

# Ethnobotanical Study of Traditional Food in Newar Community of Kathmandu Valley, Central Nepal

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## Abstract

Socio-culture plays a significant role in conservation of indigenous knowledge and ethnic food in Nepal. Ethnic food makes the basis of diversified food which contributes to improve the health, besides food and nutrition securities. Documentation of plant based traditional food is crucial to enhance intercultural and intergenerational relations. Most of the traditional foods are prepared to celebrate rituals and culture using plants and plant products. This study gives a general overview of plant based traditional foods and rituals of Newar ethnic group inhabiting in Kathmandu Valley, Central Nepal. Data were gathered through ethnobotanical inventory, through interviews, participatory observations at festivals and ceremonies to document plants type, types of traditional food, consumption of traditional food in rituals, in addition to the challenges involved for indigenous knowledge preservation. Altogether 54 plant species were used for preparation of 45 types of traditional food. These traditional foods are consumed during celebration of more than 25 rituals and cultures of Newar ethnic group. Wild plants such as *Blumea lacera*, *Centella asiatica*, *Choerospondias axillaris*, *Urtica dioica*, etc. in particular occurred close to the areas where Newar community live and are mostly used for traditional food preparation. Other important plants were supplied by cultivation (i.e., domesticated species) and through markets. The young generation showed little interest in the consumption of traditional food. There is a great challenge to conserve traditional food and the related culture. Documentation of traditional knowledge about ethnic foods and their consumption in rituals will contribute for sustainable conservation of traditional food and culture for future generations.

**Keywords:** Culture heritage, Ethnic food, Health care, Indigenous knowledge, Rituals, Traditional plants

## Introduction

Wild edible plants provide food not only in times of food scarcity but also consumed during celebration of festivals and rituals in Nepal. Nepal has long been renowned as a key centre of crop domestication and agriculture improvement. The history of traditional foods was observed since the time of early crops domestication and agriculture innovation, and possibly the traditional food was linked to celebrations of rituals and festivals, social gatherings and honor guest (Hall & Sharples, 2008). Rituals comprise the religion, festival, social cultures of particular area (Kakudidi, 2004). Rituals, socio-culture, festivals celebrations and religions play vital role in describing the relationships between human and natural systems which enhance the management of natural resources (Society for Conservation Biology [SCB], 2008). Each and every indigenous community have great experiences in conserving the plant diversity since historic period by celebrating

their own cultures, religions and festivals (Saini et al., 2011). The Convention on Biological Diversity explains that traditional knowledge (TK) as knowledge, innovations, and practices of indigenous communities (Convention on Biological Diversity [CBD], 1992). While exploring the plant diversity, one finds some valuable heritage in every district of the country. Nepal has been considered as multi-ethnic and culturally diverse country. The cultures vary in different ethnic communities.

Traditional knowledge is developed through experiences of plant resources utilization, associated with socio-cultures, conserved in a traditional context and learned through observation or/and practices. Proper utilization of traditional knowledge of using plant resources can support to improve food security, human and animal health care and conservation awareness education for natural resource management issues (Ava & Waswa, 2016). Celebrations of festivals in various seasons

