

RESEARCH ARTICLE

Ethnobotany of wild vegetable species used by Apatani and Nyishi tribes in Lower Subansiri district of Arunachal Pradesh, India

Likha Rido, Pokhaw Khangam, Tailang Taba, Sumpam Tangjang, Tonlong Wangpan*

Department of Botany, Rajiv Gandhi University, Rono Hills, Doimukh-791112, Arunachal Pradesh, India

*Corresponding author Email: twangpan@gmail.com

Article No.: LRJBR37; Received: 07.05.2023; Peer-reviewed: 04.03.2024; Revised and Accepted: 15.03.2024; Published on 31.03.2024

Doi: <https://doi.org/10.5281/zenodo.11407361>

Abstract

This article documented the wild vegetables consumed by the Nyishi and Apatani tribes of the Lower Subansiri district, Arunachal Pradesh. The field survey was carried out in ten randomly selected villages of the district and interviewed 100 randomly selected local informants using Rapid Ethnobotanical Appraisal (REA) method. Ethnobotanical information was collected using semi-structured questionnaires and focused group discussion sessions held with local residents. A total of 64 species of wild edible and few domesticated plant species belonging to 48 genera and 32 plant families were recorded. Asteraceae was reported to be the most dominant family with 13 species, followed by Polygonaceae (6 species) and Amaranthaceae (5 species). The preferences and consumption patterns of wild vegetables were found to be similar among the informants of two tribal communities (Apatani and Nyishi) belonging to different villages and localities with few differences. Further, quantitative studies revealed *Phyllostachys mannii* as ethnobotanically significant vegetable species popularly used among the local residents with immense marketing and livelihood potential.

Keywords: Wild vegetables; Edible plants; Cross cultural; Quantitative Indices; Rural Livelihood; Apatani; Nyishi; Arunachal Pradesh

1. Introduction

Tribal societies across the globe still hold a tremendous amount of information about using native plants as food and other specialized purposes. Consuming wild vegetables are inextricably related to their robust traditional and cultural system (Khan and Kakde, 2014). These plants have been a part of their diet for ages (Wujisguleng et al., 2010). Wild edible plants have been reported to be significantly contributing towards sustenance of rural livelihood in the form of food, medicinal and economic security (Ahmad et al., 2019). Although they can greatly contribute to the supply of nutrients for a larger population size, the awareness of the usage of wild edible vegetables however, is rapidly disappearing (Łuczaj, 2010; Pieroni et al., 2005; Reddy et al., 2007). Therefore, to continue to play their role in ensuring food security, the knowledge system of wild vegetables must be revived and reintroduced into the diet (Bvenura and Afolayan, 2015).

Covering an area of 83,743 sq km, Arunachal Pradesh is the largest state of North East India. The state is blessed with a rich biodiversity, owing to which it is listed as one of the top 12th Global Biodiversity Hotspots (Myers et al., 2000; Srivastava, 2010). The native tribal communities of Arunachal Pradesh consume a variety of wild plant species which include different plant parts such as leaves, roots, and fruits (Ambe and Malaisse, 2001; Haridasan et al., 1990). The state is inhabited by 28 indigenous tribes with unique dialects and cultures. These tribes are renowned for their sophisticated traditional knowledge system (Wangpan et al., 2017). Likewise, the Nyishi and Apatani communities of Lower Subansiri district of Arunachal Pradesh have been known for their rich traditional knowledge system related to utilization of bioresources (Das et al., 2019; Rinyo et al., 2022). Given the rich traditional biocultural knowledge system, the present study documents wild vegetable plants species and associated ethnobotanical knowledge of the Apatani and Nyishi tribe of Arunachal Pradesh, India.

2. Materials and methods

2.1. Study Area

The Nyishi and Apatani dominated regions of the Lower Subansiri district of Arunachal Pradesh falls within a geographical coordinate of 92°40' and 94°21' East Longitude and 26°55' and 28°21' North

Latitudes with elevations ranging between 1500 to 2750 M above MSL (Figure 1).

The district shares its boundary with Kurung-Kumey and Upper Subansiri districts in the North, Papum Pare District and the state of Assam in the South, West Siang and some part of Upper Subansiri District in the East, Kurung-Kumey and Papum Pare Districts in the West. The study area mainly comprises of sub-tropical and temperate forests characterized by undulating terrain with deep gorges, streams and hills. The temperature of this region ranges from 5°C to 29°C, with an average rainfall of 927.9 mm. The district is inhabited by the Nyishi and Apatani tribes and has a total population of 82,839 (Anonymous, 2022; Census, 2011).

2.2. Ethnobotanical survey and data collection

An extensive field survey was conducted in the study area during the month of October 2022 to February 2023. The Rapid Ethnobotanical Appraisal (REA) method of Martin (1995) was followed to collect the data from the 10 villages which were randomly chosen from Nyishi area (5 villages) and Apatani area (5 villages). A total of 100 informants (50 informants from Nyishi and 50 informants from Apatani) were selected randomly and interviewed for their acquaintance with wild vegetable plant species using semi-structured questionnaire formats and focused group discussions (Martin, 1995). The relevant ethnobotanical information on the utilization of wild vegetable plant species, such as vernacular names, habits, parts harvested and used, and methods of traditional usages were recorded. The collection and preparation of voucher specimens for herbarium records were done following the standard field and herbarium methods suggested by Jain and Rao, (1976) and Das (2021). Standard taxonomic literatures such as *Flora of British India* Vol. 1 - 7 (Hooker, 1965-1888), *Flora of Kurung Kumey District, Arunachal Pradesh* (Dash and Paramjit, 2017) and *Flora of Lower Subansiri District, Arunachal Pradesh (India)*, Vol 1 & 2 (Pal, 2013) was consulted for identification of plant species. The accepted names of plants were verified in POWO (plants of the world online) hosted by Royal Botanic Garden, Kew UK [<https://powo.science.kew.org>]. The voucher specimens were deposited in HAU (Herbarium of Arunachal University), Department of Botany, Rajiv Gandhi University, Arunachal Pradesh for future records.

Map of Lower Subansiri District

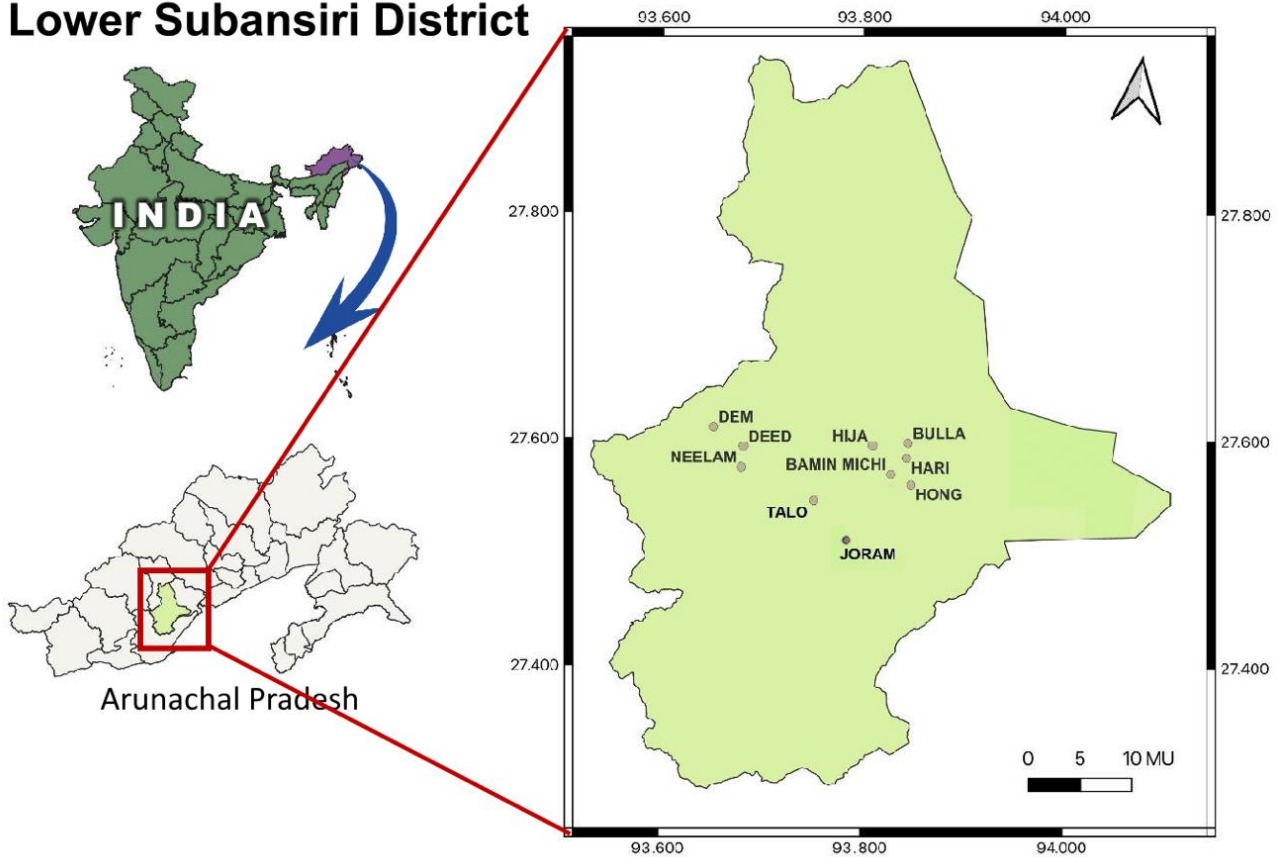


Figure 1. Map of the study area: Lower Subansiri District of Arunachal Pradesh, India.

