

CHEPANG FOOD CULTURE:

Contribution of Wild Edible and
Neglected Plant Species



Prakash Limbu
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Forward

The Chepang people have depended enormously on the forest resources for food, fodder, fiber, medicine, housing and various other needs. A close insight into the traditional food culture of the Chepang communities shows that wild edible and underutilized plant species have a special and important part in their food security. Further, it shows their enormous dependency on rich natural resources specially forests.

LI-BIRD conducted a pilot action research project 'Land Use Change and Human Health in the Eastern Himalayas: An Adaptive Ecosystem Approach', in five Chepang villages of Gorkha and Tanahun districts, Nepal which was coordinated by International Centre for Integrated Mountain Development (ICIMOD) and funded by International Development Research Centre (IDRC). This publication brings together the traditional knowledge of the Chepang people regarding the wild edible and neglected plant species. Similarly, the proximate nutrient analysis of these plant species could be of great importance to demonstrate the value addition feasibility of these species.

This publication has only been successful with the information and knowledge provided by the Chepang people of Gorkha and Tanahun districts. Eventually, we are grateful all those who have contributed directly and indirectly, and produced this booklet.

Authors

Preface

The Chepang communities living in the fragile mountain slopes are one of the marginalized and unprivileged ethnic communities of Nepal. Shifting cultivation (Khoriya) is the major source of livelihood for these communities. Production from shifting cultivation alone is not sufficient to feed the family. The finding showed that they have only 5 months food sufficiency period hence they have been depending on forest resources for wild edible, and underutilized plant species. Majority of the Chepang people collect wild foods such as wild yam, aerial yam, deltoid yam, fingered yam, tender leaves of camel's purple foot tree, butter tree fruits and seeds, garlic pear tree, stinging nettle, and several other wild plant species.

This publication is an attempt to identify the richness of edible wild plant species of Gorkha and Tanahun districts. Another motive is to document the traditional knowledge of the communities associated with these plant species.

I would like to thank the authors for taking this initiative, and acknowledge all those who involved for their hard work in preparing this booklet.



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INTRODUCTION

BACKGROUND

Most of the poor people in Nepal live in the rural areas where they are almost solely dependent on direct ecosystem-based income sources for subsistence; such as agriculture and livestock. In the Himalayas, external and internal forces are, to an extent, threatening the ecosystems and endangering the livelihoods of the people dependent on them. Such forces include climate change, land use, population and socio-economic dynamics. Within each of these factors, current development is in the risk of leading to both ecosystem degradation as well as deepening poverty, where the latter is often subsequently a result of the former.

The fragile mountain ecosystem in Nepal has undergone many demographic and economic transition in recent years. The pressures continue to mount on areas of shifting cultivation, often characterized by a higher representation of ethnic minorities. This has led to changes in land use systems and an increase in agriculture intensity. There is a gradual shift from subsistence and traditional farming systems to semi-commercial and market based farming systems. Food security concerns and overall impacts on the ecology of the areas are being raised. The policies are not in favor of the traditional farming system and this has a negative impact on the age-old farmers' practices. The changes in the cultivation practices have both positive and negative effects on ecology, society and economy. The majority of the problems are related to extremity of climatic events, land degradation, loss of biodiversity and decline in productivity. This has in turn contributed to the outbreak of various diseases and drought. Malnutrition is one of the major issues in the shifting cultivation areas and is mostly caused by the lack of nutritious foods and diversity.

The communities in the shifting cultivation areas are one of the most unprivileged and poor ones lacking awareness and negotiation skills. These communities live in fragile mountain slopes and are less exposed to outside environments or communities, although many of them live close to the highway. The severity of the health problems are high in this area as the people still hold superstitious beliefs and seldom go to the hospitals. Moreover, they have to walk a long distance to the health care centers. One of such unprivileged and poor communities living in Nepal is the Chepang community.

CHEPANG COMMUNITY



Photo: Keshab Tripathi, LI-BIRD

There are 59 groups of indigenous ethnic nationalists (*Adivashi-Janajati*) that have been recognized in Nepal. The Chepang group is one of them. According to the 2001 census, their population was found to be 52,000. However, the Nepal Chepang Association (NCA) claims that the population at present is around 100,000. Mongoloid featured Chepang people are found settling in the districts of Dhading, Gorkha, Tanahun, Makwanpur and Chitwan, along the steep slopes of the Mahabharata range (mid-hills) of Nepal. These isolated settlements spread from an elevation of 450 meters to 1400 meters. Some are found living in lower altitudes along the bank of Trishuli and Narayani rivers, north and south of Prithwi Highway.

Chepangs, also called '*Prajas*', are regarded as one of the marginalized and socio-economically deprived indigenous ethnic communities. They have lived a semi-nomadic life, and have depended enormously on the natural forest resources over a long period of time. Forests are the most important source for them in terms of foods, fibers, fodders, medicines, housing materials and various other needs. Hunting and wild foods collection has been their traditional living for subsistence and shifting cultivation (*Khoriya*) is the only feasible way to farm the steep slopes inhabited by them.

A study conducted in three villages of Gorkha district and two villages of Tanahun district by LI-BIRD, coordinated by ICIMOD and financially supported from IDRC shows that almost every household has its own shifting

cultivation plot(s). However, most of them do not have legal entitlements to the land because they do not have the citizenship required for the land registration. Due to the expanding household size and number, and increased demand for food and land, the fallow period in shifting cultivation has been reduced to 2-3 years in Rasoli and Kholagaon villages. There is almost no fallow land in Ghyalchowk, Thumka and Hiklung villages. This means that the traditional farming system has changed to a sedentarized, or annual, farming system with no real fallow in shifting cultivation land. The

Chepong people have been facing hostile government policies regarding the traditional shifting cultivation practices and something which may have the sole reason for why they are very reluctant to change their shifting cultivation plots into permanent agricultural plots and it may be the cause for land degradation and the unthinkable poverty in these areas.

Further more the Chepong people are cornered in the case of education. The literate population in the Chepong community is very nominal. Their houses are sparsely scattered and the schools remain too far away from most homes. Children who have houses near the school are lucky for the primary level education but very often are unable to obtain secondary and higher level education, due to their economic situation and lack of nearby schools. Children who live far away, join the school only when they are able to walk for 1-2 hours i.e.; mostly after the age of 9-10 years old. In the heterogeneous community, Chepong children are often discriminated by their colleagues belonging to other castes. Therefore, these children do not show any interest for going school.