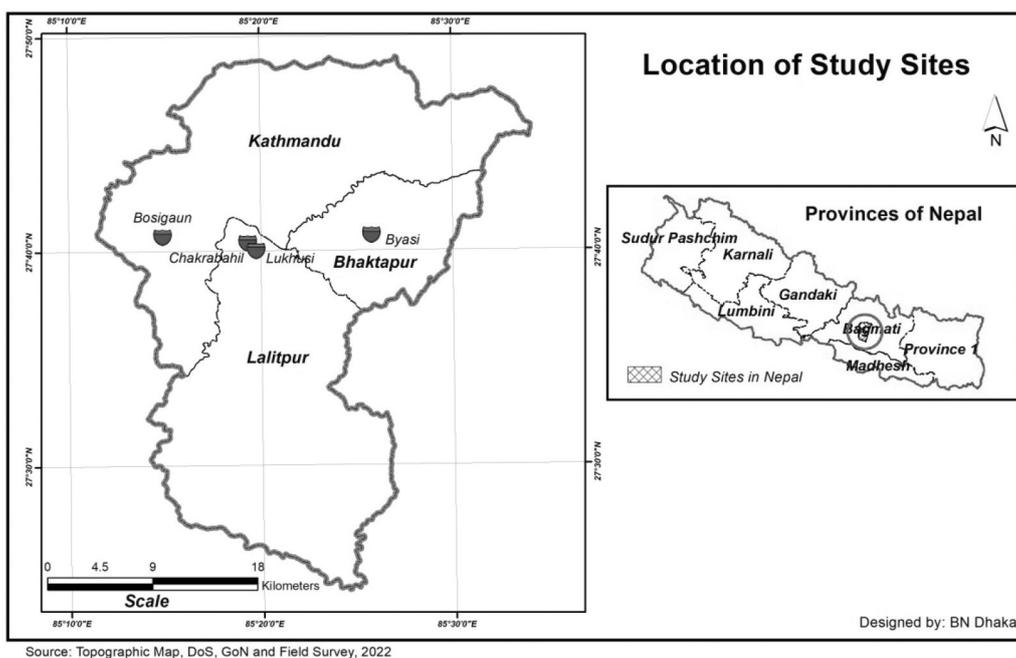
and rituals during life time by Nepalese have played vital role in the preservation of plant diversity in nature. Thus, preservation of culture should be a vital part of biodiversity conservation. Under article 4, World Heritage Convention, 1972, the obligation of each ethnic group is to save culture and transfer it to young generations. With the loss of traditional cultures and the decrease of those who enforced them, a lot of particularly precious information, traditional knowledge on plant diversity will be lost forever and so “Culture and Conservation” both together are important (Negi, 2005). Utilization and protection of plants are related with their cultural activities such as rituals, ceremonies and festivals (Sapkota, 2013). Although some works have been documented on religious plants of Nepal (Joshi & Majupuria, 2009), rituals of Jhakro in Magar community (Sapkota, 2010), wild useful plants and people of Nepal (Manandhar, 2002), plants, culture and medicine (Joshi & Siwakoti, 2020), culture and cultural plants (Joshi & Joshi, 2019), use of medicinal plants in Newar community (Joshi & Siwakoti, 2021), useful medicinal plants of Kathmandu Valley (Balami, 2004; Bhattarai, 1988; Dani & Tiwari, 2018; Ranjitkar & Rajbhandary, 2008) as well as of Lalitpur District (Maharjan et al., 2021; Sharma & Joshi, 2003; Shrestha & Joshi,

1993; Shrestha & Pradhan, 1988). Documentation of traditional foods and social culture plants in ethnic communities are not available. However, diversity of traditional foods used in rituals are vanishing due to loss of forests, agricultural fields, young generation not interested in consuming traditional food during rituals celebration, busy scheduled work, lack of ingredients for wild plant based traditional food preparation, cultivation of limited crops, declining of wild plants in natural habitat, changing life styles, preference of modern food, lack of transmission of traditional knowledge to future generations and lack of conservation awareness to preserve traditional knowledge. The objective of this study is to document plant based traditional food, the ingredients of traditional food, the methods of traditional food preparation and their ritual roles used by the Newar community in Kathmandu Valley of Nepal.

## Materials and Methods

### Study site

The study was conducted in Lalitpur District from January-June 2013 and Bhaktapur and Kathmandu Districts from July 2020 to December 2021. Kathmandu Valley is bounded by four main forest



**Figure 1:** Map showing the study localities inside Kathmandu Valley

hills, in east Nagarkot (2,195 m asl), west Shivapuri (2,732 m asl), south Phulchowki (2,695 m asl), north-west Nagarjun (2,095 m asl) and south-west Chandragiri (2,551 m asl). Kathmandu Valley comprises of Bhaktapur, Lalitpur and Kathmandu Districts. The Kathmandu Valley is located in Central Nepal, Bagmati Zone, Bagmati Province (Figure 1). It has special identity for its historical, religious, cultural and natural heritage sites. It lies at an elevation of 1300 m to 2600 m asl with subtropical to temperate type of vegetation. Kathmandu Valley covers an area of 665 km<sup>2</sup>. This area receives an annual rainfall of approximately 2800 mm, with heavy monsoon rainfall during mid of June to end of August. The temperature varies between 25°C to 30°C during summer and between 4°C and 20°C in winter. The surrounding hills are dominated by natural forest comprising of *Schima wallichii* and *Castanopsis indica*.

### ***Newar community***

The current population of Nepal is 29,192,480 based on the latest national population census of Nepal 2021. There are 126 ethnic groups and among them the Newar community is one of the largest indigenous communities of the Kathmandu Valley. According to Nepal's 2011 census, there are 1,321,933 Newar people in the country and it is the nation's sixth largest ethnic group, representing 5% of the population (Central Bureau of Statistics [CBS], 2011). There are 26 castes and more than 80 sub-castes among the Newar ethnic group (Rosser, 1966; Shrestha, 2007).

