

## Ethnobotany of wild edible plants traditionally used by the local people in the Ramnagar region from Nainital District, Uttarakhand, India

Neetu Bohra\*<sup>1</sup>, Lalit M. Tewari<sup>2</sup> And Ashish Tewari<sup>3</sup>

<sup>1-3</sup> D.S.B. Campus, Kumaun University, Nainital

Email: [neetubohra18@gmail.com](mailto:neetubohra18@gmail.com)

### ABSTRACT

The present investigation deals with the ethnobotanical study conducted during the year 2014-2016 to collect, identify and record the wild edible plants (WEPs) used by the local as well as tribal people inhabiting in rural areas in the Uttarakhand state of ramnagar region of district Nainital, India. A total of 59 plant species belonging to 36 families are reported in this paper based on an ethnobotanical field study. The four major life forms were herbs, shrubs, climbers and trees. Trees (56%) made the highest proportion in this communication of the edible plant species followed by shrubs (25%), herbs (13%) and climbers (6%). Fruit, seed and leaves are found as most preferred edible plant parts. The plant species are arranged in alphabetical order by their botanical name with family, Habit, Altitudinal range (m), Flowering and Fruiting period, Local name, part/s used and ethnobotanical use.

**Keywords:** Wild edible plants, Ethnobotany, rural areas, Ramnagar, India.

### INTRODUCTION

WEPs play an important role in ensuring food security and improve the nutrition in the diets of many people in developing countries (Lulekal et al., 2011; Ghorbani et al., 2012). They are potential sources of species for domestication and provide valuable genetic traits for developing new crops through breeding and selection

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(Ford-Lloyd et al., 2011).

The traditional knowledge on the use as plants is well documented, however, there is a lacuna in accurate documentation of the folk knowledge on WEPs. It is of utmost importance to document the folk knowledge on WEPs before this knowledge disappears. An inadequate

understanding concerning taxonomy, biology and local knowledge of these plants has contributed to suboptimal utilization of these valuable resources. It is essential therefore to identify and evaluate these plants which can

broaden our choice of food and enrich the livelihoods of rural poor. The tradition of using wild palatable plants is still alive in the rural populations of Lesser Himalayas, but is vanishing. Consequently, the recording, preserving, and infusing of this traditional knowledge to upcoming generations is pressing and vital.

Still many more wild species are believed to be edible and undocumented yet. More recently, some ethnobotanical studies have undertaken in some parts of the country. However, the majority of these studies have dealt with medicinal species and little emphasis has been paid to WEPs. This study has therefore sought to document indigenous knowledge related to uses of wild edible plant species and to assess the existing threats to WEPs in the study areas. Current over harvesting of mature fruit from parent-tree influenced the regeneration of this species. If this unsustainable harvesting by local people continues, the capacity of the species to maintain its wild population is significantly reduced. Therefore, management and conservation strategies that incorporate this factor is required. Conservation and management of WEPs and fruits will help to enhance and maintain the regional biodiversity with minimal adverse impact on the biodiversity.

Although many ethnobotanical surveys have been conducted by different workers (Abbasi et al., 2012;

Hazarat *et al.*, 2011; Abbasi *et al.*, 2010; 2010; Abbasi *et al.*, 2009; & Hussain *et al.*, 2008) in different areas of Central Himalayas but to our knowledge no systematic investigation on ethno-botany of WEPs of Nainital district of Uttarakhand of central Himalayas, has been made. In this context, the present study will serve as a useful reference with particular emphasis on traditional uses of wild edible plants as there is dramatic loss of traditional knowledge regarding WEPs. The rapidity with which environmental damage, loss of floristic and cultural diversity occurs today, a necessity is felt for the recording and documentation of traditional knowledge about the uses of edible plants which is widely disappearing. Therefore, there is an urgent necessity to document traditional knowledge.

### MATERIALS AND METHODS

The method employed in this study were designed with the purpose of providing baseline information on the use of plant species in local system, through literature survey and field visits to various areas from 2014-2016 in the Ramnagar region of Nainital district, Uttarakhand. The selected informants in the sample site were interviewed using semi-structured interview focusing on the WEPs. Full notes on facts and information about the respondents, history of wild food collectors, history of WEPs, and other essential information were recorded on site. A brief group discussion was also made with the informants. During the discussion the informants were free to state about WEPs and their knowledge without being interfered. Voucher specimen of each WEPs species was collected. Live specimens and photographs were shown to local villagers for local identification. The collected plants were identified with the help of specialist and available literature (Osmaston, 1927; Hooker, 1875 – 2006). The plant specimens were deposited in the Department of Botany, D.S.B. Campus, Kumaun University Nainital.