2.3. Quantitative evaluation of ethnobotanical data

2.3.1. Use Report (UR) per species: It is defined as the total usage of a particular taxon as reported by the total informants, which can be calculated for every species in the acquired data using the given formula (Prance et al., 1987),

$$UR_s = \sum_{u=u_1}^{NC} \sum_{i=i_1}^N UR_{ui}$$

2.3.2. Cultural Importance (CI) index: It is defined as the cultural importance of a particular plant taxon in the community under study, which can be calculated for every species in the acquired data using the given formula (Tardio and Pardo-de-Santayana, 2008),

$$CI_s = \sum_{u=u_1}^{NC} \sum_{i=i_1}^N UR_{ui} / N$$

2.3.3. Frequency of Citation (FC) per species: It refers to the total number of respondents who mentioned a specific plant taxon. It can be calculated for every species in the acquired data using the given formula (Prance et al., 1987),

$$FC_s = \sum_{i=i_1}^N UR_i$$

2.3.4. Number of Uses (NU) per species: It is the total number of use categories identified by the informant for a specific plant taxon. It can be calculated for every species in the acquired data using the given formula (Prance et al., 1987), where NC stands for the total number of use groups,

$$NU_s = \sum_{u=u_1}^{NC}$$

2.3.5. Use Value (UV) index: It examines the utilization of a certain species in relation to all of the plants in the acquired data. It can be

calculated for every taxon in the acquired data using the given formula (Tardio and Pardo-de-Santayana, 2008),

$$UV_s = \sum_{i=i_1}^N \sum_{u=u_1}^{NC} UR_{ui} / N$$

2.3.6. The simplified use value (UV) index for every taxon in any collected data can be calculated by using the given formula,

$$UV_s = \sum U_i / N$$

Here, U_i stands for the total number of distinct usages reported by every informant i and N stands for the total informants interviewed during the survey (Albuquerque et al., 2006).

All the quantitative analysis of the gathered ethnobotanical data was carried out using the ethnobotany R (vo.1.9) software.

3. Results

3.1. Demography of participants

Of the total 100 informants interviewed, 54 were female and 46 were male informants. The informant's age ranged between 21 to 60 and above, and by profession, they were mostly government employees (35), farmers (32), and others (33). Most of the informants were literate [school level (33), graduation (29), and post-graduation (9)]; while only 29 informants were not acquainted with any kind of formal education. The majority of the informants were Christians (73%) and the rest were following the indigenous faith (27%) culture.

3.2. Taxonomic diversity and enumeration

A total of 64 plant species from 48 genera and 32 families were reported in the current study as wild vegetables (Table 1, Figure 7). With 13 species, Asteraceae was reported to be the most dominant plant family followed by Polygonaceae with 6 species and Amaranthaceae with 5 species (Figure 2). Herbs contributed 75% of the total plant species reported which is followed by thaloid

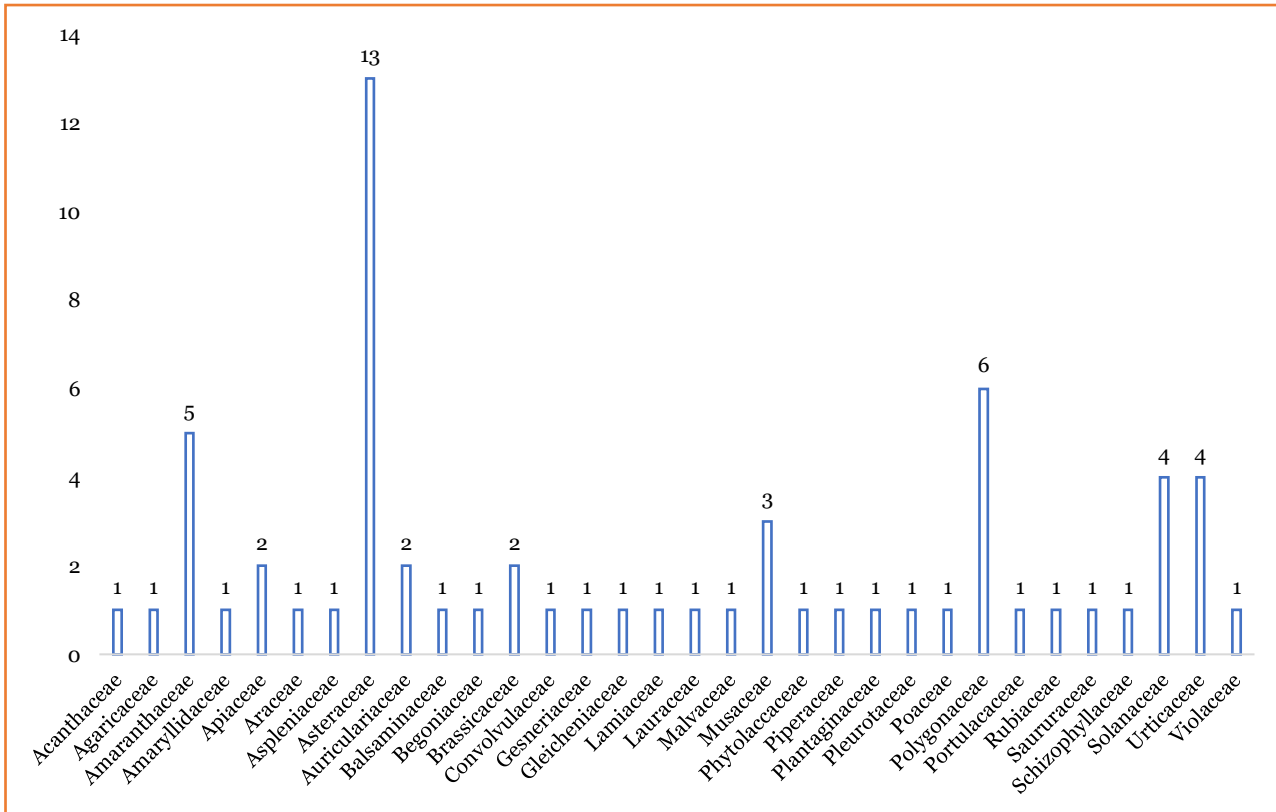


Figure 2. Family distribution among the recorded wild vegetable species consumed by the Apatani and Nyishi communities of Lower Subansiri District, Arunachal Pradesh.

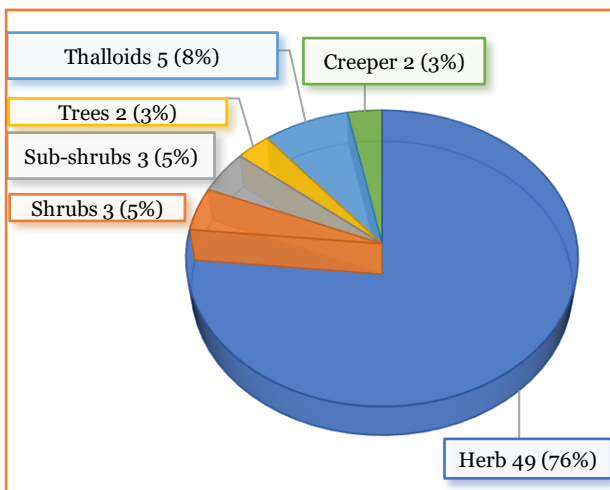


Figure 3. Habit distribution of the recorded wild vegetables consumed by the Apatani and Nyishi communities of Lower Subansiri district, Arunachal Pradesh.