### ***Ethnobotanical data collection***

The ethnobotanical study was performed at four different sites: Byasi of Bhaktapur District; Chakrabahil and Lukhusi of Lalitpur District; and Bosigaun of Kathmandu District (Figure 1). From the study localities of Bhaktapur, Lalitpur and Kathmandu Districts, the key informants were identified based on age and gender. The key informants include the knowledgeable people with in-depth knowledge on culture and interest in the use of plant resources. Before the interviews with indigenous community, meeting was organized with

knowledgeable people, including midwife (Aji), to explain the purpose of the study and to obtain permission from the indigenous community. Data were gathered through open interviews, author self participation and observation of festivals and rituals to identify, collect and describe the wild and cultivated plant species and its products, name of traditional food, ingredients of traditional food prepared, methods of food preparation, use of traditional food in rituals and challenges in indigenous knowledge conservation. Interviews were conducted with 45 informants (15 in each district) including females and males. The informants represented a wide range of age groups from 40 to 70 years. Information about the local names of plant species, parts used and life forms was also gathered from the study sites. Scientific names of the plant species were confirmed by consulting relevant literature Shrestha et al. (2022) and the Catalogue of Life (Accessed: 15 September 2022).

## **Results and Discussion**

Newar community of Kathmandu Valley celebrate different cultural traditions (such as festivals and life cycle ceremonies like naming of new born child, rice weaning ceremony, birthday ceremony, marriage ceremony and death rituals, etc.). Most Newar families practice religion and offer prayers to God on a daily, weekly, monthly, yearly or sporadic basis. Indigenous knowledge of traditional food preparation is mainly dependent on wild and cultivated species of indigenous crops. Most of cultivated species are grown in home gardens and fields, some are purchased from markets. The wild plant species are recorded from forests, fallows and along roadside close to their settlements for traditional food preparation.

### ***Diversity of traditional food plant species***

Altogether 54 food plant species belonging to 48 genera and 27 families were reported by interviewing 45 key informants. Regarding life forms, out of 54 species, 48 were herbs, two were shrubs and four were trees. The scientific names, plant families, life forms, parts used and local names in Nepali, Newari

language, common names and status (cultivated or wild) are documented in Table 1.

The commonly used wild edible plants such as *Blumea lacera*, *Centella asiatica*, *Choerospondias axillaris*, *Urtica dioica*, etc. usually occurred close to the Newar community residing areas. When comparing the species of the present study with previous published studies (Joshi & Siwakoti, 2012; Joshi et al., 2007; Joshi et al., 2015), this study found that *Blumea lacera*, *Centella asiatica*, *Eclipta prostrata* and *Urtica dioica* are consumed as vegetables, whereas *Blumea lacera* is used to prepare soup and consumed post-delivery (Joshi & Siwakoti, 2020). Similarly, these five wild plant species are reported to cure illness in Kathmandu Valley (Dani & Tiwari, 2018) and Makwanpur District (Joshi et al., 2020).

Regarding the locations for collections of food plants, wild habitats such as forests and fallow lands were the most important habitats. Out of the documented 54 species, 36 species were from cultivation, 13 species were from wild and five species were both cultivated/wild (Table 1). As many as eight wild species were reported to be collected from home gardens, 44 species were grown in farmers' fields and four species were collected from fallow lands. Due to infrastructure development, change of agricultural land for urban settlement, young

generations priority for modern food consumption, lack of indigenous knowledge transfer from generation to generation and the overexploitation of the resources, the abundance of highly valuable and demanded wild food plant species are decreasing nowadays in the study areas according to informants. Five species, viz., *Amaranthus blitum*, *Bauhinia variegata*, *Centella asiatica*, *Eclipta prostrata* and *Urtica dioica*, occur naturally but were also found cultivated in home gardens of Newar community of Lalitpur District, showing their high importance to the indigenous communities. Out of 54 plant species, six species such as *Allium wallichii*, *Bergenia ciliata*, *Blumea lacera*, *Centella asiatica*, *Eclipta prostrata* and *Fagopyrum dibotrys* were decreasing in their natural habitat due to urbanization, infrastructure development, increasing demand of exotic species instead of indigenous ones, according to informants. These species are so far neglected in regional and national level, and no conservation and domestication strategies are promoted. In addition, such species are not known by the younger people. Therefore, these species could be more threatened in the near future.

Seeds, tender shoots, leaves and flowers are used along with certain spices to prepare traditional food. The fact that seeds are used more frequently than other plant parts may be the result of their extended storage potential and ease of availability.

