

WILD EDIBLE PLANTS OF LEKAM AREA, DARCHULA, FAR-WESTERN NEPAL

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Abstract: The study was focused on the utilization pattern of wild edible plants by the local people in Lekam area of Darchula district, far-western Nepal. The Lekam area covers 17 VDCs of the district with diverse climatic variation. The ethnic group comprises of Dhimi, Lohar, Damai, Tamata, Bohara, Raute, Bhul, Koli, Panta, Awasthi, Ojha, Bist, etc. A cumulative documentation of all the information revealed that there were 83 species of wild edible plants belonging to 45 families that were used by local people as food source. Local people rely largely on wild edible plants during food scarcity or famine.

Key words: Indigenous knowledge; ethnic groups; wild edible plants; Lekam area; Darchula.

INTRODUCTION

Nepal, the Himalayan kingdom with its complex physiography comprises a rich and diverse natural flora. Nepal Himalayas which rises almost abruptly above the Gangetic plains from about 60 m to 8,848 m, the top of the world within a span of less than 200 km. This geographical diversity has created outstanding assemblage of plants, animals and ecosystems in Nepal. Nepal's diverse climatic conditions harbors 118 ecosystems, 35 forest types, 75 vegetation types and about 7000 vascular plants (Jha, 1992). Nowadays, there is a great threat to biodiversity in Nepal. The habitat destruction, over exploitation, introduction of noxious exotic species leading to habitat change, soil deterioration, malnutrition etc are ultimately causing threat to biodiversity.

Wild plants have been a source of food and medicine from dawn of human civilization. The improved and better varieties of fruits, vegetables, cereals and most of other plant products of today are the works of modern scientists by making use of technologies based on the ancient village folks' information on the wild plants. Therefore our ancestors and of course the villagers are the prime contributors to the development of modern science and technology which has been taking an innovative role in the path of progress and welfare of the society (Malla *et.al.* 1982).

Darchula is a remote hilly district of Mahakali Zone, which lies from 29°26'- 30°15' N latitude and 80°22'-81°09' E longitude with altitudinal variation ranging from 357- 7132 M covering 2322 Sq km Area. The average rainfall is 1885.3 mm and average minimum and maximum temperature is 5.7°C and 37.5°C respectively.

Out of the total area of the district about (2,32,960 Ha) 31.33% is covered by forest, 10.72% grassland, 26.28% agricultural land and 31.67% others. Owing to its diverse ecological conditions, the district is rich in biodiversity. It harbours many economically important plants like *Cordyceps sinensis*, *Nardostachys grandiflora*, *Dactylorhiza hatagirea*, *Valeriana wallichii*, etc. The main ethnic groups are Dhimi, Bohara, Panta, Awasthi, Ojha, Raute, Bista, Bhatt, Tamata, Lohar, Koli, Bhul, Thagunna, Tinkari, Garbyal, Samant, Hamal, Damai etc. The total literacy rate of the district is 36% for women and 72% for men.

It is obvious that the natural resources of Nepal are degrading at a rapid rate and vast ethnic knowledge is being lost with time. Urgent need for preservation of this knowledge has been realised among the people of this area as well as concerned authorities. Hence, before attenuating such precious knowledge an attempt has been carried out in the present paper to document the knowledge of the ethnic people of Darchula district of Lekam area regarding the use of wild edible plants in everyday life.

MATERIALS AND METHODS

The study was carried in Lekam region of Darchula district. It covers a total of 17 VDCs viz. Dharpur, Shankarpur, Malikarjun, Bhagwati, Dattu, Uku, Lali, Kharkada, Hunainath, Dadakot, Sarmoli, Rithachapata, Gwani, Bohorigaun, Gokuleshwor, Dethala and Ranishikhar. The area is endowed with diverse climatic conditions with an altitudinal variation from 357 to 4300 meters. These VDCs are bordered in the west by Mahakali river and Chamaliya river in the south east.