Chepong people mostly cultivate maize, sesame, cowpea, finger millet, black gram, broom corn millet, buckwheat and rice bean in their *Khoriya* plots. This is done with almost no tillage and agricultural inputs. Production of these crops is very low and further made negligible by the encroachment of monkeys, birds and other animals. As the crops get ready for harvest, they make a temporary cottage shelter near the field. A member of the family should go to the *Khoriya* every day; stay during the day to watch and chase away the visiting birds and animals. Among these pests, monkeys (*Rhesus macaque*) are the most prevalent to raid these staple crops. They are the most difficult pest because of their deftness and intelligence. If these are not controlled, they cause damages to the crops.

The production of crops from the cultivable land is sufficient only for 5-6 months for a family. Hence their last resort is either to depend on forest resources for survival or work as wage laborers at stone quarries near the highway, work in the cities or in the coal mines of India.

Chepang people have generated enormous knowledge on large numbers of plant species on which they have been dependent for centuries. Though the knowledge and practices of modern agriculture are very new, their traditional knowledge of the biodiversity is old and profoundly rich. Almost all households collect different wild plant species at different amounts, either for home consumption, for selling, or for medicinal use. Different plant parts including seeds, tubers, bulbils, rhizomes, roots, leaves, fruits, and tender twigs are collected. These are used in a variety of ways including as staple foods and vegetables, medicines, for pickling, for the production of vegetable ghee, and fibers. These species have long contributed to food security and have been established as an integral part of Chepang traditional culture. Chepang communities have even learned how to collect and prepare different types of wild poisonous plant species for consumption. In fact these species are one of their principle sources of food and nutrients.

A study carried out by M.R. Bhandari & Jun Kawabata at Hokkaido University, Japan revealed *Dioscorea bulbifera*, *D. versicolor*, *D. deltoidea*, *D. triphylla* to have 5 times more protein than potatoes, sweet potatoes and Colocassia. These species also appeared to be a fairly good source of many dietary minerals and to possess chemicals that are used for the treatment of cancer, diabetes and heart diseases. Domestic cooking methods were found to be efficient in removing bitterness, thus making bitter yams palatable. The findings have also shown that 80% of toxic chemicals could be removed by cooking them in a pressure cooker.

The study has revealed that Nepalese wild yams are not toxic and have been recognized as "Health/Functional food". These wild foods, when mixed with noodles, breads or flour, are enhanced in their nutritional value and palatability. Hence, this book is prepared to describe the wild edibles and neglected plant species used by the Chepang communities to sustain their daily food requirements

Wild food species used by Chepong people:

NEPALI NAME	ENGLISH NAME	BOTANICAL NAME	FAMILY	PLANT TYPE	PLANT PARTS AND USE
Gittha	Aerial yam/ Air potato	<i>Dioscorea bulbifera</i> L.	Dioscoreaceae	Wild herbaceous climber	Bulbils and tubers are consumed as vegetables
Ban Tarul	Wild edible yam	<i>Dioscorea villosa</i>	Dioscoreaceae	Wild herbaceous climber	Tubers are consumed as staple food after boiling, used as vegetables, high market value
Vyakur	Deltoid yam	<i>Dioscorea deltoida</i> Wall Ex Griseb.	Dioscoreaceae	Wild herbaceous climber	Tubers and bulbils are eaten as vegetables, but tubers need treatments before consumption
Bharlang	Asiatic bitter yam	<i>Dioscorea hispida</i> Dennst.	Dioscoreaceae	Wild herbaceous climber	Tubers are used as vegetables and for making an alcoholic drink after intensive treatments
Tyaguna		<i>Dioscorea Kamoonsensis</i> Kunth	Dioscoreaceae	Wild herbaceous climber	Tubers are consumed as vegetables after treatment
Ghar Tarul	Greater Yam	<i>Dioscorea alata</i> L..	Dioscoreaceae	Herbaceous climber	Tubers are consumed after boiling and as vegetables, high market value
Bhangre Sisnu/ Chalni Sisnu	Himalayan nettle	<i>Girardinia diversifolia</i>	Urticaceae	Perennial shrub with stinging bristles	Tender shoots and flowers are consumed as vegetables
Ainselu	Yellow Himalayan raspberry	<i>Rubus ellipticus</i>	Rosaceae	Shrub	Fresh fruits are eaten as raw
Kalo Neuro	Fiddlehead Fern	<i>Matteuccia struthiopteris</i>	Aspideaceae	Herb	Tender shoots are consumed as a delicious vegetable

NEPALI NAME	ENGLISH NAME	BOTANICAL NAME	FAMILY	PLANT TYPE	PLANT PARTS AND USE
Tanki	Purple camel's foot	<i>Bauhinia purpurea</i>	Fabaceae	Deciduous tree	Tender shoots used as vegetables, matured seeds consumed after they are fried
Ban Kurilo	Wild asparagus	<i>Asparagus filicinus</i>	Asparagaceae	Shrub	Tender shoots are used as vegetables and roots are used as medicines.
Sipligan	Garlic pear tree	<i>Crateva religiosa</i> Foster F.	Capparaceae	Tree	Tender leaves are used for making pickles and also used as vegetable
Bayar	Indian plum	<i>Zizyphus jujube</i>	Rhamnaceae	Tree	Fresh fruits are consumed raw and used for making pickles
Pangra	Monkey ladder vine	<i>Entada phaseoloides</i> (L) Merr.	Leguminosae	Woody climber	Seeds are consumed as vegetables after treatment
Kaphal	Box myrtle	<i>Myrica esculenta</i>	Myricaceae	Tree	Fresh fruits are consumed raw
Koiralo	Orchid tree	<i>Bauhinia variegata</i>	Fabaceae	Tree	Flowers are used for making pickles
Mane	Giant Swamp taro	<i>Cyrtosperma merkusii</i>	Araceae	Herb	Shoots and tuberous corms are used as vegetables
Kaguno	Foxtail millet	<i>Setaria italica</i> (L.)	Poaceae	Herb	Grains used as staple food and also for making alcoholic drink
Kalo Karkalo	Indica purple taro	<i>Alocasia plumbea</i> <i>Nigra</i>	Araceae	Herb	Tuberous corm are used as vegetables