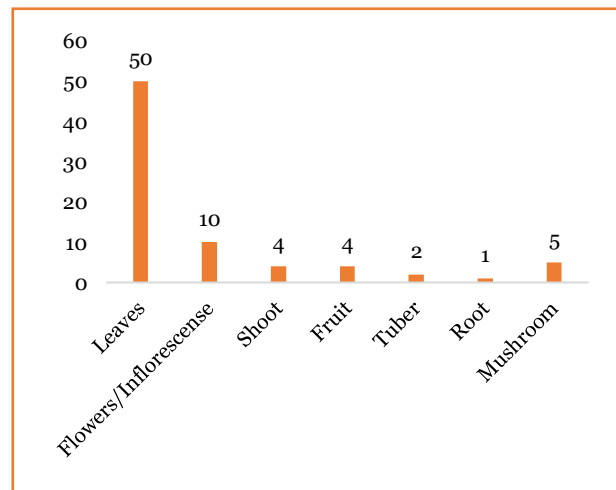


Figure 4. Types of parts (number) harvested from wild vegetables and Mushroom by the Apatani and Nyishi communities of Lower Subansiri district, Arunachal Pradesh.

(8%), sub-shrubs (5%), shrubs (5%), trees (3%), and creepers (3%) (Figure 3). Of the total vegetable species reported, 50 species were found to be harvested from tender leaves, 10 species from flowers/inflorescence, 4 species each from shoots and fruit parts, 2 species were found to be harvested from tubers, and 5 edible mushroom (fungi) species were also reported (Figure 4).

3.3. Diversity of ethnobotanical usage

A total of 17 plant species were reported to be used as ethnomedicine which is followed by fodder (9 species), traditional ritual (2 species), constructions (1 species), tools (1 species), hunting (1 species), and fish poison and an ornamental with 1 species each (Figure 5; Table 2).

3.4. Cross-culture analysis of ethnobotanical information

3.4.1. Qualitative analysis

Of the total 64 plant species, 19 species were exclusively used by the Nyishi community, while 9 species were exclusively used by the Apatani community and 36 plant species were used by both Nyishi and Apatani tribal communities as wild vegetables (Figure 6).

3.4.2. Quantitative evaluation of ethnobotanical data

The quantitative evaluation of the ethnobotanical data generated from the Apatani tribal community has revealed *Phyllostachys mannii* with the highest Use Reports (URs), Use Values (UVs), Cultural Importance (CIs), Frequency of Citation (FCs), and Number of Uses (NUs), with the score of 332, 6.64, 6.64, 48 and 7, respectively. Meanwhile, the plant species *Portulaca oleracea* scored least for URs (1), UVs (0.02), CIs (0.02), FCs (1), and *Viola betonicifolia* was reported with NUs (1). Interestingly, for the Nyishi community too, plant species *Phyllostachys mannii* scored highest for URs (275), UVs (5.5), CIs (5.5), and NUs (7). The highest FCs (50), however, were shared among 22 plant species including *P. mannii*. *Persicaria hydropiper* was recorded with the

least values of URs (1), UVs (0.02), CIs (0.02), and FCs (1), while *Sarcochlamys pulcherrima* was recorded with the least NUs (1).

4. Discussion

The greater majority of the plant species reported in present studies, namely, *Acmella paniculata*, *Allium hookeri*, *Amaranthus viridis*, *Artemisia indica*, *Begonia roxburghii*, *Bidens pilosa*, *Cardamine hirsuta*, *Centella asiatica*, *Chenopodium album*, *Clerodendrum colebrookeanum*, *Colocasia esculenta*, *Crassocephalum crepidioides*, *Diplazium esculentum*, *Fagopyrum esculentum*, *Pseudognaphalium affine*, *Gynura cusimbua*, *Houttuynia cordata*, *Impatiens vidyae*, *Ipomoea batatas*, *Litsea cubeba*, *Musa aurantiaca*, *Musa balbisiana*, *Nasturtium microphyllum*, *Paederia foetida*, *Gonostegia triandra*, *Solanum americanum*, *Solanum indicum*, *Solanum torvum*, *Solanum violaceum*, and *Zanthoxylum rhetsa*, have been reported to be consumed as primary sources of wild vegetables in several studies (Doni and Gajurel, 2020; Lungphi et al., 2018; Rinyo et al., 2022; Yanka et al., 2021; Taram et al., 2018; Yanka et al., 2020). Additionally, mushrooms like *Auricularia auricularia-judae* and *Pleurotus* sp. have been reported to be edible and consumed as wild vegetables (Taram et al., 2018).

Earlier studies have also revealed that in addition to their nutritional values, some of these wild vegetables namely, *Acmella paniculata*, *Allium hookeri*, *Elatostema platyphyllum*, *Oenanthe javanica*, *Solanum nigrum*, *Clerodendrum colebrookeanum*, *Paederia foetida*, *Solanum torvum* and *Plantago asiatica* have been reported to be a multiutility species as medicine and other ethnobotanical uses (Yanka et al., 2021; Lungphi et al., 2018; Yanka et al., 2020).

Some of the significant wild edible plant species reported to be used commonly among the local residents of both the communities (Apatani and Nyishi) are *Allium hookeri*, *Centella asiatica*, *Clerodendrum colebrookeanum*, *Diplazium esculentum*, *Elatostema platyphyllum*, *Houttuynia cordata*, *Impatiens vidyae*, *Litsea cubeba*, *Piper pedicellatum*, *Solanum americanum*, *Solanum pimpinellifolium*, and *Chenopodium album*. These species have been reported to have the potential to enhance rural livelihood, food and nutraceutical security (Das et al., 2019; Rinyo et al., 2022).

Traditionally, the forests serve as the primary source of wild edible plant sources for sustenance of livelihood for the Nyishi and Apatani communities of Lower Subansiri district of Arunachal Pradesh which is also closely linked with their local culture and indigenous belief system. Although these communities have their own distinct dialect, indigenous cultures and traditions, the wild vegetables they preferred to consume daily were not significantly different from each other, as 56.25% of the plant species recorded from their community forest and mode of usage were found to be similar. This indicates the cross-cultural exchange of traditional knowledge within these tribes. Such bioresource utilization knowledge systems of many tribal cultures around the world have been reported to be significantly contributing towards conservation and sustainable utilization of forest biodiversity (Singh et al., 2016). It might include unique and innovative information and practices for sustenance of the local food supply chain, health care, fishing, hunting, agriculture, home gardening, handicrafts, other knowledge and skills (Mishra et al., 2009; Singh et al., 2009; Turner, 2005). Additionally, it could aid in the creation of sustainable technologies and goods that help in maintaining biocultural resources and ongoing livelihood systems (Ramakrishnan et al., 1996; Ramakrishnan 2002; Singh et al., 2009). The utilization of wild vegetable species is closely related to the robust traditional cultural knowledge system of these tribal communities which is an essential component of their survival. Focusing on these plant species for conservation and sustainable utilization should be the utmost priority considering their substantial contribution towards rural diet and livelihood security of the local population.

5. Conclusion

Both the Nyishi and the Apatani tribes have been reported to have deeper understanding of the utilization of plant bioresources in their respective biocultural landscape. In the present studies, *Phyllostachys mannii* commonly used among the Nyishi and Apatani communities has been reported with high use value indices. This has indicated food, medicinal, economic and cultural significance of the *Phyllostachys mannii* to both the communities.

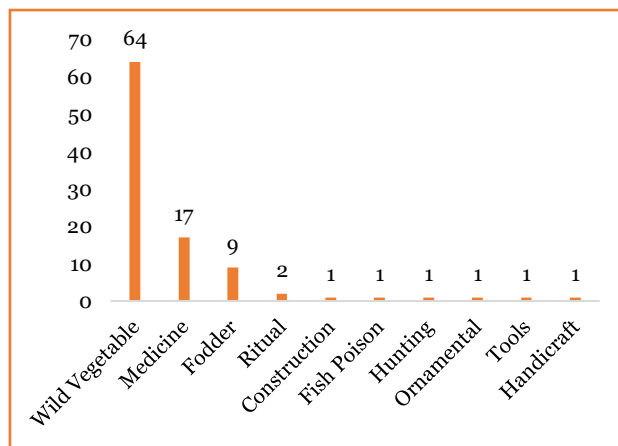


Figure 5. Ethnobotanical uses of the recorded wild vegetable species by the Apatani and Nyishi communities of Lower Subansiri district, Arunachal Pradesh.

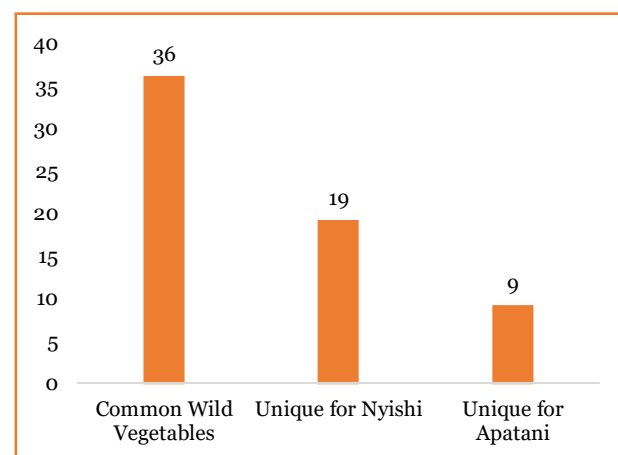


Figure 6. Cross cultural analysis of the wild vegetable species consumed by the Apatani and Nyishi tribes of Lower Subansiri District, Arunachal Pradesh.