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Table 1: List of the wild edible plants collected and their identification

| SN | Botanical Name | Family | Local Name | Nepali Name | Uses |
|-----|---|------------------|----------------|-------------|---|
| 1. | <i>Aegle marmelos</i> (L.) Correa | Rutaceae | Bel | Bel | Ripe fruit pulp is eaten raw. |
| 2. | <i>Aesculus indica</i> (Colebr. ex Cambess) Hook | Hippocastanaceae | Pangar | Pangar | Roasted cotyledons are eaten |
| 3. | <i>Agaricus</i> sp. | Agaricaceae | Chyaun | Chyaau | Whole fruiting body is taken as vegetable |
| 4. | <i>Allium wallichii</i> Kunch | Amaryllidaceae | Sekkwa | Jimbu Jhar | Leaves are taken as vegetable and spices |
| 5. | <i>Amaranthus lividus</i> L. | Amaranthaceae | Latte, Sagauti | Marshi | Tender shoots are taken as vegetable |
| 6. | <i>Amaranthus spinosus</i> L. | Amaranthaceae | Kanya Marshi | | Tender shoots used as vegetable |
| 7. | <i>Amaranthus viridis</i> L. | Amaranthaceae | Ghiyamarsi | | Tender shoots are used as vegetable |
| 8. | <i>Angelica</i> sp. | Umbelliferae | Ganano | | Roots are taken as spices |
| 9. | <i>Asparagus racemosus</i> Willd | Liliaceae | Jhijhirkani | Kurilo | Tender shoots and bulbous roots are used as vegetable |
| 10. | <i>Bauhinia purpurea</i> L. | Fabaceae | Tanki | Tanki | Flowers are taken as vegetable and roasted cotyledons are also eaten. |
| 11. | <i>Bauhinia vahlii</i> Wight & Arn | Fabaceae | Malu | Malu | Roasted cotyledons are eaten. |
| 12. | <i>Bauhinia variegata</i> L. | Fabaceae | Koiral | Koiralo | Flower buds and flowers are taken as vegetable, pickle and roasted cotyledons are eaten. |
| 13. | <i>Berberis aristata</i> DC. | Berberidaceae | Kirmada | | Ripe fruits are eaten |
| 14. | <i>Boehmeria rugulosa</i> Weed. | Urticaceae | Githi | Getha | Bark paste/powder is mixed with rice flour to prepare 'Sel Roti'. |
| 15. | <i>Bombax ceiba</i> L. | Bombacaceae | Simal | Simal | Flowers are taken as vegetable and seeds are eaten raw or roasted |
| 16. | <i>Callicarpa arborea</i> Roxb. | Verbenaceae | Gwailo | Guyalo | Ripe fruits are eaten |
| 17. | <i>Callicarpa macrophylla</i> Vahl. | Verbenaceae | Bhatmel | | Ripe fruits are eaten |
| 18. | <i>Cannabis sativa</i> L. | Cannabaceae | Bhango | Bhang | Roasted seeds are used to make pickle or eaten raw, green leaves used seldom to make some snacks (Pakauda) |
| 19. | <i>Castanopsis tribuloides</i> (Sm.) A. DC. | Fagaceae | Katauj | Katus | Roasted cotyledons are eaten |
| 20. | <i>Chenopodium album</i> L. | Chenopodiaceae | Betu | Bethe | Young shoots are eaten as vegetable |
| 21. | <i>Cinamomum tamala</i> (Buch.-Ham.) Nees & Ebern | Lauraceae | Dalchini | | Leaves and bark used as spices in different preparations |
| 22. | <i>Citrus</i> sp. | Rutaceae | Matkakadi | | Fruits are eaten |
| 23. | <i>Citrus lemon</i> (L.) Burm.f. | Rutaceae | Jamir | Jyamir | Fruits are eaten raw and used for making juice and pickling |
| 24. | <i>Coccinia grandis</i> (L.) Voiget | Cucurbitaceae | Golyakakadi | Golkakri | Green and ripe fruits are eaten raw or as vegetables |
| 25. | <i>Colocasia esculenta</i> (L.) Schott. | Araceae | Dhangalya | Gaba | Young leaves are eaten as vegetables |
| 26. | <i>Commelina benghalensis</i> L. | Commelinaceae | Kanya Sag | Kane Sag | Young vegetative parts are eaten as vegetable |
| 27. | <i>Cucumis sativus</i> L. | Cucurbitaceae | Airal | Airelu | Fruits are eaten occasionally |
| 28. | <i>Dendrocalamus hamiltonii</i> Neer & Arn Munro | Poaceae | Bans | Bans | Young shoots popularly known as 'Tama', taken as vegetable or pickled |
| 29. | <i>Dioscorea bulbifera</i> L. | Dioscoreaceae | Githo | Githa | Tubers and bulbils are cooked and eaten |
| 30. | <i>Dioscorea deltoida</i> Wall ex Griseb | Dioscoreaceae | Ban Taud | Ban Tarul | Boiled bulbs are eaten and also used to make vegetables |
| 31. | <i>Diploknema butyracea</i> (Roxb.) H.J.Lam | Sapotaceae | Chyuro | Chiuri | Nectar from flowers and ripened fruits called 'Bhina' are eaten, seed oil called 'Chyuro' is famous cooking oil in the region |

