Annals of Plant Sciences 8.2 (2019) pp.3495-3498

ANNALS OF PLANT SCIENCES
ISSN: 2287-688X
OPEN ACCESS
www.annalsofplantsciences.com

Research Article

Studies on underutilized weeds of family Amaranthaceae used as edibles by the Munda tribe of Jharkhand, India.

Geetanjali Singh* and Jyoti Kumar**

*Department of Botany, Ranchi College, Ranchi, Jharkhand- 834008, India.

**University Department of Botany, Ranchi University, Ranchi, Jharkhand- 834008, India.

Abstract: Amaranthaceae, a common family of flowering plants distributed worldwide, also shows its presence in Jharkhand. Jharkhand have some of the species which are wild growing and are considered as weeds. The people of Munda tribe have a rich traditional knowledge of utilizing these weeds as edibles and for medicines. This paper deals with the study and documentation traditional knowledge of Mundas, which resulted in documentation of seven wild growing underutilized Amaranthaceae species. This type of documentation work is very important in the present century where the natural resources and their related knowledge are depleting due to unawareness about their importance and utilities.

Keywords: Amaranthaceae, edible, food scarcity, medicines, tribe, underutilized.

Introduction

Amaranthaceae, a family of flowering plants includes about 165 genera and 2040 species, mostly distributed in the tropical and temperate regions of the world [1]. In India the family is represented by about 18 genera and 50 species. Some members of this family are used as edibles, some as medicinal and some are grown in gardens as ornamental for their multicoloured foliage and beautiful inflorescence.

The main objectives of this work is to study those plants of family Amaranthaceae which grows wild along the roadside, in barren lands, in barren fields, in forests etc. and are used as edibles by the rural Munda tribal people of Jharkhand; but the urban people are unaware of their utility and consider them as weeds. These underutilized plants serve as a major source of food, nutrition and medicine in the local rural population, but due to unawareness about their utility in the urban areas, most people consider them as weed [2, 3]. Nature has provided us enough to fulfil our daily needs of food, nutrition and medicine but unawareness had led to extinction of these plant species from urban lands. As if till now they are only growing as wild and no methods of cultivation have been developed till yet.

Materials and Methods

The present article is based on the field work done in the tribal rich; Munda dominated Ranchi and Khunti Districts [4]. About 7 plant species of family Amaranthaceae have been studied, following the standard methodologies for collection, identification, documentation and ethnobotanical field works [5, 6, 7]. The plants were collected in flowering stages and were identified using local Floras and literatures [8, 9]. The study was especially designed to explore the precious wealth of information about the uses of the plants in local practice for food and medicines. Detailed ethnobotanical information was recorded along with the collection of voucher specimens with the help of local knowledgeable Munda informants.

Results

The study explored, 7 species of plants belonging to family Amaranthaceae which are frequently collected and used as edibles by the local Munda tribe (Fig. 1 to 7). These edible Amanthaceae weeds are also used by the Mundas as traditional medicines for curing various diseases. The details of these plant species are given as follows:

Aerva lanata, (L.) Juss. Ex Schult.
Taxonomic Description:
Hindi Name: Chaya
Mundari Name: Lupu Ara
Habit: Herb
Habitat: Barren lands near village
Chromosome Number: 2n = 16
Phenology: Flowering – Throughout the year
Fruiting - Throughout the year
Status of occurrence: Not very common
Edible parts: Tender green leaves and shoots
Ethnomedicinal uses: Tender leaves ground to paste, with soaked parboiled-rice and cooked like *rotis*, only from one side and given in dysentery of small children to both child and feeding mother. Cooked leaves given in peripheral oedema.

***Corresponding Author:**
Dr. Geetanjali Singh,
Assistant Professor, Department of Botany,
Ranchi College, Ranchi, Jharkhand, India.
E-mail: gsingh_8apr@yahoo.co.in