Of the total 64 wild vegetable species reported, 36 species were found common and have the local marketing potential for both communities. Although the two tribal communities differed culturally from each other, the exchange of traditional knowledge was observed to be possible, considering the same vegetation and climatic conditions of their native habitat. It was also observed that the substantial loss of indigenous knowledge systems has already occurred in both the communities with rapid influence of modern educational system and lifestyle change. The local market was observed to be dominated by imported vegetables in urban and semi-urban localities while rural population primarily relied on wild edible vegetables harvested from their community forest. Therefore, it is crucial to educate the young native population about the degradation of traditional knowledge and related biodiversity loss, which would contribute towards achieving self-reliance by making the best use of the already available natural resources of their traditional biocultural landscape. Nutritional and phytochemical studies of the selected wild edible plant species reported in present studies could help in unveil some novel phytochemicals of therapeutics and nutraceutical interest.

Acknowledgements

The authors remain grateful to the natives of both the Apatani and Nyishi communities of the Lower Subansiri district for all the assistance and cooperation throughout the field survey and data collection. We also like to express our sincere gratitude to Neelam Yedi Likha, Tailang Yami, Likha Tadh, Neelam Budh, Kime Apa, Likha Yakum, and Likha Aka, for helping us with the logistics.

Author's contribution

Likha Rido: conceived the presented idea, writing of manuscript
 Pokhaw Khangam: analysis of data,
 Tailang Taba: field survey and data collection,
 Sumpam Tangiang: verified the analytical methods,
 Tonlong Wangpan: supervision.

Conflict of interest

The authors declares that they have no conflict of interests.

References

- Ahmad K, Weckerle CS and Nazir A. 2019. Ethnobotanical investigation of wild vegetables used among local communities in northwest Pakistan. *Acta Societatis Botanicorum Poloniae* 88(1): 3616.
- Ambe GA, Malaisse F. 2001. How Ivory Coast's Malinké ethnic group select the most beneficial wild fruits. *Agroforestry Today* 13(2): 2-6.
- Anonymous. 2022. *District Lower Subansiri Government of Arunachal Pradesh*. Government of Arunachal Pradesh.
- Bvenura C and Afolayan AJ. 2015. The role of wild vegetables in household food security in South Africa: A review. *Food Research International* 76: 1001-1011.
- Census. 2011. *District Census Handbook Lower Subansiri district village and town wise primary census abstract (PCA)*. Directorate of Census Operations Arunachal Pradesh.
- Das AP. 2021. Herbarium techniques. In: *J.B. Bhandari and Cyria Gurung* (eds.) Instrumentation Manual.
- Das SK, Das TJ, Tshering D, Tsering J, Paul D, Gupta DD, Yanka H, Taram M, Bansod S, Godugu C, Ananthan R. 2019. Ethnobotanical notes on significant food and medicinal flora used by the indigenous Monpa and Nyishi communities of Arunachal Pradesh, India. *Pleione* 13: 291-304.
- Doni T and Gajurel PR. 2020. Diversity of wild edible plants traditionally used by the Galo tribe of the Indian Eastern Himalayan state of Arunachal Pradesh. *Plant Science Today* 7 (4) 523-533. <https://doi.org/10.14719/PST.2020.7.4.855>
- Haridasan K, Bhuyan LR and Deori ML. 1990. Wild edible plants of Arunachal Pradesh. *Arunachal Forest News* 8 (1&2): 1-8.
- Jain SK and Rao RR. 1976. *A Handbook of Field and Herbarium Methods*. Today's and Tomorrow's Printer and Publishers.
- Khan TMA, and Kakde UB. 2014. Biodiversity in wild vegetables of Konkan region-Maharashtra. *International Journal of Researches in Biosciences. Agriculture & Technology* 2(2): 226-240.
- Luczaj L. 2010. Changes in the utilization of wild green vegetables in Poland since the 19th century: A comparison of four ethnobotanical surveys. *Journal of Ethnopharmacology* 128 (2): 395-404. <https://doi.org/10.1016/j.jep.2010.01.038>
- Lungphi P, Wangpan T and Tangjang S. 2018. Wild edible plants and their additional uses by the Tangsa community living in the Changlang district of Arunachal Pradesh India. *Pleione* 12 (2): 141. <https://doi.org/10.26679/pleione.12.2.2018.151-164>
- Martin GJ. 1995. *Ethnobotany: A Methods Manual*. 1st ed. New York, Chapman & Hall, London. Pp. 1-64.
- Mishra S, Singh RK, Singh A. 2009. Dynamics of Adi women's traditional foods in varying socio-ecological systems of Arunachal Pradesh: A source of learning and inspiration. In: *The Near and Far East Asian Perspective, New Cultures of Food*. Gower Publishing, England.
- Myers N, Mittermeier RA, Mittermeier CG, Da Fonseca GA and Kent J. 2000. Biodiversity hotspots for conservation priorities. *Nature* 403 (6772): 853-858.
- Pieroni A, Nebel S, Santoro RF, Heinrich M. 2005. Food for two seasons: culinary uses of non-cultivated local vegetables and mushrooms in a south Italian village. *International Journal of Food Sciences and Nutrition* 56 (4): 245-272.
- Ramakrishnan PS, Das AK and Saxena KG. 1996. *Conserving biodiversity for sustainable development*. Indian National Science Academy. New Delhi.
- Ramakrishnan PS. 2002. *Traditional Ecological Knowledge for Managing Biosphere Reserves in South and Central Asia*. Oxford and IBH Publishing Company.
- Reddy KN, Pattanaik C, Reddy CS and Raju VS. 2007. Traditional knowledge on wild food plants in Andhra Pradesh. *Indian Journal of Traditional Knowledge* 6 (1): 223-229.
- Rinyo R, Pallabi KH and Tag H. 2022. Wild edible plants used by Tagin and Apatani Tribes of Arunachal Pradesh (India). *Pleione* 16 (3): 263-270.
- Singh RK, Srivastava RC and Mukherjee TK. 2009. Community based sustainable natural resources management and development in Northeast India. *Current Science* 96 (1): 19-21.
- Singh Y, Mathur V, Kaur BJ and Onial M. 2016. Traditional Knowledge systems in India for biodiversity conservation. *Indian Journal of Traditional Knowledge* 15 (2): 304-312.
- Srivastava RC and Nyishi community. 2010. Traditional knowledge of Nyishi (Daffla) tribe of Arunachal Pradesh. *Indian Journal of Traditional Knowledge* 9 (1): 26-37.
- Taram M, Borah D, Rubu R and Tag H. 2018. Wild food plant resources of Komkar Adi tribe of Upper Siang district in Arunachal Pradesh India. *Bulletin of Arunachal Forest Research* 33 (2): 27-35.
- Turner NJ. 2005. *Earth's blanket: traditional teaching for sustainable living*. University of Washington Press.
- Wangpan T, Tangjang S and Arunachalam A. 2017. Tribal agriculture: tradition in transition in the Indian Eastern Himalaya. *Current Science* 112 (7): 1327-1329.
- Wujisguleng W and Khasbagen K. 2010. An integrated assessment of wild vegetable resources in Inner Mongolian Autonomous Region China. *Journal of Ethnobiology and Ethnomedicine* 6 (34): 1-8.
- Yanka H and Das AP. 2021. Ethnomedicinal plants used as antipyretic and anthelmintic agents by the Apatani tribe in lower Subansiri district of Arunachal Pradesh India. In: *Bioresources and Sustainable Livelihood of Rural India*. Mittal Publishers. Pp. 263-273.
- Yanka H, Das AP and Tag H. 2020. Local understanding of some anticancer plants found in the Ziro Valley of Arunachal Pradesh India. *Pleione* 14 (2): 255-264.

Table 1. Wild vegetables consumed by the Apatani and Nyishi communities of Lower Subansiri district, Arunachal Pradesh.