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| 32. | <i>Dryopteris cochleata</i> (D. Don.) C. Chr. | Aspidiaceae | Liundo | Niuro | Tender leaves are taken as vegetable |
| 33. | <i>Fagopyrum esculentum</i> Moench | Polygonaceae | Phanpar | Phapar | Young vegetative parts are eaten as vegetables |
| 34. | <i>Ferula assafoetida</i> L. | Umbelliferae | Hing | Hing | Aromatic gum resin collected from roots is used for flavoring food items. |
| 35. | <i>Ficus auriculata</i> Lour. | Moraceae | Timilo | Timilo | Young tender shoots are eaten as vegetables, green figs are pickled and ripe figs are eaten raw |
| 36. | <i>Ficus benghalensis</i> L. | Moraceae | Bad | Bar | Ripe fruits are eaten |
| 37. | <i>Ficus hispida</i> L. | Moraceae | Khasatya | Khasreto | Ripe fruits are eaten |
| 38. | <i>Ficus lacor</i> Buch.Ham | Moraceae | Kapado | Kabhro | Young tender figs are pickled and ripe ones are eaten |
| 39. | <i>Ficus nerifolia</i> Sm. | Moraceae | Dudilo | Dudhilo | Ripe figs are eaten raw. |
| 40. | <i>Ficus palmata</i> Forsk. | Moraceae | Bedu | | Young tender leaves are taken as vegetable and ripe figs are eaten raw. |
| 41. | <i>Ficus racemosa</i> L. | Moraceae | Umaro | Gullar | Ripe figs are eaten raw |
| 42. | <i>Ficus religiosa</i> L. | Moraceae | Pipal | Pipal | Ripe figs are eaten |
| 43. | <i>Ficus semicordata</i> Buch.-Ham.ex.Sm. | Moraceae | Khannyo | Khaniyo | Ripe figs are eaten |
| 44. | <i>Ficus subincisia</i> Buch.-Ham.ex Sm | Moraceae | Belto | Berlo | Ripe figs are eaten |
| 45. | <i>Fragaria nubicola</i> Lindl.ex. Lacoita | Rosaceae | Ganya kafal | | Ripe fruits are eaten |
| 46. | <i>Girardinia diversifolia</i> (Link) Friis | Urticaceae | Allo | Allo Sisnu | Tender shoots are taken as vegetable |
| 47. | <i>Indigofera atropurpurea</i> Buch.-Ham.ex.Hornem | Fabaceae | Sagina | Sakhino | Flowers are boiled to make vegetables |
| 48. | <i>Juglans regia</i> L. | Juglandaceae | Okhad | Okhar | Fleshy cotyledons are eaten |
| 49. | <i>Loranthus odoratus</i> Wall. | Loranthaceae | Anjedu | Ajeru | Ripe fruits are eaten |
| 50. | <i>Mangifera indica</i> L. | Anacardiaceae | Aam | Aanp | Fruits are pickled or eaten raw |
| 51. | <i>Mentha arvensis</i> L. | Lamiaceae | Padam | Pudina | Leaves and young shoots are used for pickling and also as spices |
| 52. | <i>Mentha spicata</i> L. | Lamiaceae | Padam | Pudina | Leaves and young shoots are used for pickling and also as spices |
| 53. | <i>Morchella</i> sp. | Morchellaceae | Guchi Chyau | Guchi Chyau | Eaten as vegetable |
| 54. | <i>Morus serrata</i> Roxb. | Moraceae | Kimu | Kimbu | Ripe fruits are eaten |
| 55. | <i>Murraya koinegii</i> (L.) Spreng. | Rutaceae | Ganyulya | Mitho Neem | Leaves are used as flavoring agent in curry and pulses. Ripe fruits are eaten raw |
| 56. | <i>Musa</i> sp. | Musaceae | Bankela | Bankera | Fruits are taken as vegetable or eaten raw |
| 57. | <i>Myrica esculenta</i> Buch.-Ham. ex D.Don | Myricaceae | Kafal | Kafal | Mature green fruits used to prepare pickle and ripe fruits are eaten raw. |
| 58. | <i>Nephrolepis cordifolia</i> (L) Presl. | Devalliaceae | Rasmada | Pani Amala | The root tubers are eaten raw |
| 59. | <i>Oxalis corniculata</i> L. | Oxalidaceae | Chalmado | Chari Amilo | Vegetative parts are used for pickling |
| 60. | <i>Perilla frutescence</i> (L.) Britton | Lamiaceae | Bhangiro | Silame | Seeds are eaten raw or pickled |
| 61. | <i>Phyllanthus emblica</i> L. | Euphorbiaceae | Aaula | Amala | Fruits are eaten raw and used to make pickle |
| 62. | <i>Phoenix humilis</i> Royle ex Becc. & Hook .f. | Palmae | Khajura | Thakal | The white pith portion of stem and ripe fruits are eaten |
| 63. | <i>Pinus roxburghii</i> Sargent | Pinaceae | Sallo | Khote Sallo | Roasted cotyledons are eaten |
| 64. | <i>Piper longum</i> L. | Piperaceae | Pipali | Pipala | Fruits are used as spices |