Underutilized weeds of family Amaranthaceae

Fig.-1

Fig.-2

Fig.-3

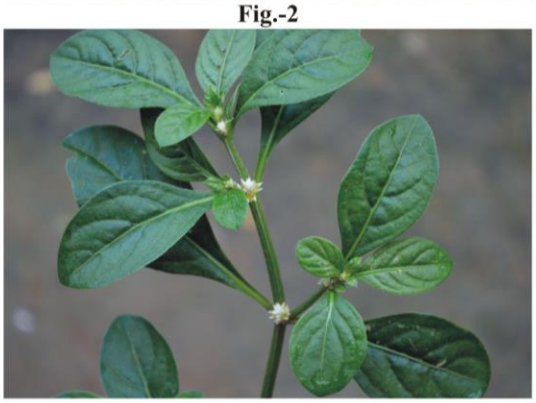

Fig.-4

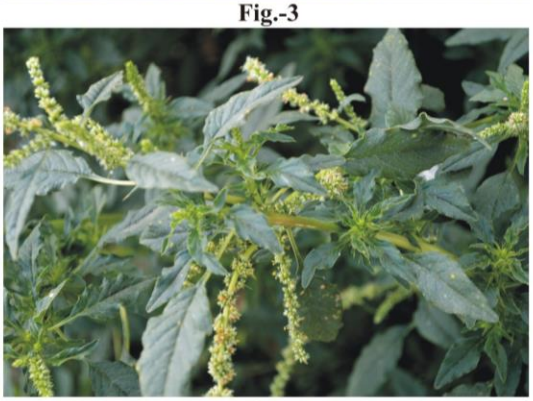

Fig.-5

Fig.-6

Fig.-7

Fig.1- ***Aerva lanata***, (L.) Juss. Ex Schult., **Fig.2-** ***Alternanthera paronychioides***, A. St.-Hil., **Fig.3-** ***Alternanthera philoxeroides***, (Mart.) Griseb., **Fig.4-** ***Alternanthera sessilis***, (L.) R. Br. **Fig.5-** ***Amaranthus spinosus***, L., **Fig.6-** ***Amaranthus virdis***, L., **Fig.7-** ***Celosia argentea***, L.

Alternanthera paronychioides, A. St. – Hil.
Taxonomic Description:
Hindi Name: Chota Gundri
Mundari Name: Garundi Ara
Habit: Herb
Habitat: Near paddy fields
Phenology:
Flowering – Throughout the year
Fruiting - Throughout the year
Status of occurrence: Common
Edible parts: Tender green leaves and shoots
Ethnomedicinal uses: Cooked tender green leaves and shoots are consumed to relieve from constipation and anaemia.

Alternanthera philoxeroides, (Mart.) Griseb.
Taxonomic Description
Hindi Name: Nadi Saag
Mundari Name: Gara Ara
Habit: Herb
Habitat: Near wet places and marshy areas
Chromosome Number: 2n = 66
Phenology:
Flowering – August to September
Fruiting - August to September
Status of occurrence: Common
Edible parts: Tender green leaves and shoots
Ethnomedicinal uses: Cooked tender green leaves and shoots are consumed to relieve from constipation and anaemia.

Alternanthera sessilis, (L.) R. Br.
Taxonomic Description
Hindi Name: Gundri Saag
Mundari Name: Garundi Ara
Habit: Herb
Habitat: Waste land, road side and barren fields
Chromosome Number: 2n = 34
Phenology:
Flowering – Throughout the year
Fruiting - Throughout the year
Status of occurrence: Common
Edible parts: Tender green leaves and shoots
Ethnomedicinal uses: Cooked tender green leaves and shoots are consumed to relieve from constipation and anaemia.

Amaranthus spinosus, L.
Taxonomic Description
Hindi Name: Kanta Bhaji
Mundari Name: Leper Janum Ara
Habit: Herb
Habitat: Waste land, road side and barren fields
Chromosome Number: 2n = 34
Phenology:
Flowering – Throughout the year
Fruiting - Throughout the year
Status of occurrence: Common
Edible parts: Tender green leaves and shoots
Ethnomedicinal uses: Cooked tender green leaves and shoots are consumed to relieve from constipation and anaemia.
Paste of roots applied externally to affected area during wasp-sting.

Amaranthus virdis, L.
Taxonomic Description
Hindi Name: Bhaji Saag
Mundari Name: Leper Ara
Habit: Herb
Habitat: Waste land, road side and barren fields
Chromosome Number: 2n = 34
Phenology:
Flowering – Throughout the year
Fruiting - Throughout the year
Status of occurrence: Common
Edible parts: Tender green leaves and shoots
Ethnomedicinal uses: Cooked tender green leaves and shoots are consumed to relieve from constipation and anaemia.

Celosia argentea, L.
Taxonomic Description
Hindi Name: Safed Murgha, Sarwari
Mundari Name: Sirgiti Ara
Habit: Herb
Habitat: Barren fields
Chromosome Number: 2n = 72
Phenology:
Flowering – October to January
Fruiting – October to February
Status of occurrence: Common
Edible parts: Tender green leaves and shoots
Ethnomedicinal uses: Cooked tender green leaves and shoots are consumed to relieve from constipation and anaemia.

Traditional methods of cooking

- In traditional method of cooking, the fresh leaves are washed and wrapped with leaves of *Shorea robusta* in several layers, tied tightly and roasted in low heat. The cooked leaves are then mashed; and crushed garlic, salt and few drops of mustard oil is added to it and mashed again. A piece of hot charcoal is placed over it and few drops of mustard oil are poured over the charcoal; immediately cover them with a leaf of *Shorea robusta*, so that the aroma remains within it. The charcoal is removed after few minutes and the cooked leaves are again mashed and are ready to eat.
- Finely chopped, steam cooked in little mustard oil by adding chopped onion, turmeric, crushed ginger and garlic; green chillies and salt to taste.
- Sun-dried powdered leaves are cooked with starchy water obtained after cooking the rice which is called '*maar*', to form curry.