**Table 1:** List of wild and cultivated food plant species to prepare traditional food of Kathmandu Valley

Scientific name	Family	Life form	Part used	Local names	Common name	Status
<i>Allium sativum</i> L.	Amaryllidaceae	Herb	Entire plant	Lasun (Nep), Lava (New)	Garlic	C
* <i>Allium wallichii</i> Kunth	Amaryllidaceae	Herb	Leaves	Ban Lasun (Nep), Lalicha (New)	Wild Garlic	W
<i>Amaranthus blitum</i> L.	Amaranthaceae	Herb	Young leaves	Latte (Nep), Bakacha (New)	Amaranthus	W
<i>Amomum subulatum</i> Roxb.	Zingiberaceae	Herb	Fruit	Alaichi (Nep), Yela (New)	Black Cardamom	C
<i>Arachis hypogaea</i> L.	Fabaceae	Herb	Seeds	Badam (Nep), Barah (New)	Peanut	C
<i>Astilbe rivularis</i> Buch.-Ham. ex D. Don	Saxifragaceae	Herb	Rhizome	Thulo aushadhi (Nep), Fakuwasa (New)	River Astilbe	W
<i>Bauhinia variegata</i> L.	Fabaceae	Tree	Flowers	Koiralo (Nep), Kunabu (New)	Orchid Tree	C/W
* <i>Bergenia ciliata</i> (Haw.) Sternb.	Saxifragaceae	Herb	Rhizome	Pashanved (Nep), Pakhabuswa (New)	Bergenia	W
* <i>Blumea lacera</i> (Burm f.) DC.	Asteraceae	Herb	Leaves, flower	Thagnejhar (Nep), Khichavwatha (New)	Blumea	W

Scientific name	Family	Life form	Part used	Local names	Common name	Status
<i>Brassica nigra</i> (L.) W.D.J.Koch	Brassicaceae	Herb	Seeds	Rayo ko biu (Nep), Tu (New)	Mustard	C
* <i>Centella asiatica</i> (L.) Urb.	Apiaceae	Herb	Leaves	Ghodtapre (Nep), Kholchaghaye, Milabaku (New)	Water Pennywort	W
<i>Choerospondias axillaris</i> (Roxb.) B.L.Burt & A.W. Hill	Anacardiaceae	Tree	Fruit	Lapsi (Nep), Amali (New)	Nepal Hog Plum	C/W
<i>Cicer arietinum</i> L.	Fabaceae	Herb	Seeds	Chana	Chickpea	C
<i>Cinnamomum verum</i> J. Presl	Lauraceae	Tree	Bark	Dalchini	Cinnamon	C
<i>Cleome gynandra</i> L.	Cleomaceae	Herb	Leaves	Jungephool (Nep), Swivamo (New)	Spider Plant	W
<i>Colocasia esculenta</i> (L.) Schott	Araceae	Herb	Leaves, stem, tuber	Karkalo, Pidalu (Nep), Faka, Saki (New)	Taro	C
* <i>Crateva unilocularis</i> Buch.-Ham.	Capparaceae	Tree	Young leaves	Siplekan (Nep), Khaelcho (New)	Sacred Garlic Pear	C/W
<i>Cucurbita maxima</i> Duchesne.	Cucurbitaceae	Herb	Fruit	Farsi (Nep), Fasi (New)	Pumpkin	C
<i>Curcuma longa</i> L.	Zingiberaceae	Herb	Rhizome	Besar (Nep), Halu (New)	Turmeric	C
<i>Dendrocalamus hamiltonii</i> Nees & Arn. ex Munro	Poaceae	Herb	Tender shoot	Tama (Nep), Chho (New)	Bamboo shoot	W
<i>Dioscorea</i> sp.	Dioscoraceae	Herb	Tuber	Tarul	Yam	C/W
<i>Drepanostachyum intermedium</i> (Munro) Keng. f.	Poaceae	Herb	Seeds	Nigalo (Nep), Tiew (New)	Intermediate Cane Bamboo	W
* <i>Eclipta prostrata</i> (L.) L.	Asteraceae	Herb	Leaves	Vringaraj (Nep), Atali (New)	False Daisy	W
<i>Elettaria cardamomum</i> (L.) Maton	Zingiberaceae	Herb	Fruit	Sukumel	Green Cardamom	C
<i>Eleusine coracana</i> (L.) Gaertn.	Poaceae	Herb	Seeds	Kodo (Nep), Dusi (New)	Millet	C
<i>Fagopyrum dibotrys</i> (D. Don) H. Hara	Polygonaceae	Herb	Leaves	Tite phaper (Nep), Basan (New)	Tall Buckwheat	W
<i>Glycine max</i> (L.) Merr.	Fabaceae	Herb	Seeds	Bhatmas (Nep), Musya (New)	Soybean	C
<i>Hordeum vulgare</i> L.	Poaceae	Herb	Seeds	Jau (Nep), Tachho (New)	Barley	C
<i>Ipomoea batatas</i> (L.) Lam.	Convolvulaceae	Herb	Tuber	Sakhakhanda (Nep), Hi (New)	Sweet Potato	C
<i>Macrotyloma uniflorum</i> (Lam.) Verdcourt	Fabaceae	Herb	Seeds	Gahat (Nep), Kola (New)	Horse Gram	C
<i>Melia azedarach</i> L.	Meliaceae	Herb	Young leaves	Bakano (Nep), Khaebasi (New)	Chinaberry Tree	W
<i>Musa paradisiaca</i> L.	Musaceae	Herb	Fruit	Kera	Banana	C
<i>Oryza sativa</i> L.	Poaceae	Herb	Seeds	Chamal, Chiura (Nep), Jaki, Baji (New)	Rice	C
<i>Phaseolus vulgaris</i> L.	Fabaceae	Herb	Seeds	Simi (Nep), Simpu (New)	Common Bean	C
<i>Piper longum</i> L.	Piperaceae	Herb	Fruit	Pipla (Nep), Pipi (New)	Long Pepper	C/W
<i>Piper nigrum</i> L.	Piperaceae	Herb	Fruit	Marich (Nep), Malay (New)	Black Pepper	C
<i>Pisum sativum</i> L.	Fabaceae	Herb	Seeds	Thulo keraw (Nep), Tagagukayegu (New)	Garden Pea	C
<i>Pisum sativum</i> var. <i>arvense</i> (L.) Poir	Fabaceae	Herb	Young pod, seeds	Sano keraw (Nep), Chigogukayegu (New)	Field Pea	C