Sl. No.	Scientific Name [Family]; Voucher No.	Local Name [Apatani (Ap); Nyishi (N)]	Habit	Parts Used	Mode of Consumption	Harvesting Period
1	<i>Acmella calva</i> (DC.) R.K.Jansen [Asteraceae]; LR/LS/0009	Yokhung (Ap); Byad oh (N)	Herb	Young Leaves, Flowers	Cooked	Whole year
2	<i>Acmella oleracea</i> (L.) R.K.Jansen [Asteraceae]; LR/LS/0026	Yokhung (Ap)	Herb	Young Leaves, Flowers	Cooked	Whole year
3	<i>Acmella paniculata</i> (Wall. ex DC.) R.K.Jansen [Asteraceae]; LR/LS/0017	Yokhung (Ap); Byad oh (N)	Herb	Young Leaves, Flowers	Cooked	Whole year
4	<i>Allium hookeri</i> Thwaites [Amaryllidaceae]; LR/LS/0025	Talley (Ap); Talap (N)	Herb	Leaves	Cooked, Raw	Mar-Nov
5	<i>Amaranthus cruentus</i> L. [Amaranthaceae]; LR/LS/0032	Lancha tai hamang (Ap)	Herb	Leaves	Cooked,	Mar-Nov
6	<i>Amaranthus deflexus</i> L. [Amaranthaceae]; LR/LS/0014	Pachu koyu hamang (Ap); Pochu koyu (N)	Herb	Leaves	Cooked	Mar-Nov
7	<i>Amaranthus spinosus</i> L. [Amaranthaceae]; LR/LS/0004	Tai hamang (Ap); Hyeli Tai oh (N)	Herb	Leaves	Cooked	Mar-Nov
8	<i>Amaranthus viridis</i> L. [Amaranthaceae]; LR/LS/0052	Tai hamang (Ap); Hyeli Tai oh (N)	Herb	Leaves	Cooked	Mar-Nov
9	<i>Artemisia indica</i> Willd. [Asteraceae]; LR/LS/0048	Kukluyu (Ap); Tepin yemin (N)	Herb	Young Leaves	Cooked	Whole year
10	<i>Auricularia auricula-judae</i> [Auriculariaceae]; LR/LS/0059	Ingur (N)	Thalloid	Fruiting Body	Cooked	Apr-Jun
11	<i>Auricularia polytricha</i> [Auriculariaceae]; LR/LS/0063	Ingur (N)	Thalloid	Fruiting Body	Cooked	Apr-June
12	<i>Begonia roxburghii</i> (Miq.) A.DC. [Begoniaceae]; LR/LS/0056	Bukhu (Ap); Babrai (N)	Herb	Leave, Stem	Cooked, Raw	Whole year
13	<i>Bidens pilosa</i> L. [Asteraceae]; LR/LS/0015	Seromi (N)	Herb	Young Leaves	Cooked	Aug-Sept
14	<i>Cardamine hirsuta</i> L. [Brassicaceae]; LR/LS/0023	Padii hamang (Ap); Pwdw soram (N)	Herb	Leaves, Inflorescence	Cooked	Feb-May
15	<i>Centella asiatica</i> (L.) Urb. [Apiaceae]; LR/LS/0007	Ngilyang akoh hamang (Ap); Nguli hyik (N)	Herb	Leaves, Inflorescence	Cooked, Raw	Whole year
16	<i>Chenopodium album</i> L. [Amaranthaceae]; LR/LS/0054	Pulu Tai hamang (Ap); Tai oh (N)	Herb	Leaves, Flowers	Cooked	Oct-Dec
17	<i>Clerodendrum colebrookeanum</i> Walp. [Lamiaceae]; LR/LS/0011	Pato hamang (Ap); Poto oh (N)	Shrub	Leaves	Cooked	Feb-May
18	<i>Colocasia esculenta</i> (L.) Schott [Araceae]; LR/LS/0041	Ingeh akoh/ taro (Ap); Nyirak (N)	Herb	Leaves, Stems, Tubers	Cooked	Mar-Nov
19	<i>Crassocephalum crepidioides</i> (Benth.) S.Moore [Asteraceae]; LR/LS/0037	Genda/Hanya hamang (Ap); Yogin oh (N)	Herb	Young Leaves	Cooked	Aug-Sept
20	<i>Crepis vesicaria</i> L. [Asteraceae]; LR/LS/0044	Rubjub-rabjab (N)	Herb	Leaves	Cooked	Whole year
21	<i>Dichrocephala integrifolia</i> (L.f.) Kuntze [Asteraceae]; LR/LS/0021	Yii tami (Ap)	Herb	Leaves	Cooked	March-Nov
22	<i>Dicranopteris linearis</i> (Burm.f.) Underw. [Gleicheniaceae]; LR/LS/0020	Tari (Ap)	Herb	Young Leaves	Cooked	Whole year

23	<i>Diplazium esculentum</i> (Retz.) Sw. [Aspleniaceae]; LR/LS/0057	Hiika (Ap); Hoka pada/Oka pada (N)	Herb	Young leave buds	Cooked	Mar-May
24	<i>Elatostema platyphyllum</i> Wedd. [Urticaceae]; LR/LS/0030	Hiipe (Ap); Huj hobyap (N)	Herb	Leaves	Cooked	Whole year
25	<i>Fagopyrum esculentum</i> Monech [Polygonaceae]; LR/LS/0034	Lukhu (Ap); Huku huru (N)	Herb	Leaves	Cooked	Mar-Nov
26	<i>Fagopyrum</i> sp. [Polygonaceae]; LR/LS/0040	Mammi hamang (Ap)	Herb	Leaves	Cooked	Whole year
27	<i>Gynura cusimbua</i> (D.Don) S.Moore [Asteraceae]; LR/LS/0012	Genda/Hanyan hamang (Ap); Hogin taring (N)	Herb	Leaves	Cooked	Mar-Nov
28	<i>Houttuynia cordata</i> Thunb. [Saururaceae]; LR/LS/0003	Siya hamang (Ap); Hiya oh (N)	Herb	Leaves, roots	Cooked	Mar-Nov
29	<i>Impatiens vidyae</i> R.C.Srivast. [Balsaminaceae]; LR/LS/0064	Pai lamu (Ap); Lwm oh (N)	Herb	Leaves	Cooked	Dec-Apr
30	<i>Ipomoea batatas</i> (L.) Lam. [Convolvulaceae]; LR/LS/0050	Mita allu (Ap); Dukra (N)	Creepers	Leaves, Tubers	Cooked	Mar-Nov
31	<i>Litsea cubeba</i> (Lour.) Pers. [Lauraceae]; LR/LS/0061	San tero (Ap); Swn ter (N)	Tree	Fruits	Cooked, Raw	Apr-Aug
32	<i>Macrolepiota albuminosa</i> [Agaricaceae]; LR/LS/0065	Indw Kofah (N)	Thalloid	Fruiting bodies	Cooked	Aug-Sept
33	<i>Malva verticillata</i> L. [Malvaceae]; LR/LS/0033	Ngylea hamang (Ap); Lapa oh (N)	Herb	Leaves	Cooked	Mar-Nov
34	<i>Matricaria discoidea</i> DC. [Asteraceae]; LR/LS/0019	Pesu langu (Ap)	Herb	Leaves	Cooked	Whole year
35	<i>Musa aurantiaca</i> G.Mann ex Baker [Musaceae]; LR/LS/0055	Kodo (N)	Herb	Inflorescence	Cooked	Mar-Jun
36	<i>Musa balbisiana</i> Colla [Musaceae]; LR/LS/0060	Kullu (N)	Herb	Inflorescence	Cooked	Whole year
37	<i>Musa velutina</i> H.Wendl. & Drude [Musaceae]; LR/LS/0062	Nyedo kopo (N)	Herb	Inflorescence	Cooked	Mar-Jun
38	<i>Nasturtium microphyllum</i> (Boenn.) Rchb. [Brassicaceae]; LR/LS/0021	Hiiraang padii hamang (Ap); Nyora Palang (N)	Herb	Leaves	Cooked	Jan-Apr
39	<i>Oenanthe javanica</i> (Blume) DC. [Apiaceae]; LR/LS/0028	Hugu hamang (Ap); Bobu oh (N)	Herb	Leaves	Cooked	Whole year
40	<i>Paederia foetida</i> L. [Rubiaceae]; LR/LS/0042	Wpter (N)	Creepers	Leaves	Cooked	Whole year
41	<i>Persicaria barbata</i> (L.) H.Hara [Polygonaceae]; LR/LS/0053	Lulli hamang (Ap); Pakam loram (N)	Herb	Leaves	Cooked	Jun-Jul
42	<i>Persicaria glabra</i> (Willd.) M.Gómez [Polygonaceae]; LR/LS/0046	Pakam loram (N)	Herb	Leaves	Cooked	Jun-Jul
43	<i>Persicaria hydropiper</i> (L.) Delarbree [Polygonaceae]; LR/LS/0016	Roring (Ap); Pakam loram (N)	Herb	Leaves	Cooked	Whole year
44	<i>Persicaria runcinata</i> (Buch.-Ham. ex D.Don) H.Gross [Polygonaceae]; LR/LS/0039	Ruhrii oh (N)	Herb	Leaves	Cooked	Whole year
45	<i>Phyllostachys mannii</i> Gamble [Poaceae]; LR/LS/0043	Tanii biije (Bepu) (Ap); Taab (N)	Herb	Young shoots	Cooked	Jun-Jul
46	<i>Phytolacca acinosa</i> Roxb. [Phytolaccaceae]; LR/LS/0058	Nyet kofah (N)	Herb	Flower	Cooked	Mar-Jul