NEPALI NAME	ENGLISH NAME	BOTANICAL NAME	FAMILY	PLANT TYPE	PLANT PARTS AND USE
Sisnu	Stinging nettle	<i>Urtica dioica</i>	Urticaceae	Perennial shrub with stinging bristles	Tender shoots and flowers are used as vegetables
Amala	Indian gooseberry/ Amla	<i>Phyllanthus emblica</i>	Euphorbiaceae	Tree	Fresh fruits are consumed raw
Aanp	Local mango	<i>Mangifera indica</i> (L.)	Anacardiaceae	Evergreen tree	Fresh fruits are consumed raw
Chiuri	Nepali butter tree	<i>Aesandra butyraceae</i>	Sapotaceae	Deciduous tree	Fresh fruits are consumed and seeds are used for extracting vegetable ghee
Khole sag/ Simsag	Water cress	<i>Nasturtium officinale</i>	Cruciferae	Herb	Tender shoots are used as vegetables
Junelo	Broom corn millet	<i>Panicum milaceum</i> L..	Poaceae	Herb	Grains are used as staple food and also used for making alcoholic drinks
Katus/ Dhalne Katus	Indian Chestnut	<i>Castanopsis indica</i>	Fagaceae	Tree	Seeds are consumed raw
Ajinda				Tree	Fresh fruit
Jaleeko		<i>Colocassia esculenta</i> var <i>.aquatilis</i>		Herb	Tubers are consumed as vegetables
Kera tarul				Herb	Tubers used as vegetables



Chepang name: Re-lac

Nepali name: Gittha

Common name: Air potato, Aerial yam

Botanical name: *Dioscorea bulbifera* L.

Family: Dioscoreaceae

Description

This plant is a perennial herbaceous twinning climber growing to the height of 15 meters and more. The stem is left twinned and possesses bright broad heart-shaped leaves with prominent

veins and two types of storage organs: bulbils in the leaf axils of the stems and tubers beneath the ground. Bulbils

are small or greater than 5 cm in diameter, oblong like potatoes and means of reproduction. The tuber is ovoid with brownish outer skin and whitish inner flesh. It bears staminate inflorescence and the flowers are dioecious. Individual flowers are either male or female and only one sex in one plant.

Uses

It is one of the most widely consumed species of the Dioscoreaceae family. Both bulbils and tubers are edible. Nowadays, it has become an important component of home gardens in the tropical Terai of Nepal. Tubers are somewhat bitter in taste; so they require boiling for some minutes to remove the bitterness. Then it is cooked and eaten as a vegetable. These are also used for making traditional alcohol (*Jaand and Rakshi*) when collected in larger amounts.

Distribution

It is native to South-East Asia and Nepal and found in the tropical and sub-tropical mid hills of Nepal at an elevation ranging from 150m to 2000m above the mean sea level.

Available period: December-March

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Bran goi
Nepali name: Ban Tarul
Common name: Wild edible yam/ Chinese yam
Botanical name: *Dioscorea villosa*
Family: Dioscoreaceae



Description

It is a perennial herbaceous climber which can grow to the height of 4-12 meters or more. Stem is round and twinning right, leaves are spirally arranged and heart shaped. Many small bulbils are present in the leaf axils of the twinning stem. Flowers are dioecious (individual flowers are either male or female and only one sex is found in any one plant), and fruits are winged. Tubers are whitish, fleshy and long; they may grow to the length of five feet descending vertically. They may be single or sometimes branched.

Uses

It is a top quality wild root crop and is used as a staple food in the Chepang community. It has a cultural and religious importance in Nepali society. During Maghe Sangkranti, people eat the tubers of various root crops. Among several root crops, it gets the highest price in the market. The tubers are very tasty and can be consumed without cooking. The tubers are consumed after boiling and are also used for vegetable purposes. Though its extraction is very difficult from the deep underground soil, people do the hard work due to its good market price.

Distribution

It is native to temperate East-Asia and found in the steep slopes of the mid hill forests of Nepal in the wild state at the elevation from 800m to 2000m above the mean sea level. It prefers sunny moist slopes in the wild.

Available period: December-January

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Ja pas

Nepali name: Vyakur

Common name : Deltoid yam

Botanical name: *Dioscorea deltoidea*
Wall. ex Griseb

Dioscorea nepalensis Sweet ex Bernardi

Family: Dioscoreaceae

Description:

This is a tuberous perennial herbaceous slender climber; plant glabrous, dioecious. The stem is round, and it twines to the left. Leaves are simple, alternate and pentafoliate.

Bulbils are few or absent.

The tuber is branched, greyish to off-white in colour, rough in appearance and has spiny projections on its surface.

Uses

Though the tuber is slightly bitter in flavour, it is consumed after treatment. The bitterness is removed by boiling it with some wood ashes and it is consumed as a vegetable. The bulbils are also consumed as vegetables. However, these are mostly consumed by burning in the fire. Vyakur is less commonly used for consumption because it requires tedious treatments like burning in the fire and the taste is not much liked by people. Therefore, it is mostly used for making traditional alcohol (*Jaand and Rakshi*)

Distribution

Found in the dry slopes and rocky places (forests) in the mid hills of Nepal. The elevation ranges from 450m to 3100m above the mean sea level.

Available period: December-February

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Hung
Nepali name: Bharlang
Common name: Asiatic bitter
yam/ Intoxicating yam
Botanical name: *Dioscorea*
*hispid*a Dennst.
Family: Dioscoreaceae



Description

It is a herbaceous perennial twinning climber which can grow to several meters. Its stem is covered with few or many short, sharp spines and its flowers are dioecious. The tuber may be brownish or creamy, ovoid or stalked. The leaves are alternate, trifoliate, and lateral obovate. The male flower is in a dense panicle up to 30 cm long and the female flower is 12-15 cm long in a long spike.

Uses

Though the tubers are poisonous, they are used as vegetables, after detoxification of the poisonous chemicals, during the food deficit time. The rind of the tuber is removed, cut into thin slices then boiled for 1-2 hours, changing the water 3-4 times. Then, they are kept for about 20-24 hours in the flowing stream to remove the poisonous chemicals. Before consumption, a slice is tasted by an expert and then they are consumed as a staple food or made into vegetables. Due to the poisonous effects, these tubers are mostly used for preparing the local alcoholic drink "Jand". The poisonous chemicals can cause vomiting, headache and even death if consumed in great amount. The sticky resin obtained after peeling off the skin is used for the treatment of cracked skin.