Scientific name	Family	Life form	Part used	Local names	Common name	Status
<i>Punica granatum</i> L.	Lythraceae	Shrub	Fruit	Anar (Nep), Dhale (New)	Pomegranate	C
<i>Raphanus sativus</i> L.	Brassicaceae	Herb	Root, Young pod, seeds	Moola (Nep), Lai, Laisu, Laasi (New)	Radish	C
<i>Saccharum officinarum</i> L.	Poaceae	Herb	Stem	Sakhar, Chaku (Nep), Sakh, Chaku, Chini (New)	Sugar, Molasses, Jaggery	C
<i>Sesamum indicum</i> L.	Pedaliaceae	Herb	Seeds	Til (Nep), Hamo (New)	Sesame	C
<i>Solanum tuberosum</i> L.	Solanaceae	Herb	Tuber	Alu	Potato	C
<i>Spinacia oleracea</i> L.	Amaranthaceae	Herb	Entire plant	Palungo (Nep), Pala (New)	Spinach	C
<i>Syzygium aromaticum</i> (L.) Merr. & L.M. Perry	Myrtaceae	Shrub	Flowers	Lwang (Nep), Lawa (New)	Clove	C
<i>Trachyspermum ammi</i> (L.) Sprague	Apiaceae	Herb	Seeds	Jwano (Nep), Imu (New)	Ajowan	C
<i>Triticum aestivum</i> L.	Poaceae	Herb	Seeds	Gahupitho (Nep), Chhuchu (New)	Wheat	C
<i>Urtica dioica</i> L.	Urticaceae	Herb	Leaves	Sisnu (Nep), Nhyaka (New)	Stinging Nettle	W
<i>Vigna mungo</i> (L.) Hepper	Fabaceae	Herb	Seeds	Mas (Nep), Maye (New)	Black Gram	C
<i>Vigna radiata</i> (L.) Wiczek	Fabaceae	Herb	Seeds	Mugi (Nep), Moo (New)	Green Gram	C
<i>Vigna umbellata</i> (Thunb.) (Ohwi & H. Ohashi)	Fabaceae	Herb	Seeds	Masyang (Nep), Pamaye (New)	Ricebean	C
<i>Vigna unguiculata</i> (L.) Walp.	Fabaceae	Herb	Seeds	Bodi (Nep), Bhuti (New)	Cowpea	C
<i>Zea mays</i> L.	Poaceae	Herb	Seeds	Makai (Nep), Kani (New)	Maize	C
<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Herb	Rhizome	Aduwa (Nep), Palu (New)	Ginger	C