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| 65. | <i>Pisidium guajava</i> L. | Myrtaceae | Amroj | Amba | Fruits are eaten raw |
| 66. | <i>Pyracantha crenulata</i> (D. Don.) M. Roem. | Rosaceae | Ghangyar | Ghangyaru | Ripe fruits are eaten |
| 67. | <i>Pyrus pashia</i> Buch-Ham. ex. D. Don. | Rosaceae | Mel | Mayal | Ripe fruits are eaten |
| 68. | <i>Reinwardtia indica</i> Dumort. | Linaceae | Pyauli | Pyauli | Young leaves are eaten as vegetables |
| 69. | <i>Rhododendron arboretum</i> Sm. | Ericaceae | Gurauns | Laligurans | The flowers eaten raw or used to make soft drinks like 'Sarbat' |
| 70. | <i>Rubus ellipticus</i> Sm. | Rosaceae | Anselu | Anselu | Ripe fruits are eaten raw |
| 71. | <i>Rubus foliolosus</i> L. | Rosaceae | Kalo anselu | Anselu | Ripe fruits are eaten raw |
| 72. | <i>Rubus niveus</i> L. | Rosaceae | Katrya anselu | Anselu | Ripe fruits are eaten raw |
| 73. | <i>Saurauia nepaulensis</i> DC. | Saurauiaceae | Gogan | Gogan | Ripe fruits are eaten |
| 74. | <i>Smilax aspera</i> L. | Smilacaceae | Kukuldaino | Kukurdaino | Tender shoots are eaten as vegetable and ripe fruits are eaten raw |
| 75. | <i>Solanum nigrum</i> L. | Solanaceae | Ninauni | Kalokamai | Ripe fruits are eaten |
| 76. | <i>Syzygium cumini</i> (L.) Skeels | Myrtaceae | Jamno | Jamun | Ripe fruits are eaten |
| 77. | <i>Syzygium</i> sp. | Myrtaceae | Phalda | | Ripe fruits are eaten |
| 78. | <i>Tamarindus indica</i> L. | Fabaceae | Imli | Imli | Fleshy fruit pulp is eaten raw or pickled. |
| 79. | <i>Terminellia bellirica</i> (Gaerth.) Roxb. | Combretaceae | Barado | Barro | Roasted/raw cotyledons are eaten |
| 80. | <i>Terminellia chebula</i> Retz. | Combretaceae | Harado | Harro | Fruits are eaten raw |
| 81. | <i>Urtica dioica</i> L. | Urticaceae | Sinno | Sisnu | Tender shoots are taken as vegetable |
| 82. | <i>Xanthoxylum armatum</i> DC. | Rutaceae | Timur | Timur | Green as well as mature seeds are used as spices |
| 83. | <i>Ziziphus mauritiana</i> Lam. | Rhamnaceae | Bewari | Bayar | Ripe fruits are eaten |