Distribution

Bharlang is native to South-East Asia and in Nepal, it is found in the dense, sloppy forests of the low and medium Mahabharata range at the elevation range of 600m to 1000m above the mean sea level.

Available period: December- April

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Panje Goi

Nepali name: Ghar tarul

Common name: Greater yam/ Fingered yam

Botanical name: *Dioscorea alata* L.

Family: Dioscoreaceae

Description

Fingered yam is a tuberous herbaceous perennial climber growing to the height of 9 meters, plant dioecious. Aerial potato-like tubers (bulbils) are present at the leaf axils. It is fruit winged, and the tubers are more or less palmate in structure with dark brown skin

and white flesh which are sometimes tinged with pink/purple colour.

Uses

It is the highest yielding of all the yam crops. Tubers are used as staple food after boiling. It has religious and cultural importance in the Nepalese society and hence fetches a good market price. During the festival of Manghe Sankranti it is consumed after boiling. Tubers are also used for making curry and used as vegetable. Its tubers can be stored for 4-5 months without deterioration.

Distribution

Fingered yam is found in the Terai and Mid hills of Nepal, elevation ranging from 70m to 1100m above the mean sea level. It is widely domesticated these days.

Available period: December- February

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Bhangre sisnu
Nepali name: Lekali sisnu/ Thulo sisnu
Common name: Himalayan Nettle
Botanical name: *Girardinia diversifolia*
Family: Urticaceae



Description

It is an erect annual or perennial herb growing to 3 meters in height. Its stems are sparsely branched and covered with long virulent stinging hairs (trichomes).



Its leaves are deep lobed and vary in shape and size. It flowers from September to October and seeds ripen from October to November.

Uses

Chepang people collect this plant from the nearby forests and stream banks. Tender leaves and inflorescence are mixed with maize flour, boiled until well cooked and consumed either as staple or tender leaves. Inflorescence is consumed as green vegetables when cooked without maize flour. Though stinging hairs are present, they become neutralized by the heat so that the boiled leaves are perfectly safe to be consumed. Fibers from the stem are used for making coarse clothes, ropes, nets and twine. Chepang people from Rasoli village say that the grinded paste of the tender shoots and roots can heal dog bite wounds.

Distribution

Himalayan nettle is found in the waste, moist and shady mountain forests of Nepal, the elevation ranging from 800m to 2700m above the mean sea level. It is found along the margins of the forests and stream banks usually in shades and semi-shades that have maintained moisture.

Available period

As the shoots regenerate in a short time, they are available all year round. The inflorescence is found from September to October.



Chepang name: Lyangsai
Local name: Ainselu
Common name: Yellow Himalayan raspberry/ Asian wild raspberry
Botanical name: *Rubus ellipticus*
Family: Rosaceae

Description

It is a stout thorny evergreen shrub growing to the height of 4.5 meters. Its stems are covered with prickles and reddish hairs. Its

leaves are alternate and compound with three round to blunt leaflets. Its flowers are small and white with five petals and its fruits are a round yellow cluster of drupe-lets which are very easily detached from the receptacle. New stems are produced every year from perennial rootstock.

Uses

The small, yellowish, succulent fresh fruits are edible. These fruits are consumed in a negligible amount by the Chepang people when they visit the forests during the search of wild foods, fuel woods or other while foraging.

Distribution

Yellow Himalayan raspberry is found in the tropical and sub-tropical natural forests, and in grasslands of Nepal, the elevation ranging from 900m to 2000m above the mean sea level.

Available period

It flowers during February-March and the fruits are available during May-June.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Nepali name: Kalo neuro
Common name: Fiddlehead Fern
Botanical name: *Matteuccia struthiopteris*
Family: Aspidiaceae

Description

It is a terrestrial fern. The stem creeps on the ground and becomes woody when matured. Its leaves are mono-morphic, dying back during winter, and straight or hooked at the distal end. Its spores are brownish, broadly winged and are the means of reproduction.



Uses

Chepang people collect these tender shoots from the river, stream banks and forests and consume them as a delicious vegetable after it is stir fried. Collecting enough from the streams and river banks to be sufficient for a family is time consuming work. The matured plant leaves are used as litters for the pigs, cows and buffaloes. The roots are used for medicinal purposes. They are grinded to dust and eaten with water for the treatment of diarrhea.

Distribution

It is native to South-East Asia and found in the tropical and sub-tropical areas of Nepal. Its best habitat is in the shade of the rocks and boulders along the stream, river banks and evergreen forests where there is plenty of moisture and shade.

Available period: February-March

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Nepali name : Tanki
Common name: Purple camel's foot/ Hong Kong orchid tree
Botanical name: *Bauhinia purpurea*
Family: Leguminosae

Description

It is a small to medium sized deciduous tree growing to the height of 7-10 meters tall and with a slender trunk and arching branches 3-6 meter

outwards. Its leaves are bi-lobed at the base, broad (10-15 cm) and round. Flowers colours vary, including red, pink, purple, orange and white. They are often fragrant. The fruit pod is slender, flat and about 6-12 inches long containing 12-16 seeds.

Uses

The tender shoot leaves are used as vegetables. The immature seeds from the pods are sealed in rod like thin sticks, roasted in fire and consumed. Even the mature seeds are used for consumption. These mature seeds are roasted with maize and generally used as breakfast.

This tree is one of the most preferred trees by the Chepang people, as it shares multiple benefits such as fodder, fuel wood, sufficient litters, edibility as a vegetable and the capacity to fix nitrogen from the soil.

Distribution

It is found in the tropical and sub tropical areas of Nepal.

Available period

It flowers in September- October

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Jyorwog
Nepali name: Ban Kurilo
Common name: Wild asparagus
Botanical name: *Asparagus filicinus*
Family: Asparagaceae



Description

It is a perennial flowering herb growing to the height of 0.7 meters. It bears stout stems with densely branched feathery foliage and can grow in the bunch of several stalks.

The leaves are infact needle-like modified stems. The older stems are woody with spines. The flowers are bell shaped and greenish-white to yellow in colour. The dry root tubers are orange-brown and may measure 11 cm.