Note: Nep = Nepali name; New = Newari name; C = Cultivated; W = Wild; \*species decreasing in their abundance in the forests and fallow land

### Documentation of traditional foods in rituals

Altogether 44 traditional foods were documented to be used in the rituals. These traditional foods are prepared from wild or cultivated plant species and plant products such as rice flour, wheat flour, dried radish, molasses or sugar. Indigenous Newar community of Nepal has their own traditional culture, religion and festivals which play a key role in conservation and utilization of plant diversity for health care, food security and traditions (Joshi & Siwakoti, 2020). These traditional foods are consumed in various types of rituals and celebration of festivals (Table 2). In the present study, both male and female informants showed equal knowledge in the use of edible plants. Older informants (age range 60-70) have more knowledge about traditional food than in the 40-50 years range. An account of important traditional foods used during different rituals and ceremonies are briefly described below:

**Achhetamari:** Achhetamari is used in the full moon day of January (Swasthani Purnima). During Swasthani Purnima, a Swasthani story (Swasthani Bakhan) is recited every day for a month. It is believed that worshipping Swasthani brings happiness in life. This traditional food is prepared from wheat flour (Maida), clarified butter and sugar.

**Ghyo-chaku:** On the first of Magh (around mid-January), Ghyo-chaku Sanhlu or Hamo Sanhlu (Maghe Sankranti in Nepali and Makar Sankranti in Sanskrit) is observed in Newar community. They eat Ghyo (clarified butter) and Chaku (molasses) along with various species of yam, spinach, sweets of sesame molasses ball to warm their body. People rub mustard oil over their bodies during sunny day.

**Halimali:** Halimali is prepared from roasted maize, soybean, peanut, peas. Halimali is consumed during

August-September, as Ganesh Chauthi or Chhatha festival is observed in this month. Halimali is eaten in Sakimana Puhni (full moon on December) as well as in Barah ceremony. Barah, one of the popular ceremonies in Newar community, is conducted at the age between 7 to 13 years old. In this Newar culture, girl is kept in a dark room for 12 days and on 6<sup>th</sup> day, female relatives of girl come to visit with Halimali.

**Khaequati:** Khaequati is consumed on the first day of the Nepali new year; the calendar followed in Nepal, Baisakh month (during mid-April). A special soup is cooked from green pods of pea (*Pisum sativum*), dried chips of radish (*Raphanus sativus*), and flour of flattened rice along with either *Crateva unilocularis* tender shoots, or tender leaves of *Melia azedarach*. Eating this soup is believed to make body fit and healthy and protect from any type of diseases throughout the year. Health and nutrition factors are closely linked to foods (Kuhnlein, 2014).

**Quati:** In July-August, the festival known as Raksha bandhan (Gunpuhni in Nepal Bhasha), is celebrated by preparing ‘Quati’, a soup made from varieties of legumes. Fresh leaves of ‘Lalichha’, kinds of leek like plant *Allium wallichii* is added to the soup particularly in Lalitpur District. Newar community believe that various types of legumes soup contain Magnesium, Calcium and Phosphorus, which the body need to be strong and healthy.

**Sakhati:** The warm season starts during April, so to get fresh and cool, Newar community organize a ceremony, on the roadside, to distribute cold water which is mixed with molasses and different types of spices like Black Cardamom, Green Cardamom and Cinnamomum bark.

**Samayebaji:** Yanya Punhi (full moon on December) is dedicated to lord Indra, the king of heaven. This is one-week long festival which begins after the erection of Yosin (a ceremonial wooden pole). In this festival, the living Goddess “Kumari Jatra” is performed in Kathmandu City and people use to eat varieties of fried legumes, flattened rice and meat. Collectively this food is called Samayebaji, which is a popular ethnic food, found even in restaurants.

**Wo:** In the second month of the Nepali Year, Jestha (May), the festival ‘Sithi Nakha’ is celebrated by worshipping the God Sithi Deyo which means the god of the Earth. The flat bread (also known as Legumes Pancake) prepared from the paste of black gram (Maye wo), green gram (Moo wo) and small pea (Kasoo wo), is a special preparation for this festival. The bread cooked from black gram is also used during birth celebration and offered to the God.

