameter	Unit	Value

1.	Moisture	%	13.68
2.	Total Minerals	%	13.11
3.	Crude Protein	%	06.05
4.	Crude Fat	%	00.83
5.	Crude Fiber	%	34.13
6.	Carbohydrate	%	32.20
7.	Energy	kcal/100g	160.47
8.	Nitrogen	%	00.97
9.	Phosphorous	mg/100g	262.39
10.	Potassium	mg/100g	1740.86
11.	Calcium	mg/100g	239.10
12.	Magnesium	mg/100g	136.41
13.	Sulphur	mg/100g	502.84
14.	Iron	ppm	4890.34
15.	Manganese	ppm	83.02
16.	Zinc	ppm	27.12
17.	Copper	ppm	20.72
18.	Boron	ppm	12.58
19.	Molybdenum	ppm	00.20

Photograph -3-- *Iphigenia stellata* Blatt. capsule walls collection from the Panchgani table land

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