### RESULTS AND DISCUSSION

The present ethnobotanical research study has led to the documentation of 59 plant species from 35 families used as WEPs by the rural communities of Ramnagar region of Nainital district. Their habit wise analysis indicates the trees (56%) made the highest proportion of the edible plant species followed by shrubs (25%), herbs (13%) and climbers (6%) in descending order (Figure-1). The plant parts used were tuber, leaves, flowers, fruit, stem, bark, root, shoot and whole plant for food supplement. Analysis indicates fruits of 37 (44%), seeds of 14 (17%) and leaves of 13 (15%) plant species as most preferred edible plant parts (Figure-2). Forest is a common habitat for collection of these plants. Wild food plants species are abundant and diverse in this region. They provide food and nutrients to local people and could also be a source of cash income. However, both WEPs and their associated indigenous knowledge are

facing various threats. Thus, conservation and sustainable utilization of these plants in this area are of the utmost importance. Documentation of these species may provide basic information for conservation, possibly further.

Figure-1: Habit of the Plants surveyed

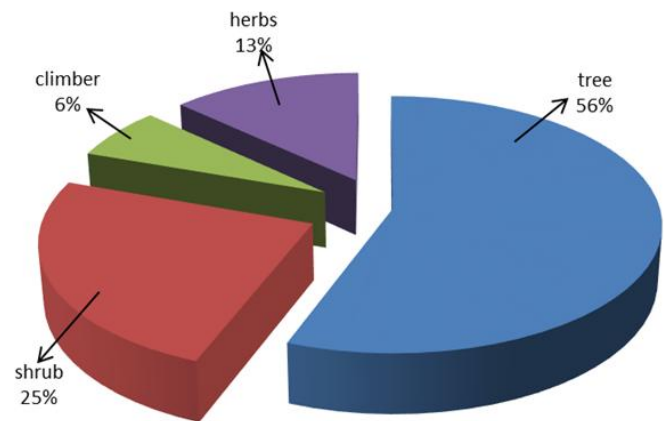
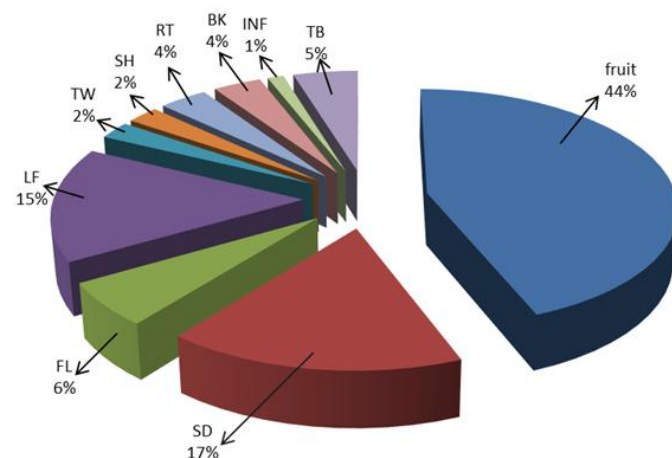


Figure-2. Edible plant parts of surveyed plants.



The recorded plants belong to 59 plant species from 36 families. Their habit wise analysis indicates the dominance of trees over shrubs, herbs and climbers. During the present ethnobotanical field study it was observed that the local people of the study area fulfil the deficiency in food needs by supplementing with wild edible plants in their daily diet. Thus, the WEPs are used as common household foods and make a substantial contribution to food security of the people of the study area. Therefore, steps are needed to undertake extensive education about their importance and assess their nutritional values to serve as a direct or indirect source of food to local inhabitants as well as tribal eople. Many of the WEPs may not be freely available in future due to over exploitation, habitat destruction and invasion of exotic plant species. Therefore, efforts can be made to bring some of them under cultivation in order to maintain a continuous supply and help in their

conservation. Moreover the tradition of using wild palatable plants is still alive in the rural populations, but

**Photo Plate-1: Wild edible plants of Ramnagar region of Nainital district, Uttarakhand**

*Bauhinia variegata* L. (Kachnar)



*Bombax ceiba* L. (Semal)



*Centella asiatica* (L.)Urban (Brahmi)



Collected tubers of *Costus speciosus* (Koeng ex Retz.) Keula



*Aegle marmelos* Corr. (Bel)

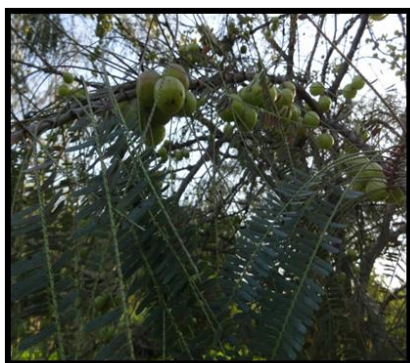


*Murraya koenigii* ( Linn. )Spreng. (kari-pat)



**Photo Plate 2: Wild edible plants of Ramnagar region of Nainital district, Uttarakhand**

*Phyllanthus emblica* L. (Aonla)



*Solanum nigrum* L. (Makoi)



*Dioscorea bulbifera* L. (Gethi)



*Colocasia esculenta* (Linn.)Schott (Pinalu)



Collected fruits of *Terminalia bellirica* Roxb. (Bahera)



Collected fruits of *Terminalia chebula* (Gaertn.) Retz. Harar



and infusing of this traditional knowledge to upcoming generations is pressing and vital.

**Photo plate-3. Tribal woman busy in collecting *Chenopodium album* L. (Bathua) leaves for vegetable**



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## Conflict of Interests

Authors declare that there is no conflict of interests regarding the publication of this paper.

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