Uses

Tender succulent stalks are hand-picked from the forests and shrub land and are used as vegetable. Chepang people use its tuber roots for medicinal purposes. Tuber roots are ground with a small amount of water and taken as medicine for diarrhea, fever, cough, cold and body pain. Roots are also used as shampoo. Roots fetch a good price in the nearby markets and are extensively collected from forests, shrub lands and shifting cultivation lands.

Distribution

This herb is found in dry places in the sub tropical region, and moist places in temperate and tropical regions. It is commonly found in the loose soil in the forests.

Available period: November –December

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Deurangi

Nepali name: Sipligan

Common name: Garlic pear/ Sacred garlic pear

Botanical name: *Crateva religiosa* Forster f.

Family: Capparaceae

Description

Sipligan is a medium sized deciduous tree growing to the height of 3 to 15 meters tall, young shoots are brown, bearing few long lenticels. This plant

is attractive to bees, butterflies and birds. Its leaflets are ovate or elliptic, its flower is pale yellow to almost white, and its fruit are 3-5.5 cm diameter. Sipligan has a strong garlic scent and burning taste. It flowers during March-May and fruiting takes place during May-October.

Uses

Tender leaf shoots, twigs and leaves are used as fresh vegetables and for medicinal uses. They are bitter in taste so they are boiled for some minutes and kept in water for 10-12 hours. The bitter water is thrown in order to remove the bitterness. They are used as pickles and are also consumed as vegetables after frying. Its fruits are edible. Chepang people believe that the shoots, leaves and bark have medicinal properties to cure cough, fever influenza etc.

Distribution

This plant is native to Southeast-Asia and Nepal, found in the open dry forest edge of tropical and sub tropical areas.

Available period: March-April.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Nepali name: Bayar
Common name: Indian plum/ Indian jujube
Botanical name: *Zizyphus jujube*
Zizyphus mauritiana Lam.
Family: Rhamnaceae



Description

Indian jujube is a small to medium sized tropical evergreen fruit tree, native to Southern Asia. It is 6 to 15 meters tall and grows fast even in dry regions. It can grow in a wide variety of soil types. Flowers are yellowish-white, and borne in clusters. Fruits are juicy, drupe, globose, 2-2.5 cm in diameter, and golden yellow to red in color. Fruits ripen at different times on a single tree. This tree is highly drought tolerant.

Uses

Fresh fruits are consumed raw and are also used for making preserved pickles. It is thought that their consumption enhances digestibility. They are rich in vitamin C.

Distribution

This plant is found in the tropical and sub tropical regions of Nepal up to the elevation of 2200m. In the Chepang villages, these trees are found at the banks of the river.

Available period: January-February

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Pangra

Nepali name: Pangra

Common name:

Monkey ladder vine

Botanical name: *Entada phaseoloides* (L.) Merr.

Family: Leguminosae

Description

It is a giant perennial woody climber. Flowers are small, pale yellow and borne on auxillary spikes or in terminal branched clusters. The brown fruit pods are about 1 meter long and 10 cm broad with 10-30 seeds. The seeds are round, shiny and reddish brown in colour.

Uses

Nowadays, the seeds of this plant are not extensively used for the vegetable purpose due to its poisonous side effect, tedious preparation and the availability of other food alternatives. Chepang people consume the seeds only after careful treatments. Seeds are kept in fire for some minutes in order to burn the outer covering skin and then the inner white portion of the seeds are boiled exchanging water 2 to 3 times to remove the poisonous chemicals. After these treatments, they are cooked for the vegetable use. Very nominal amount of its flour are used for making yeast (*Morcha*) which is used to make traditional local alcohol. Similarly, seeds are also used as shampoo for the eradication of lice.

Distribution

Monkey ladder vine is found in the low land forests, river banks and margins of forests in the Mahabharata range of Nepal up to the elevation range of 300m to 1600m above the mean sea level.

Available period: August-September

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Nepali name: Kafal
Common name: Box myrtle
Botanical name: *Myrica esculenta*.
Myrica integrifolia Roxb.
Family: Myricaceae

Description

Kafal is a sub-temperate, moderate sized evergreen tree and one of the tastiest wild fruits of the mid-Himalayan regions, growing to the height of 12-15 meters. Its bark is light- brown to black in colour and its leaves are almost crowded toward the end of branches. Its flowers are pistillate and dioecious. Its fruits are drupes, red-purple at maturity, and usually ellipsoid. Unfortunately, the shelf-life of these fruits is very short, only lasting 2-3 days. Flowering takes place during February to March.



Uses

Its fresh fruits are pleasant to eat and a good income generating resource. Chepang people from the Rasoli and Kholagaon villages often gather the fruits from the forests in large amounts and carry them down to the Mahendra highway to sell. The bark of kafal is said to possess many medicinal properties. These trees are also used extensively as fuel woods and for constructing the poles of houses.

Distribution

Kafal is found throughout the mid-Himalayan forests of the Mahabharata range, starting from the elevation of 900m to 2100m above the mean sea level.

Available period: May- June

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Nepali name: Koiralo
Common name: Orchid tree
Botanical name: *Bauhinia variegata*
Family: Fabaceae

Description

It is a small to medium sized deciduous tree with dark brown bark, growing 10-12 meters in height. Its leaves are 10-12 cm long and broad, bi-lobed at the base and apex. Its flowers are bright pink or white to yellowish with green veins, and its fruit is pod that is 15-30 cm long containing 10-15 seeds.

Uses

The tender shoots and flowers are pickled. The pickle is stored in a pot and consumed with fried maize, boiled beans or with rice when necessary. The immature seeds are also cooked for the vegetable purpose.

Distribution

Orchid tree is common in the tropical and sub tropical areas of Nepal.

Available period: November-December

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Nepali name: Mane

Common name: Giant Swamp taro

Botanical name: *Cyrtosperma merkusii*

Family: Araceae

Tribe: Colocasieae



Description

It is an herbaceous perennial glabrous plant with large to very large leaves which are 20-150 cm long and heart shaped. These plants are sometimes up to 1.5 meters tall and grow from a short stem. The rootstock is thick and fleshy and filled with watery latex that is rarely coloured. Its rhizomes are horizontal, creeping at or near the surface.