**Yomari:** On the full moon day of December ‘Yomari’ Puhni (Dhanya Poornima in Nepali) is observed exclusively by Newar community of Kathmandu Valley and other parts of the country to worship the paddy. It is a postharvest festival of worshipping Annapurna (Goddess of grains) for a good rice harvest. Yomari Puhni lends its name from Yomari (a typical steamed cake of rice flour stuffed with a mixture of sesame and molasses) which is offered in the rice storage room. The delicious bread, Yomari is used not only for Yomari Puhni but also on childrens’ 2<sup>nd</sup>, 4<sup>th</sup>, 6<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup> and 12<sup>th</sup> birthdays. They wear two Yomari is garland for the two years old birthday, 4 Yomari is garland for four years old birthday and so on. Yomari has also great importance during Janko (old age ceremony) and in pregnancy used as a gift.

**Table 2:** List of traditional food name used in rituals and ceremonies by Newar community

Name of traditional food	Ingredients for traditional food preparation	Method of food preparation	Used in rituals
Achhetamari	Wheat flour (Maida), Ghee (Clarified butter), Sugar	Cooked with Ghee (Clarified butter)	Swasthani brata katha (On January)
Chakusala	Chaku (Molasses), Sesame	Make small round food by using mixture of fried white or brown Sesame and Chaku	Birthday celebration, Maghe sankranti (On January)
Chatamari	Rice flour	Rice flour paste cooked as bread	Dewali, Sithinakha (On May)
Chhoqua	Potato, Bean, Bamboo shoot, Dried radish	Cooked with given ingredients and made soup	Festivals and feast, social celebration such as marriage, Rice weaning, Bratabrandh etc.

Name of traditional food	Ingredients for traditional food preparation	Method of food preparation	Used in rituals
Chhuchumari	Wheat flour	Cooked wheat flour bread	Janaipurnima, Rice planting time
Dhalemu	Pomegranate, Banana	Salad mixed with Pomegranate, Banana with Yogurt	Mhapuja, Bhaipuja (Tihar festival)
Dhaubaji	Flattened rice, Yogurt	Flattened rice and yogurt	Birthday celebration, Dhaubajinakegu (Pregnancy, Baby shower)
Dusimari	Millet flour	Millet flour cooked pancake	During suffer from smallpox
Ghemoquati	Young radish pod, Small pea pod, Baked rice, Dried radish chips, Radish seeds	All ingredients boil and made soup	Baisakh first (On May)
Ghyochaku	Chaku (Molasses), Ghee	Ghee and chaku eaten with flattened rice	Maghe sankranti (On January)
Halimali	Maize, Soybean, Peanut, Garden pea, Chickpea	All ingredients roasted	Chatha, Sakimanapuni, Shivaratri, Barah celebration
Hisakimana	Taro, Sweet potato	Boiled taro and sweet potato	Sakimanapuni (On December, full moon)
Imuke/Imuquati	Ajwain, Flattened rice	Soup of Ajwain and flattened rice	Post-delivery
Jugaquati	Field pea, rice flour, Dried radish pieces	Soup boiled with these mentioned ingredients	Jugachahre (On August)
Kakachatarkari	Taro, Amaranth, Stinging nettle, False daisy, Pumpkin	Entire plants of Taro, tender shoots Amaranth, stinging nettle, False daisy and pumpkin cooked as mixed leafy vegetable	Rishi panchami, Dasara (On September)
Kamghasa	Field pea	Wet field pea grounded to paste and added with salt.	4- or 6-day death rituals
Kasu wo	Field pea	Field pea paste pancake	Sithinakha, 4- or 6-day death ritual
Khaeeyuquati	Dried radish pieces, Small pea pod, Radish pod, Sacred garlic pear, China berry tree, Radish seed, Chirayita	Ingredients boil to prepare soup with bitter part either with Sacred garlic tender shoot or tender shoot of China berry tree, or Chirayita	1st Baishakh
Kheer	Rice, Ghee, dry fruits, sugarcane	Given ingredients cooked.	Rice weaning ceremony, 84 years ritual celebration, 15th Shrawan
Khichari	Rice, Black gram, Turmeric	Rice and black gram cooked	1st Magh
Khichavwath quati	Flattened rice, Blumea,	Flattened rice and dried Blumea leaves cooked to make soup	Child birth naming ceremony
Kholchaghaye Achar	Water Pennywort	Pickle is prepared with salt and pepper	Shreepanchami (On January)
Kholchaghaye sarbat	Water Pennywort, Jaggery	Water Pennywort added with small amount of Jaggery to prepare juice	Shreepanchami (On January)
Kolake	Horse gram	Dal (soup) is boiled	Taken during January (Siiachare), Soup is taken during suffering from smallpox
Kolati	Horse gram	Horse gram boiled with water	Juice is taken during suffer from smallpox
Kunabu achar	Mountain Ebony, Field pea, Nepalese Hog plum pulp, Brown Sesame powder	Mountain Ebony flowers or buds boiled and prepared pickle mixed with Sesame powder, Nepalese Hog Plum pulp	1st Baisakh (Biska Jatra)
Labawalagu	Garlic leaves	Fresh garlic leaves and stem added with salt and spices, mustard oil	Pahachare
Lakhamari	Wheat flour (Maida), Sugar, Ghee	Bread cooked in hot Ghee	Marriage ceremony