47	<i>Pilea</i> sp. [Urticaceae]; LR/LS/0047	Gugye oh (N)	Herb	Leaves	Cooked	Whole year
48	<i>Piper pedicellatum</i> C.DC. [Piperaceae]; LR/LS/0024	Raro hamang (Ap); Yer/Leir oh (N)	Shrub	Leaves	Cooked	Whole year
49	<i>Plantago asiatica</i> L. [Plantaginaceae]; LR/LS/0013	Mepii hamang (Ap); Mip yoru (N)	Herb	Leaves	Cooked	Feb-May
50	<i>Pleurotus</i> sp.1 [Pleurotaceae]; LR/LS/0051	Lolam (N)	Thalloid	Fruiting bodies	Cooked	Apr-Aug
51	<i>Portulaca oleracea</i> L. [Portulacaceae]; LR/LS/0027	Lai hamang (Ap); Puhu bo oh (N)	Herb	Leaves, Stems	Cooked	Whole year
52	<i>Gonostegia triandra</i> (Blume) Miq. [Urticaceae]; LR/LS/0031	Tab taker (oyik) (Ap); Hoyik (N)	Herb	Leaves	Cooked	Whole year
53	<i>Pseudognaphalium affine</i> (D.Don) Anderb. [Asteraceae]; LR/LS/0006	Mwyan hamang (Ap); Twp-yem (N)	Herb	Leaves	Cooked	Whole year
54	<i>Rhynchochum parviflorum</i> Blume [Gesneriaceae]; LR/LS/0045	Jok oh (N)	SubShrub	Leaves	Cooked	Whole year
55	<i>Sarcochlamys pulcherrima</i> (Roxb.) Gaudich. [Urticaceae]; LR/LS/0038	Taanyam (N)	Tree	Young Leaves	Cooked	Whole year
56	<i>Schizophyllum commune</i> [Schizophyllaceae]; LR/LS/0036	Huhin teyin (N)	Thalloid	Fruiting body	Cooked	Apr-Jun
57	<i>Solanum americanum</i> Mill. [Solanaceae]; LR/LS/0018	Hiiro hamang (Ap); Horr oh (N)	Herb	Leaves	Cooked	Mar-Nov
58	<i>Solanum pimpinellifolium</i> L. [Solanaceae]; LR/LS/0008	Tanii bheyu (Ap); Nyishi bayam (N)	Herb	Fruits	Cooked, Roasted, Raw	Jun-Jul
59	<i>Solanum torvum</i> Sw. [Solanaceae] LR/LS/0005	Pata byak (N)	Shrub	Fruits	Cooked,	Apr-Sept
60	<i>Solanum violaceum</i> Ortega [Solanaceae]; LR/LS/0002	Nyishi byak (N)	Sub Shrub	Fruits	Cooked, Raw	Apr-Sept
61	<i>Sonchus brachyotus</i> DC. [Asteraceae]; LR/LS/0029	Pku hadu hamang (Ap); Puhu rubu (N)	Herb	Leaves	Cooked	Mar-Nov
62	<i>Sonchus oleraceus</i> L. [Asteraceae]; LR/LS/0010	Kochi hamang (Ap)	Herb	Leaves	Cooked	Mar-Nov
63	<i>Strobilanthes helicta</i> T.Anderson [Acanthaceae]; LR/LS/0035	Tiiging (Ap)	SubShrub	Leaves	Cooked	Whole year
64	<i>Viola betonicifolia</i> Sm. [Violaceae]; LR/LS/0001	Jojeeh (Ap)	Herb	Leaves	Cooked	Mar-Nov

Table 2. Ethnobotanical uses of the wild vegetable plant species consumed by the Nyishi & Apatani community of Lower Subansiri district, Arunachal Pradesh.

Sl. No.	Scientific Name	Local Name	Ethnobotanical Uses	Parts used	Uses
1	<i>Acmella calva</i> (DC.) R.K. Jansen	Yokhung (Ap); Byad oh (N)	Medicine	Inflorescence	relieve toothache
2	<i>Acmella oleracea</i> (L.) R.K. Jansen	Yokhung (Ap); Byad oh (N)	Medicine	Inflorescence	relieve toothache
3	<i>Acmella paniculata</i> (Wall. ex DC.) R.K. Jansen	Yokhung (Ap); Byad oh (N)	Medicine	Young Leaves, Flowers	relieve toothache
4	<i>Allium hookeri</i> Thwaites	Talley (Ap); Talap (N)	Medicine	Leaves	Cold and Cough
5	<i>Artemisia indica</i> Willd.	Kukluyu (Ap); Tepin yemin (N)	Medicine	Young Leaves	Cooked and consumed to treat stomach-related issues
6	<i>Centella asiatica</i> (L.) Urb.	Ngilyang akoh hamang (Ap); Nguli hyik (N)	Medicine	Leaves	Consumed raw or cooked to treat stomach-related issues
7	<i>Clerodendrum colebrookeanum</i> Walp.	Pato hamang (Ap); Poto oh (N)	Medicine	Leaves	Consumed raw or cooked to treat stomach-related issues and lowers blood pressure
8	<i>Crassocephalum crepidioides</i> (Benth.) S.Moore	Genda/Hanya hamang (Ap); Yogin oh (N)	Medicine	Young Leaves	Leave paste is applied on minor cuts and wounds to stop the bleeding
9	<i>Houttuynia cordata</i> Thunb.	Siya hamang (Ap); Hiya oh (N)	Medicine, Ritual	Leaves, Roots	Consumed raw or cooked to treat stomach-related issues; Roots are used during the 'Murung'.
10	<i>Litsea cubeba</i> (Lour.) Pers.	San tero (Ap); Swn ter (N)	Medicine	Fruits	Fruits are eaten raw to induce sleep
11	<i>Paederia foetida</i> L.	Wpter (N)	Medicine	Leaves	Leaves cooked and consumed to cure stomach-related issues and gastric problems
12	<i>Phyllostachys mannii</i> Gamble	Tanii biije (Bepu) (Ap); Taab (N)	Medicine, fodder, Ritual, Construction, Ornamental, Handicraft, Hunting	Leaves and Stem	The outer layer of the stem is applied on minor cuts and wounds to stop the bleeding; Leaves are used as fodder for Mithuns; Stem is used in the construction of the Altar during Rituals, Other construction works, Decorations Making Hunting Traps, and Handicrafts.
13	<i>Plantago asiatica</i> L.	Mepii hamang (Ap); Mip yoru (N)	Medicine	Leaves	Leaves are cooked and consumed to treat constipation and indigestion
14	<i>Solanum torvum</i> Sw.	Pata byak (N)	Medicine	Fruits	Fruits are cooked and consumed to treat stomach-related issues
15	<i>Solanum violaceum</i> Ortega	Nyishi byak (N)	Medicine	Fruits	Fruits are consumed raw or cooked to treat stomach-related issues
16	<i>Sonchus brachyotus</i> DC.	Pku hadu hamang (Ap); Puhu rubu (N)	Medicine	Leaves	Cooked leaves are consumed to lower blood pressure
17	<i>Sonchus oleraceus</i> L.	Kochi hamang (Ap)	Medicine	Leaves	leaves are made into a paste and applied to treat skin infections
18	<i>Amaranthus cruentus</i> L.	Lancha tai hamang (Ap)	Fodder	Leaves	Cooked and fed to pigs
19	<i>Amaranthus deflexus</i> L.	Pachu koyu hamang (Ap); Pochu koyu (N)	Fodder	Leaves	Cooked and fed to pigs
20	<i>Amaranthus spinosus</i> L.	Tai hamang (Ap); Hyeli Tai oh (N)	Fodder	Leaves	Cooked and fed to pigs
21	<i>Amaranthus viridis</i> L.	Tai hamang (Ap); Hyeli Tai oh (N)	Fodder	Leaves	Cooked and fed to pigs
22	<i>Colocasia esculenta</i> (L.) Schott	Ingeh akoh/ taro (Ap); Nyirak (N)	Fodder	Leaves, Stems, Tubers	Cooked and fed to pigs
23	<i>Ipomoea batatas</i> (L.) Lam.	Mita allu (Ap); Dukra (N)	Fodder	Leaves, Tubers	Cooked and fed to pigs
24	<i>Musa aurantiaca</i> G.Mann ex Baker	Kodo (N)	Fodder	Stem	Stem is fed to mithuns
25	<i>Musa balbisiana</i> Colla	Kullu (N)	Fodder	Stem	Stem is fed to mithuns
26	<i>Persicaria glabra</i> (Willd.) M.Gómez	Pakam loram (N)	Fish Poison	Whole plant	Plant paste is prepared and mixed with sand and applied into the river for fishing.

Table 3. Quantitative analysis of ethnobotanical data of Wild Vegetables consumed by the Apatani community of Lower Subansiri district, Arunachal Pradesh.