Uses

All the plant parts are edible when boiled and roasted. The stem requires prolonged boiling and the water is thrown once to remove irritating chemicals. If eaten raw, or if the irritants do not get properly removed, it can cause serious inflammation of mouth and throat. The rhizomes are consumed as vegetable.

Distribution

They are native to humid tropical regions of Nepal. These occur naturally in the tropical and sub tropical forests along stream banks.

Available period: January-February

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Aaim
Nepali name: Kaguno
Common name: Foxtail millet/ Foxtail bristlegrass
Botanical name: *Setaria italica* (L.)
Family: Poaceae

Description

It is an annual slim, vertical grass growing to height of about 4-7 feet tall under the best conditions. The stem head (panicle) is dense and hairy and is about 2-10 inches long and hanging down. Leaves are linear lanceolate, and the sheaths may be hairy or smooth. Seeds are small, round, about 2mm in diameter, and encased by a thin papery hull which gets easily

removed when threshed. Seed colours vary greatly, as do the varieties. It is a drought resistant, warm season crop that is traditionally grown in the spring.

Uses

Grains are ground and this flour is widely used for making the porridge 'Dhindo' and consumed as staple food. Grains are extensively used for making the indigenous alcoholic drink 'jaand'. This higher quality alcohol is especially served to visitors to show respect.

Distribution

Foxtail millet is native to Nepal. It is found in the mid-hills of Nepal at the elevation of 1000m to 1800m above the mean sea level.

Available period: July –August

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Nepali name: Kalo Karkalo/
Dudhe Karkalo
Common name: Indica purple taro
Botanical name: *Alocasia*
plumbae Nigra
Family: Araceae



Description

Indica purple taro is an herbaceous perennial plant. It has thick leaves which are dark green/ purplish colour. As they mature they become shiny with deep purple, red petioles. This plants grows to almost 5-7 feet tall with a very pluckered appearance and a strong deep purple stem. Bulbous, tuberous, rhizomatic corms are in the deep soil, fleshy cylindrical, unbranched spadix surrounded by spathe. It is tolerant to cold.

Uses

The starchy corms and tender shoots are used as a vegetable. As the corms have longer storage life, they are stored in baskets or *dokos* either inside the home or in trees. They are used as staple food or as vegetables during the scarce time.

Distribution

These plants are found in the tropical and sub tropical marshy areas of Nepal.

Available period: January-February

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Nelau
Nepali name: Sisnu
Common name: Stinging nettle
Botanical name: *Urtica dioica*
Family: Urticaceae

Description

Stinging nettle is an herbaceous perennial woody flowering plant growing 1-2 meters tall. It grows well in summer and collapses during winter. The stem and leaves are very hairy with non-stinging hairs and as well as many stinging hairs (trichomes)

whose tips come off when touched and inject several venomous chemicals that cause irritation. The soft green leaves are 3-15 cm long and have strongly serrated margins, and flowers are in the dense axillary inflorescence.

Uses

The flowers and tender leaves of stinging nettle are boiled with maize flour and used as a vegetable. These are consumed extensively whenever they are available in the forest and shrub areas. This plant is a good source of Vitamin A, C, D and minerals such as Iron, Potassium, Magnesium and Calcium. When these plants are found in sufficient amounts, they are cut, dried for 3-4 days and fed to livestock in the times of scarcity.

Its coarse fibers are also extracted from the stem of the plant and used for making nets and ropes, among other things.

Distribution

Stinging nettle grows wild in the sub tropical and temperate forests and shrub lands in the sub tropical and Himalayan regions of Nepal, the elevation ranging from 600m to 3000m above the mean sea level. These plants are found in moist woodlands, along rivers and in partially shaded trails.

Available period

Its flowering time is June-September. The tender shoots regenerate during the summer time and hence can be found all through the summer time.

Chepang name: Tausai
Nepali name: Amala
Common name: Indian gooseberry/ Amla
Botanical name: *Phyllanthus emblica*
Synonym: *Emblica officinalis*
Family: Euphorbiaceae



Description

Indian gooseberry (Amla) is a small to medium sized deciduous tree reaching 8-18 m in height. It has a crook trunk and spreading branches, the leaves are pinnate, the leaflets are small, sub sessile, and 9-12 mm. Its flowers are greenish yellow in color. Its fruits are nearly spherical, light greenish yellow in color, quite smooth and hard with vertical stripes or furrows. Amla is the richest known natural source of Vitamin C.

Uses

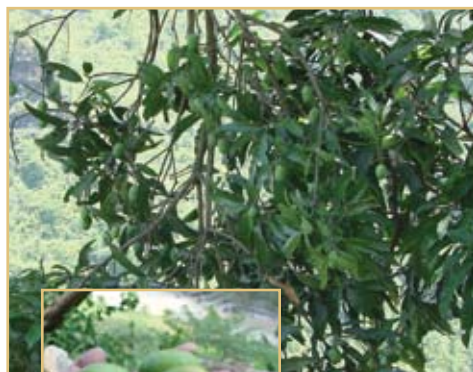
Fresh Amla fruits are consumed in large amounts. The fruits are cut to pieces, dried and are used as pickles. The Chepang people collect these fruits from the forests in large amounts and bring them to the nearby markets.

Distribution

These fruits are found in the tropical and sub tropical regions of Nepal at an altitude ranging 200m to 1300m above the mean sea level.

Available period: November to January

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Taaksai
Nepali name: Aanp
Common name: Local mango
Botanical name:
Magnifera indica L.
Family: Anacardiaceae

Description

It is a tropical, evergreen, flowering tree that grows to 30-40 meters in height

and has a deep tap root system that descends up to 20 feet. Its leaves are alternate, simple, orange pink when young and change to dark green as they mature. Its full grown

leaves are 10-30 cm long and 2-5 cm wide. Its flowers are produced in terminal panicles 10-40 cm long and its fruits take 3-6 months to ripen.

Uses

These fresh fruits are collected from nearby forests in large amounts and brought home for consumption. The trees are also good sources of fire wood and poles for making houses.

Distribution

Local mango trees are indigenous in the subtropical areas of Nepal. These trees are found at the lower altitude of 1000m above the mean sea level.