Discussion

As a result of study seven species of plants of family Amaranthceae were reported as wild edibles from this area. Of them three species were from the genera *Alternanthera*, two species from *Amaranthus*, and single species from the genera *Aerva* and *Celosia*. According to the traditional classification system (Bentham and Hooker's classification) of flowering plants and recent classification (APG IV classification) as well; all these seven species are placed in the family Amaranthaceae [10]. These seven species are underutilized in the urban areas but are in regular use as edibles in most of the villages of Jharkhand. Another important point of concern is that, these wild plant species are being removed and cleared from the land, in the process of infrastructure developments, unplanned developmental activities and urbanization.

Earlier, in the year 2014, Rahman and Gulshana studied the taxonomy and medicinal uses of 14 plants of family Amaranthceae of Rajshahi, Bangladesh; which included both the wild as well as cultivated species [11]. The present study, records two more wild growing species i.e. *Alternanthera paronychioides*, A. St. - Hil. and *Celosia argentea*, L from Jharkhand. In 2012, Jain and Tiwari studied the nutritional contents of 10 plants; of them two were from the family Amaranthaceae. According to their research work the species were found to be rich in their nutritional content. Therefore, most of these wild edible species are rich in their nutritive values.

Conclusion

During this ethnobotanical study among the Munda tribe, it was observed that these Amaranthaceae weeds were easily found growing in almost all localities. Due to their weedy nature they sometimes show vigorous growth and occupy a large area during their favourable growth seasons. They generally serve dual purpose, used as edibles in the form of potherbs, but at times they are also used for to cure various ailments by the tribal people. But the knowledge to use them as food and medicines is mostly confined to the rural areas. The people living in urban areas consider them as weeds and of inferior nature. In the era of food scarcity, growing demand on few cultivated crop plants and rising prices of food commodities, it is now essential to popularise these nutritious, underutilized plant species among the masses.

Acknowledgement

The authors would like to thank the people of Munda tribe of Khunti district for sharing their valuable traditional knowledge, especially to Shri Lago Munda of village Ghagra; Shri Buran Singh Munda of village Sosokuti; Shri Sugna Munda and Shri Panda Munda of village Piska-toli; Shri Lodro Munda and Shri Jetha Munda of village Saparum; Shri Bandhna Pahan of village Silda; Shri Arjun Munda of village Jiki; Shri Sukhram Munda, Shri Tulsi Munda, Shri Laka Munda, Shri Gonda Munda, Pelong Devi, Babi Munda and Mungli Munda of village Mahil as key informants for sharing their valuable traditional knowledge with us.

References

1. Christenhusz MJM and JW Byng. "The number of known plants species in the world and its annual increase." Phytotaxa. Magnolia Press. 261.3 (2016): 201–217. DOI: 10.11646/phytotaxa.261.3.
2. Singh G and J Kumar. "Traditional knowledge on some less known wild edible plants used among Munda tribe of Jharkhand." The Ecoscan 6.3&4 (2012): 153-155.
3. Singh G and J Kumar. "Studies on indigenous traditional knowledge of some aquatic and marshy wild edible plants used by the Munda tribe of district Khunti, Jharkhand, India." International Journal of Bioassays 3.2 (2013): 1738- 1743.
4. Roy SC. "The Mundas and Their Country". Asia Publishing House, Bombay (1970). SBN 210.33988.8
5. Jain SK and RR Rao. "A Handbook of Field and Herbarium Methods." Today and Tommorrow's Publication, New Delhi (1978).
6. Rao RR and PK Hajra. "Methods of Research in Ethnobotany: A Manual of Ethnobotany (2nd Ed., Editor S.K. Jain)". Scientific Publishers, Jodhpur, India (1995): 28-34.
7. Mukherjee PK. "Techniques for Collection and Preservation of Angiosperms." Department of Botany, Calcutta University, Calcutta (2001).
8. Haines HH. "The Botany of Bihar and Orissa." Published under the Authority of the Government of Bihar and Orissa. Bishen Singh Mahendra Pal Singh, Dehradun, India (1925): Part I-VI.
9. Saxena HO and M Brahmam. "The Flora of Orissa." Regional Research Laboratory, Bhubaneshwar and Orissa, Forest Development Corporation Ltd., Bhubaneshwar, (1994-1996). https://www.tropicos.org
10. Rahman AHMM and MIA Gulshana. "Taxonomy and medicinal uses on Amaranthaceae family of Rajshahi, Bangladesh." Applied Ecology and Environmental Sciences 2.2 (2014): 54-59. DOI: 10.12691/aees-2-2-3.
11. Jain A and P Tiwari. "Nutritional value of some traditional edible plants used by tribal communities during emergency with reference to Central India." Indian Journal of Traditional Knowledge 11.1 (2012): 51-57.

Cite this article as:

Geetanjali Singh and Jyoti Kumar. Studies on underutilized weeds of family Amaranthaceae used as edibles by the Munda tribe of Jharkhand, India. *Annals of Plant Sciences 8.2 (2019) pp. 3495-3498.*

http://dx.doi.org/10.21746/aps.2019.8.2.1

Source of support: Nil; **Conflict of interest:** Nil.