Sl. No.	Scientific Name [Family]; Voucher No.	Local Name	Quantitative Data				
			URs	CI _s	UV _s	FC _s	NU _s
1	<i>Acmella calva</i> (DC.) R.K.Jansen [Asteraceae]; LR/LS/0009	Yokhung (Ap)	77	1.54	1.54	43	2
2	<i>Acmella oleracea</i> (L.) R.K.Jansen [Asteraceae]; LR/LS/0026	Yokhung (Ap)	65	1.3	1.3	35	2
3	<i>Acmella paniculata</i> (Wall. ex DC.) R.K.Jansen [Asteraceae]; LR/LS/0017	Yokhung (Ap)	76	1.52	1.52	43	2
4	<i>Allium hookeri</i> Thwaites [Amaryllidaceae]; LR/LS/0025	Talley (Ap)	44	0.88	0.88	36	3
5	<i>Amaranthus cruentus</i> L. [Amaranthaceae]; LR/LS/0032	Lancha tai hamang (Ap)	49	0.98	0.98	33	2
6	<i>Amaranthus deflexus</i> L. [Amaranthaceae]; LR/LS/0014	Pachu koyu hamang (Ap)	41	0.82	0.82	29	2
7	<i>Amaranthus spinosus</i> L. [Amaranthaceae]; LR/LS/0004	Tai hamang (Ap)	49	0.98	0.98	33	2
8	<i>Amaranthus viridis</i> L. [Amaranthaceae]; LR/LS/0052	Tai hamang (Ap)	41	0.82	0.82	29	2
9	<i>Artemisia indica</i> Willd. [Asteraceae]; LR/LS/0048	Kukluyu (Ap)	31	0.62	0.62	26	2
10	<i>Begonia roxburghii</i> (Miq.) A.DC. [Begoniaceae]; LR/LS/0056	Bukhu (Ap);	9	0.18	0.18	9	1
11	<i>Cardamine hirsuta</i> L. [Brassicaceae]; LR/LS/0023	Padii hamang (Ap)	47	0.94	0.94	47	1
12	<i>Centella asiatica</i> (L.) Urb. [Apiaceae]; LR/LS/0007	Ngilyang akoh hamang (Ap)	36	0.72	0.72	27	2
13	<i>Chenopodium album</i> L. [Amaranthaceae]; LR/LS/0054	Pulu Tai hamang (Ap)	25	0.5	0.5	25	1
14	<i>Clerodendrum colebrookeanum</i> Walp. [Lamiaceae]; LR/LS/0011	Pato hamang (Ap)	55	1.1	1.1	33	2
15	<i>Colocasia esculenta</i> (L.) Schott [Araceae]; LR/LS/0041	Ingeh akoh/ taro (Ap)	47	0.94	0.94	25	2
16	<i>Crassocephalum crepidioides</i> (Benth.) S.Moore [Asteraceae]; LR/LS/0037	Genda/Hanya hamang (Ap)	33	0.66	0.66	28	2
17	<i>Dichrocephala integrifolia</i> (L.f.) Kuntze [Asteraceae]; LR/LS/0021	Yii tami (Ap)	3	0.06	0.06	3	1
18	<i>Dicranopteris linearis</i> (Burm.f.) Underw. [Gleicheniaceae]; LR/LS/0020	Tari (Ap)	14	0.28	0.28	14	1
19	<i>Diplazium esculentum</i> (Retz.) Sw. [Aspleniaceae]; LR/LS/0057	Hiika (Ap)	46	0.92	0.92	25	2
20	<i>Elatostema platyphyllum</i> Wedd. [Urticaceae]; LR/LS/0030	Hiipe (Ap)	40	0.8	0.8	40	1
21	<i>Fagopyrum esculentum</i> Monech [Polygonaceae]; LR/LS/0034	Lukhu (Ap)	26	0.52	0.52	26	1
22	<i>Fagopyrum</i> sp. [Polygonaceae]; LR/LS/0040	Mammi hamang (Ap)	13	0.26	0.26	13	1
23	<i>Gynura cusimbua</i> (D.Don) S.Moore [Asteraceae]; LR/LS/0012	Genda/Hanyan hamang (Ap)	30	0.6	0.6	28	2
24	<i>Houttuynia cordata</i> Thunb. [Saururaceae]; LR/LS/0003	Siya hamang (Ap)	124	2.48	2.48	46	3
25	<i>Impatiens vidyae</i> R.C.Srivast. [Balsaminaceae]; LR/LS/0064	Pai lamu (Ap)	22	0.44	0.44	22	1
26	<i>Ipomoea batatas</i> (L.) Lam. [Convolvulaceae]; LR/LS/0050	Mita allu (Ap)	19	0.38	0.38	12	3
27	<i>Litsea cubeba</i> (Lour.) Pers. [Lauraceae]; LR/LS/0061	San tero (Ap)	32	0.64	0.64	20	2
28	<i>Malva verticillata</i> L. [Malvaceae]; LR/LS/0033	Ngylea hamang (Ap)	25	0.5	0.5	25	1
29	<i>Matricaria discoidea</i> DC. [Asteraceae]; LR/LS/0019	Pesu langu (Ap)	11	0.22	0.22	11	1
30	<i>Nasturtium microphyllum</i> (Boenn.) Rchb. [Brassicaceae]; LR/LS/0021	Hiiraang padii hamang (Ap)	10	0.2	0.2	10	1
31	<i>Oenanthe javanica</i> (Blume) DC. [Apiaceae]; LR/LS/0028	Hugu hamang (Ap)	46	0.92	0.92	46	1
32	<i>Persicaria barbata</i> (L.) H. Hara [Polygonaceae]; LR/LS/0053	Lulli hamang (Ap)	19	0.38	0.38	19	1
33	<i>Persicaria hydropiper</i> (L.) Delarbre [Polygonaceae]; LR/LS/0016	Roring (Ap)	15	0.3	0.3	15	1
34	<i>Phyllostachys mannii</i> Gamble [Poaceae]; LR/LS/0043	Tanii bijje (Bepu) (Ap)	332	6.64	6.64	48	7
35	<i>Piper pedicellatum</i> C.DC. [Piperaceae]; LR/LS/0024	Raro hamang (Ap)	46	0.92	0.92	46	1
36	<i>Plantago asiatica</i> L. [Plantaginaceae]; LR/LS/0013	Mepii hamang (Ap)	49	0.98	0.98	44	2
37	<i>Portulaca oleracea</i> L. [Portulacaceae]; LR/LS/0027	Lai hamang (Ap)	1	0.02	0.02	1	1
38	<i>Gonostegia triandra</i> (Blume) Miq. [Urticaceae]; LR/LS/0031	Tab taker (oyik) (Ap)	11	0.22	0.22	11	1
39	<i>Pseudognaphalium affine</i> (D.Don) Anderb. [Asteraceae]; LR/LS/0006	Mwyan hamang (Ap)	1	0.02	0.02	1	1
40	<i>Solanum americanum</i> Mill. [Solanaceae]; LR/LS/0018	Hiiro hamang (Ap); Horr oh (N)	32	0.64	0.64	32	1
41	<i>Solanum pimpinellifolium</i> L. [Solanaceae]; LR/LS/0008						1
42	<i>Sonchus brachyotus</i> DC. [Asteraceae]; LR/LS/0029	Tanii bheyu (Ap)	23	0.46	0.46	23	1
43	<i>Sonchus oleraceus</i> L. [Asteraceae]; LR/LS/0010	Pku hadu hamang (Ap)	20	0.4	0.4	19	2
44	<i>Strobilanthes helicta</i> T.Anderson [Acanthaceae]; LR/LS/0035	Kochi hamang (Ap)	7	0.14	0.14	7	1
45	<i>Viola betonicifolia</i> Sm. [Violaceae] LR/LS/0001	Tiiging (Ap)	27	0.54	0.54	27	1
		Jojeeh (Ap)	8	0.16	0.16	8	1

Table 4. Quantitative analysis of ethnobotanical data of the Wild Vegetables consumed by the Nyishi community of Lower Subansiri district, Arunachal Pradesh.