Available period: June- August

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Yoshai
Nepali name: Chiuri
Common name: Nepal butter tree
Botanical name: Aesandra butyraceae
Family: Sapotaceae

Description

Nepal butter tree is a perennial, deciduous, medium sized tree growing to the height of 25 meters. Its leaves are simple, oblong and hairy on the lower surface. Its flowers are white, crowded amongst the leaves and ellipsoid.



Uses

Sweet pulps of the fresh fruits are consumed and the seeds are extensively used for the extraction of vegetable butter, called '*Chiuri ghee* or *Phulwara butter*'. This butter ghee is used for cooking vegetables, making '*roti*' breads, making a traditional lamp '*Diyo*' and other culinary purposes. This tree has a great cultural importance among the Chepang community. It is said that Chepang people give a Chiuri sapling to their daughters during their marriage.

Flowering of the Butter tree occurs at October - November. During this time, bats visit these trees for the flower nectar. Chepang people kill these bats by trapping them in nets; 4-5 bats are killed daily for about one and half months. Hence, these bats serve as the source of meat for the Chepang people. According to them, these visiting bats are purely vegetarians and are very nutritious and delicious to eat.

Distribution

Butter tree is a medium sized tree native to Nepal. It grows in the steep, sloppy forests of sub-Himalayan region at an altitude ranging from 400m to 1400m above the mean sea level.

Available period: March-April

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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**Nepali name:**

Simsaag/ Sim rayo

Common name: Water cress**Botanical name:***Nasturtium officinale*Synonym: *Nasturtium**microphyllum***Family:** Cruciferae**Description**

Water cress is a member of the cabbage family; it is botanically related to mustard

and garden cress. It is a fast growing aquatic or semi-aquatic perennial herb with hollow stems which remain floating on the water and may be 2-4 feet long and procumbent. Leaves are green or olive brown and divided into lobes, usually with an ovate apical lobe and 1-2 lateral lobes. The leaves are slightly pungent in taste but they become bitter as the plant begins producing flowers. The flowers are small, white and in terminal clusters. Its seed pods are short and curved with a small apical beak.

Use

The succulent leaves and shoots are handpicked from stream banks and canals, and are consumed as vegetable.

Distribution

It is found in the sub tropical and temperate Mahabharata range of Nepal. These plants are abundantly found at the moist, shallow fertile banks of small streams and basins of the running canals. It has been found to grow well in the moderately cool weather.

Available period

As they regenerate very fast from the stems, the edible parts are available almost throughout the year.

Nepali name: Junelo

Common name: Broom corn millet

Botanical name: *Panicum milaceum* L.

Family: Poaceae

Description

It is an annual upright warm season grass that grows to an average height of 4 to 8 feet tall. It has its most active growth period in the summer. This short rooted monocot has a short life span and a rapid growth rate. Seed heads are borne in bunches on the ends of long straight branches. This plant

is found in different colours- cream, yellow, orange-red or brown. It requires less water and as such it is more drought resistant than other crops and can be grown even in dry land with no or little tillage.



Use

Broom corn millet is an important source of food during scarce, dry periods and is consumed as staple food. However broom corn are extensively used for making the indigenous alcoholic drink 'Chhyang' and distilled liquor 'Rakshi', since they have cultural importance in the Chepang community.

Distribution

It is native to Nepal and found in the temperate Mahabharata range at an elevation ranging from 900m to 3000m above the mean sea level.

Available period: November -December

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Nepali name: Katus/
Dhalne Katus

Common name:
Indian chestnut

Botanical name:
Castanopsis indica

Family: Fagaceae

Description

It is an evergreen tree. Its leaves are tough, alternate with pinnate venation and are retained all the year round. Its flowers are unisexual, and fruit in the form of an encased nut.

Use

The fruits are consumed. If they are available in greater quantity then they are taken to the market and sold. Strong branches are used for making the poles of the houses and are also used for fuel purposes.

Distribution

Native to Nepal, Indian chestnut grows abundantly and is common in the forests of the temperate to sub temperate Mahabharata and Churiya ranges.

Available period: October- December

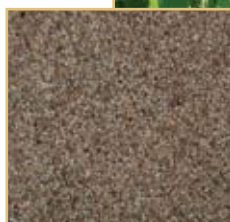
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Sawan
Nepali name: Sama
Common name: Barnyard millet
Botanical name: *Echinochloa crus-galii* (L.) P. Beauv. Var. *frumentacea* (Roxb.) W. Wight.
Family: Poaceae



Description

It is an erect, robust and annual plant. Heights of this plant differ according to the cultivars, ranging from 0.5m to 1.5 m. It has a fibrous root system. The leaf's sheath



is smooth and glabrous. The leaf blades are linear and soft. The seed-head is compact panicle-type inflorescence, 4 to 8 inches long. The caryopsis is tightly enclosed by a whitish lemma and palea. This plant cannot tolerate a water logging condition.

Uses

It is used as a staple food when it is found in adequate amounts. Grains are cooked in water in the same way as rice. Barnyard millet has great cultural/ ritual importance in these communities. Grains are fermented to make traditional local alcohols "Jaand" and "Rakshi". It has good nutritive value with higher protein, and is rich in minerals and trace elements such as iron, zinc, copper and manganese. Dried Barnyard millet is given to cattle and goats.

Distribution

This plant is native to Nepal and found in the higher mid hills in the Mahabharata range. In the Chepang community, it is planted mostly in their shifting cultivation lands which are undulating, sloping and marginal hill lands. This crop is cultivated in small amounts in such lands because people do not have other options of crop diversification.

Availability: September-October

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Phapar
Nepali name: Phapar
Common name: Buck wheat
Botanical name:
Fagopyrum esculenta
Family: Polygonaceae

Description:

Buckwheat is an annual Asian plant which has clusters of small whitish or pinkish flowers, and small seeds like triangular fruits. The kernels of the triangular shaped seeds are enclosed by tough, dark brown or grey rind.

Buckwheat is not a true cereal and is one of the very few plants, other than those of the Gramineae family, used for its starchy seeds. It is a short season crop that does grow well in low fertility or acidic soils but in soil that has been well drained.

Uses:

Buck wheat is cultivated in large areas in the Chepang villages as it is a short season crop that does well in low fertility or acidic soil, it is drought tolerant and, more importantly, is used as a staple food. Its edible triangular seeds are used as cereals. The seeds are processed to make meal and are consumed as a staple food in the Chepang community. Buckwheat is a very good source of manganese as well as magnesium and dietary fiber. The protein in Buckwheat is of high quality. People have a tradition of making local alcohol from the seeds.