Name of traditional food	Ingredients for traditional food preparation	Method of food preparation	Used in rituals
Maye wo	Black gram paste	Black gram paste cooked as pancake with hot Mustard oil	Sithinkha, Birthday celebration
Mayebuja/Khichari	Rice, Black gram, Ghee	Rice and Black gram cooked	1st Magh (On January)
Moo wo	Greengram paste	Green gram paste cooked as pancake with hot Mustard oil	Sithinakha (May)
Nhyakke	Stinging nettle, rice flour	Prepare soup with these mentioned ingredients	Magh month (January)
Palawalagu	Spinach, roasted Soybean powder	Fresh Spinach mixed with roasted Soybean powder and spices	1st Magh (January)
Pau, Pauqua	Nepalese Hog plum pulp	Boiled Hog plum and the pulp is made liquid form by adding with spices	Festivals and feast
Puwakhuna	Rockfoil and Astilbe dried rhizome powder, dry fruits	Rockfoil, Astilbe powder are cooked with roasted dry fruits in ghee s by adding Jaggery	Post-delivery
Quati	Chicke pea, Soybean, Common bean, Field pea, Garden pea, Black gram, Green gram, Rice bean, Cowpea (Nine legumes), Himalayan Onion, Ajwain	Well soaked legume seeds are cooked with Himalayan Onion, along with roasted Ajwain in hot Mustard oil for soup preparation	Janai purnima (On August, full moon)
Sakhati	Jaggery, Green Cardamom, Black Cardamom, Cinnamon, Long pepper, Cloves	Juice is prepared with Jaggery along with Black Cardamon, Green Cardamon, Cinnamon	Achheye tritiya (Mid-April)
Samayebaji	Flattened rice, Black Soybean, Cowpea, Black gram pancake, Ginger pieces	Food is prepared from flattened rice, roasted black Soybean, boiled Cowpea, Ginger pieces	Indra jatra, Birthday celebration to offer God
Sanacha	Taro stem, Radish seeds, Turmeric, Mustard oil	Peeled Taro stem is air dried and make fermented pickle along with Radish seeds powder, Turmeric and Mustard oil	Consumed during Indrajatra along with Samaye baji (On September)
Sattu	Barley	Roasted Barley powder with added water	Achheye tritiya (On May)
Sisapalu	Ajwain, Ginger, Molasses	Ajwain, Ginger small pieces and Molasses paste	Krishna astami (On August)
Tarul	Yam	Roasted Yam vegetable in Mustard oil	1st Magh (On January)
Taula	Brown Sesame, Molasses	Brown Sesame and Molasses ball	Birthday celebration
Titipa	Intermediate Cane Bamboo	Roasted seeds	During suffer from Smallpox
Yomari	Rice flour, Brown Sesame roasted powder, Molasses	Handful of kneaded rice flour is taken, make egg shaped bread, leave one side hole and Sesame, Molasses paste is filled, steamed	2,4, 6, 8, 10, 12 years birth celebration, Yomari purnima, Machhindra Jatra (Note: for birth celebration and Machhindranath Jatra, rice is filled in Yomari instead of Molasses paste)

## Conclusion

Documentation of plant based traditional food is crucial to enhance intercultural and intergenerational relations. Traditional foods are a cornerstone for sustainable diets, food heritage and biodiversity conservation. The Newar ethnic group has its own perception of preserving and using biological

diversity, including remarkable knowledge on conservation and sustainable use of plant resources. The Newar community has established its traditional conservation methods based on socio-cultural traditions and indigenous knowledge systems. The knowledge of traditional use of plants in this community is important for studying their scientific,

aesthetic, traditional health care systems and cultural values. The present documentation of plant based food will help to identify those traditional food with the high importance and utilization potential by intergrating ethnobotanical information. However, more research regarding the nutritional value of these plant species is needed. Documentation of traditional knowledge of ethnic foods and their consumption during rituals will help in the sustainable conservation of traditional food and culture for future generations.

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