Sl. No.	Scientific Name [Family]; Voucher No.	Local Name	Quantitative Data				
			URs	Cls	UVs	FCs	NUs
1	<i>Acmella calva</i> (DC.) R.K.Jansen [Asteraceae]; LR/LS/0009	Byad oh (N)	64	1.28	1.28	32	2
2	<i>Acmella paniculata</i> (Wall. ex DC.) R.K.Jansen [Asteraceae]; LR/LS/0017	Byad oh (N)	100	2	2	50	2
3	<i>Allium hookeri</i> Thwaites [Amaryllidaceae]; LR/LS/0025	Talap (N)	50	1	1	50	1
4	<i>Amaranthus deflexus</i> L. [Amaranthaceae]; LR/LS/0014	Pochu koyu (N)	5	0.1	0.1	5	1
5	<i>Amaranthus spinosus</i> L. [Amaranthaceae]; LR/LS/0004	Hyeli Tai oh (N)	41	0.82	0.82	41	1
6	<i>Amaranthus viridis</i> L. [Amaranthaceae]; LR/LS/0052	Hyeli Tai oh (N)	41	0.82	0.82	41	1
7	<i>Artemisia indica</i> Willd. [Asteraceae]; LR/LS/0048	Tepin yemin (N)	64	1.28	1.28	32	2
8	<i>Auricularia auricula-judae</i> [Auriculariaceae]; LR/LS/0059	Ingur (N)	50	1	1	50	1
9	<i>Auricularia polytricha</i> [Auriculariaceae]; LR/LS/0063	Ingur (N)	23	0.46	0.46	23	1
10	<i>Begonia roxburghii</i> (Miq.) A.DC. [Begoniaceae]; LR/LS/0056	Babrai (N)	14	0.28	0.28	14	1
11	<i>Bidens pilosa</i> L. [Asteraceae]; LR/LS/0015	Seromi (N)	14	0.28	0.28	14	1
12	<i>Cardamine hirsuta</i> L. [Brassicaceae]; LR/LS/0023	Pwdw soram (N)	50	1	1	50	1
13	<i>Centella asiatica</i> (L.) Urb. [Apiaceae]; LR/LS/0007	Nguli hyik (N)	91	1.82	1.82	50	2
14	<i>Chenopodium album</i> L. [Amaranthaceae]; LR/LS/0054	Tai oh (N)	50	1	1	50	1
15	<i>Clerodendrum colebrookeanum</i> Walp. [Lamiaceae]; LR/LS/0011	Poto oh (N)	100	2	2	50	2
16	<i>Colocasia esculenta</i> (L.) Schott [Araceae]; LR/LS/0041	Nyirak (N)	73	1.46	1.46	41	2
17	<i>Crassocephalum crepidioides</i> (Benth.) S.Moore [Asteraceae]; LR/LS/0037	Yogin oh (N)	50	1	1	50	1
18	<i>Crepis vesicaria</i> L. [Asteraceae]; LR/LS/0044	Rubjub-rabjab (N)	14	0.28	0.28	14	1
19	<i>Diplazium esculentum</i> (Retz.) Sw. [Aspleniaceae]; LR/LS/0057	Hoka pada/Oka pada (N)	100	2	2	50	2
20	<i>Elatostema platyphyllum</i> Wedd. [Urticaceae]; LR/LS/0030	Huj hobyap (N)	50	1	1	50	1
21	<i>Fagopyrum esculentum</i> Monech [Polygonaceae]; LR/LS/0034	Huku huru (N)	32	0.64	0.64	32	1
22	<i>Gynura cusimbua</i> (D.Don) S.Moore [Asteraceae]; LR/LS/0012	Hogin taring (N)	14	0.28	0.28	14	1
23	<i>Houttuynia cordata</i> Thunb. [Saururaceae]; LR/LS/0003	Hiya oh (N)	100	2	2	50	2
24	<i>Impatiens vidyae</i> R.C.Srivast. [Balsaminaceae]; LR/LS/0064	Lwm oh (N)	41	0.82	0.82	41	1
25	<i>Ipomoea batatas</i> (L.) Lam. [Convolvulaceae]; LR/LS/0050	Dukra (N)	14	0.28	0.28	14	1
26	<i>Litsea cubeba</i> (Lour.) Pers. [Lauraceae]; LR/LS/0061	Swn ter (N)	64	1.28	1.28	32	2
27	<i>Macrolepiota aluminosa</i> [Agaricaceae]; LR/LS/0065	Indw Kofah (N)	50	1	1	50	1
28	<i>Malva verticillata</i> L. [Malvaceae]; LR/LS/0033	Lapa oh (N)	32	0.64	0.64	32	1
29	<i>Musa aurantiaca</i> G.Mann ex Baker [Musaceae]; LR/LS/0055	Kodo (N)	55	1.1	1.1	32	2
30	<i>Musa balbisiana</i> Colla [Musaceae]; LR/LS/0060	Kullu (N)	91	1.82	1.82	50	2
31	<i>Musa velutina</i> H.Wendl. & Drude [Musaceae]; LR/LS/0062	Nyedo kopo (N)	5	0.1	0.1	5	1
32	<i>Nasturtium microphyllum</i> (Boenn.) Rchb. [Brassicaceae]; LR/LS/0021	Nyora Palang (N)	41	0.82	0.82	41	1
33	<i>Oenanthe javanica</i> (Blume) DC. [Apiaceae]; LR/LS/0028	Bobu oh (N)	20	0.4	0.4	20	1
34	<i>Paederia foetida</i> L. [Rubiaceae]; LR/LS/0042	Wpter (N)	46	0.92	0.92	23	2
35	<i>Persicaria barbata</i> (L.) H.Hara [Polygonaceae]; LR/LS/0053	Pakam loram (N)	34	0.68	0.68	32	2
36	<i>Persicaria glabra</i> (Willd.) M.Gómez [Polygonaceae]; LR/LS/0046	Pakam loram (N)	36	0.72	0.72	23	2
37	<i>Persicaria hydropiper</i> (L.) Delarbre [Polygonaceae]; LR/LS/0016	Pakam loram (N)	1	0.02	0.02	1	1
38	<i>Persicaria runcinata</i> (Buch.-Ham. ex D.Don) H.Gross [Polygonaceae]; LR/LS/0039	Ruhrii oh (N)	33	0.66	0.66	32	2
39	<i>Phyllostachys mannii</i> Gamble [Poaceae]; LR/LS/0043	Taab (N)	275	5.5	5.5	50	7
40	<i>Phytolacca acinosa</i> Roxb. [Phytolaccaceae]; LR/LS/0058	Nyet kofah (N)	5	0.1	0.1	5	1
41	<i>Pilea</i> sp. [Urticaceae]; LR/LS/0047	Gugye oh (N)	50	1	1	50	1
42	<i>Piper pedicellatum</i> C.DC. [Piperaceae]; LR/LS/0024	Yer/Leir oh (N)	50	1	1	50	1
43	<i>Plantago asiatica</i> L. [Plantaginaceae]; LR/LS/0013	Mip yoru (N)	50	1	1	50	1
44	<i>Pleurotus</i> sp.1 [Pleurotaceae]; LR/LS/0051	Lolam (N)	41	0.82	0.82	41	1
45	<i>Portulaca oleracea</i> L. [Portulacaceae]; LR/LS/0027	Pohu bo oh (N)	23	0.46	0.46	23	1
46	<i>Gonostegia triandra</i> (Blume) Miq. [Urticaceae]; LR/LS/0031	Hoyik (N)	50	1	1	50	1
47	<i>Pseudognaphalium affine</i> (D.Don) Anderb. [Asteraceae]; LR/LS/0006	Twp-yem (N)	23	0.46	0.46	23	1

48	<i>Rhynchoetechum parviflorum</i> Blume [Gesneriaceae]; LR/LS/0045	Jok oh (N)	32	0.64	0.64	32	1
49	<i>Sarcochlamys pulcherrima</i> (Roxb.) Gaudich. [Urticaceae]; LR/LS/0038	Taanyam (N)	23	0.46	0.46	23	1
50	<i>Schizophyllum commune</i> [Schizophyllaceae]; LR/LS/0036	Huhin teyin (N)	23	0.46	0.46	23	1
51	<i>Solanum americanum</i> Mill. [Solanaceae]; LR/LS/0018	Horr oh (N)	50	1	1	50	1
52	<i>Solanum pimpinellifolium</i> L. [Solanaceae]; LR/LS/0008	Nyishi bayam (N)	50	1	1	50	1
53	<i>Solanum torvum</i> Sw. [Solanaceae] LR/LS/0005	Pata byak (N)	98	1.96	1.96	50	2
54	<i>Solanum violaceum</i> Ortega [Solanaceae]; LR/LS/0002	Nyishi byak (N)	98	1.96	1.96	50	2
55	<i>Sonchus brachyotus</i> DC. [Asteraceae]; LR/LS/0029	Puhu rubu (N)	28	0.56	0.56	14	2



Figure 7. Some selected wild vegetable species consumed by Nyishi and Apatani tribes of Lower Subansiri district, Arunachal Pradesh: **a.** *Acnema paniculata*; **b.** *Auricularia auricula*; **c.** *Centella asiatica*; **d.** *Cardamine hirsuta*; **e.** *Bidens pilosa*; **f.** *Colocasia esculenta*; **g.** *Dichrocephala integrifolia*; **h.** *Impatiens vidyae*; **i.** *Nasturtium officinale*; **j.** *Paederia foetida*; **k.** *Portulaca oleracea*; **l.** *Solanum americanum*