Distribution:

Buckwheat is native to Nepal. Common Buckwheat was first domesticated and cultivated in South-East Asia, possibly before 6000 BC and from there spread to Europe, Central Asia and Tibet.

Availability: November-December

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Kodo
Nepali name: Kodo
Common name: Finger millet
Botanical name: *Elusine corocana*
Family: Poaceae

Description:

Finger millet is an erect tufted annual plant growing to the height of 60 to 122 cm. The root system consists of a large number of adventitious and fibrous roots that can absorb moisture thoroughly and efficiently from the soil. It is a hardy crop that is well adapted to arid highland areas of Asia. It is grown widely as a cereal crop.



Use:

In the Chepang community finger millet is cultivated solely in the *Bariland*. It is also observed grown in the bunds of *Khet* land (Upland) irrigated. It is one of the staple food crops in the Chepang communities. The seeds are grinded to flour and used for making traditional porridge (*Dhindo*), bread for breakfast and traditional fermented alcohol (*Jand and Rakshi*). Dried plants are fed to cattle and goats.

Distribution:

Finger millet was originally native to Ethiopian Highlands and was introduced to India approximately 4000 years ago. It is adaptable to higher elevations and is grown in the Himalayas up to 2300m above the mean sea level.

Availability: November-December

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Chepang name: Masyam
Nepali name: Masyang/Jhilinge/Siltung
Common name: Ricebean
Botanical name: *Vigna umbellate* (Thunb)
Family: Leguminosae

Description

Ricebean is an annual legume with erect to semi-erect vine and may attain the height of 4 meters. Leaves are trifoliate and the plant body is branched profusely. Seeds are of variable sizes and color. Flowers are conspicuously bright yellow and born in clusters. Ricebean can thrive well in marginal, drought prone and sloppy areas.

Uses

Ricebean is one of the important crop species in the Chepang community due to its adaptive capacity to marginal lands and drought tolerant characteristics. It possesses multipurpose uses in Chepang communities. Seeds are mostly used in preparing pulses (*dal*). The whole plant bodies are fodder for livestock and are often used as green manure.

Ricebean has cultural and religious importance in certain communities, such as Newars and Magars. Its market price is often high during the Maghe-Sankranti festival. Therefore, it is one of the sources on income in Chepang communities.

Distribution

Ricebean is found in diverse climatic conditions, from humid subtropical to warm and cool temperate climates. This crop is native to Nepal and found from the altitude of 700m to 1400m above the mean sea level; in the mid-hills of Nepal.

Available period: September-October

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Nutrient status of the wild foods used by Chepang people

SAMPLE DETAILS	% DM	% CP	% CF	% EE	% NFE	% TA
Khame Pindalu	20.07	2.03	5.86	0.27	85.88	5.96
Dalle Pindalu	24.88	2.52	3.59	0.06	87.61	6.22
Hattipau Pindalu	34.33	0.45	3.01	0.53	91.23	4.77
Seto Dudhe Pindalu	29.58	1.41	3.13	0.38	89.45	5.64
Kurkhure Pindalu	23.65	1.42	3.98	0.25	88.35	5.99
Kera tarul	35.07	0.30	2.58	0.44	91.41	5.27
Patale Tarul	20.14	2.16	3.00	0.31	88.15	6.39
Kalashe tarul	23.63	2.67	3.55	0.24	87.41	6.13
Rani tarul	25.18	0.96	4.41	0.11	91.17	3.34
Gittha	27.43	1.08	4.26	0.16	90.69	3.81
Bhyakur	26.07	0.80	5.63	0.28	89.18	4.12
Jyar	18.84	1.16	7.26	0.20	86.53	4.85
Amala	18.16	1.09	24.24	1.86	69.61	3.19
Jaluko	9.33	1.40	26.96	1.14	48.77	21.73
Ghar Tarul	31.8	1.14	3.56	0.33	91.67	3.30
Ban tarul	38.01	1.15	4.58	0.32	90.99	2.96
Karkalo(gava)	7.37	1.85	23.93	0.99	48.70	24.52
Thulo Sisnu	10.44	4.08	18.51	0.53	54.08	22.80
Sano sisnu	12.75	4.93	12.74	1.10	61.54	19.68
Tyaguna	19.99	1.12	3.87	0.50	91.06	3.45

SAMPLE DETAILS	% DM	% CP	% CF	% EE	% NFE	% TA
Bharlang	23.11	1.55	2.78	0.41	91.36	3.91
Ajinda	38.32	0.78	25.06	7.23	63.24	3.69
Rani Bhyakur	22.4	1.69		0.05		3.7
Ful tarul	30.52	7.06	1.66	0.13	4.52	86.64
Kurilo ko Jara	24.94	10.44	10.92	0.13	1.83	76.68
Nani Pindalu	21.6	14.60	2.38	0.41	8.04	74.57
Jire khursani	21.49	22.38	36.74	6.44	7.87	26.57
Phapar	-	14.74	0.78	3.30	2.10	79.09
Gahat	-	23.91	4.62	0.38	4.75	66.34
Kaguno	-	13.28	0.55	3.57	1.70	80.90
Shama	-	11.06	0.22	1.99	1.84	84.89
Junelo	-	11.50	0.94	3.48	2.17	81.92
Kodo(millet)	-	7.31	5.61	2.03	3.22	81.84

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Local Initiatives for Biodiversity, Research and Development (LI-BIRD) is a non-profit making, non-governmental organization established in 1995 in Pokhara, Nepal. It is registered with the District Administrative Office of Kaski and affiliated with the Social Welfare Council.

LI-BIRD is committed to capitalize on local initiatives for sustainable management of renewable natural resources to improve the livelihoods of rural poor and marginalized farmers, especially women.

In over 16 years of partnership for development oriented research in agriculture and natural resources management, LI-BIRD has contributed to the development of several innovative methodologies and approaches for participatory research and development. It has generated impacts that have enhanced the livelihoods of rural poor and marginalized farmers through appropriate technological, social and policy changes.

LI-BIRD has been a pioneer organization in strengthening participatory methodologies for research and development in agriculture, biodiversity conservation and sustainable natural resource management. It has also played an instrumental role in institutionalizing these approaches in the national systems of Nepal.



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