Indigenous knowledge about the wild edible plants was collected by consulting the local people of the study areas. Two visits were made to document the information about the use of wild plants. First visit was organized in summer season from 15 May to 30 May 2004 and the next visit was made from 25 September to 15 October 2004.

Local people were interviewed regarding the indigenous knowledge about the wild edible plants. The information thus obtained was cross checked and verified by asking the same question to more than two persons about the use of the same plant.

Plant specimens were collected and the herbarium was prepared. The herbarium specimens were identified by consulting the Tribhuvan University Central Herbarium (TUCH) and Standard literatures viz. Press *et. al.* (2000), Hara *et. al.* (1978), Malla *et. al.* (1982), Shrestha (1998) and Rajbhandary (2001), Manandhar (1989), Regmi (1982).

RESULTS

From the present study it has been revealed that Lekam area of Darchula district is rich in wild edible plants. At the same time people of that area were rich in indigenous knowledge about plant use and quite conscious about the use of wild plants for beneficial purpose. Majority of people depend largely upon forest to collect edible fruits, vegetables, ingredient for preparing pickles and spices. In present study a total of 83 wild edible plant species belonging to 45 families were recorded from the Lekam area of Darchula district. Out of which two were fungi, three were pteridophytes, one gymno sperm and remaining all were angiosperm. Among total documented plant species family moraceae is the most dominant (11 species) followed by Rosaceae (6 species), Rutaceae (5 species), Fabaceae (5 species) etc. Scientific names, local names nepali names, parts used and the mode of use of the important wild edible plants that were in common practice among local people has been summarized in table 1. Of the total documented wild edible plants most of the plants are important for their delicious fruits followed by vegetable purposes and then spices, pickling etc. *Ficus auriculata*, *Ficus semicordata*, *Ficus palmata*, *Phyllanthus emblica*, *Phoenix humilis*, *Pisidium guajava*, *Syzygium* spp. etc. are popular for their mouth watering fruits. On the other hand *Dryopteris cocheata* so called 'Liundo', *Fagopyrum esculentum*, flowers of *Indigofera astropurpurea*, *Chenopodium album* etc. are popular for vegetable among village people. Similarly *Diploknema butyracea* is one of the multipurpose trees. People extract flower nectar and used in as honey, ripened fruits are quite delicious and cooking oil extracted from seed cotyledons is famous among villagers by the name of "chiuro ghee" besides, *Allium wallichii*, a spices plant is

common to the kitchens of all classes which is used as flavouring agent in curry, daal, vegetables etc. During interview it has been found that the older generations i.e. beyond forty year's age were much rich in indigenous knowledge about plant use but unfortunately there was vast gap between younger and senior generation about the use of wild plants. The scenario indicates that the vast pool of indigenous knowledge about the use of wild plant at the verge of extinction. That is why it is necessary to document and disseminate the precious folk lore to the youngsters and for that short term and long term training programs, awareness increasing programs, workshops about use and utility of plants and indigenous knowledge should be conducted by concerned authorities in remote villages like Lekam area of Darchula which is rich in indigenous knowledge and useful plants and plant products.

CONCLUSION

The present study indicates that Lekam area is rich in plant resources and local people have good knowledge regarding the wild edible plants. Due to over exploitation, lack of knowledge for conservation and improper collection practice, the natural population of wild edible plants are being diminished day by day. Thus, the conservation of biodiversity and its sustainable utilization for livelihood support has therefore become a collective concern of local people, government, I/NGO and other concerned authorities.

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