

## Traditional foods and wild edible plants of Spiti valley, Indian Trans Himalaya

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### Supplementary Data

Supplementary Table S1 — Questionnaire

Sr No.	Questions	Response
1.	How do you relate yourself to nature/locality? Do you believe that nature provides you with benefits? If so, what are the potential benefits?	
2.	What kind of food do you consume? Do you prepare any traditional foods, beverages, and pickles?	
3.	Can you tell us about the traditional foods that you prepare?	
4.	How did you learn about traditional foods? What is the method of preparation?	
5.	What are the ingredients and raw materials used in the preparation of the food?	
6.	What is the source of ingredients and raw material used?	
7.	When do you consume traditional foods? Do you prepare these traditional foods regularly or only on special occasions or during festivals?	
8.	Are any recipes or traditional foods recommended especially for pregnant women? What is the method of preparation and time of consumption?	
9.	Are there any traditional recipes for children?	
10.	What are the current consumption patterns and trends? And what are the factors (reasons) that influence food trends?	
11.	Additionally, do you collect wild plants for edible purposes (Name)? Which plant part is utilized for food? Do you consume it raw or cooked? How it is prepared, the process (cooked)?	
12.	Are these plants used for any other purpose(s) besides consumption (Details)?	
13.	Where do you get these plants? Are these plants common, rare, or occasional in your area or the forest? Can you assist us in locating these plants?	
14.	What are the current consumption patterns and trends? And what are the factors (reasons) that impacts the trends?	

Supplementary Table S2 — Traditional food products and recipes

S. No.	Food product	Crop used	Recipe
1.	Chinduk	<i>Hordeum vulgare</i> L.	Soak the barley grain in water until soft, then grind it well; make rectangular or circular shapes out of it. This is dried and used later in recipes like <i>thukpa</i> (Soup).
2.	Chung	<i>Hordeum vulgare</i> L.	Prepare a dough of <i>zurvey</i> (mixture of black pea and wheat grains flour). Make small cup like shapes out of this dough and boil them in water. Later serve with chutney.
3.	Fahtay	<i>Triticum aestivum</i> L.	Make a wheat flour dough, make small balls out of the dough, boil in water, and serve with chutney.
4.	Femer /Dhuru	<i>Hordeum vulgare</i> L.	To make femer/dhuru, <i>sattu</i> s sautéed in ghee with sugar, dry fruit and <i>churpe</i> . It is served with tea and curd.
5.	Maida matar	<i>Triticum aestivum</i> L.	The dough is made with <i>maida</i> (refined wheat flour), baking powder, and salt. Now make <i>chapatti</i> (flat bread) out of it, cut into various shapes with the help of a knife and deep fry. It is relished with tea.

6.	Momo (veg/nonveg)	<i>Triticum aestivum</i> L.	To prepare <i>momos</i> (dim sums), make a dough of wheat flour; make small balls out of it and roll them flat. Stuff these with the meat/vegetable and give the characteristics shape. Place them into a <i>mokto</i> (steamer) and steam.
7.	Murpa	<i>Hordeum vulgare</i> L.	To boiling water, add sugar, salt, and <i>sattu</i> . Continuously stir until a thick consistency is obtained. Later add ghee (clarified butter) and shape them into <i>laddus</i> (round balls).
8.	Nengu	<i>Hordeum vulgare</i> L.	Barley grains are cleaned and soaked in water for 8 to 10 h. Boil the soaked grain for 1 to 2 h in an open pot. Drain the boiled grains and sprinkle powdered <i>phab</i> (local fermenter purchased from market) on it. Mix it properly and leave the mixture for few days to ferment. This fermented mixture is now cooked in ghee (clarified butter) with added dry fruits, and sugar just like <i>halwa</i> (sweet thick paste of flour).
9.	Pak/ Pawa/ Marnyuk	<i>Hordeum vulgare</i> L.	<i>Sattu</i> is cooked in water along with added sugar or salt, with varying consistency (solid to slurry).
10.	Paksalmarku	<i>Triticum aestivum</i> L.	Prepare a wheat flour dough with added sugar. Now make small balls out of the dough and shape them into varied shapes. Then boil them in water and consume.
11.	Quo/kyupakse	<i>Triticum aestivum</i> L., <i>Hordeum vulgare</i> L.	Pour oil into a pan to prepare, to this, add cumin, seasonal vegetables/meat along with <i>gemen</i> ( <i>Allium jacquemontii</i> ), and salt to taste. Simmer it for on low flame. Afterwards, add water and boil it. Separately, knead flour into dough and make small cubes out of it and boil them in water. Add these boiled cubes to the mixture and cook well.
12.	Sattu	<i>Hordeum vulgare</i> L.	Roast the barley seed and grind them into flour. This is called <i>Sattu</i> . It may be consumed as such and is also used in making various traditional recipes.
13.	Sheto/khura	<i>Triticum aestivum</i> L.	Wheat flour is made into dough with added salt, <i>chang</i> (local wine)/soda/yeast. It is left overnight to ferment. The dough is then rolled and cut into various shapes, the shapes are left to rest for 15-20 min and then deep-fried.
14.	Tsunalik	<i>Hordeum vulgare</i> L., <i>Triticum aestivum</i> L.	Make a firm dough by mixing wheat flour and <i>Sattu</i> , with added a pinch of salt to it. Cover the dough and let it rest for 10 min and knead once again. Now divide the dough into several equal sized balls. Roll these between hands to form a rope (thick vermicelli). Boil these in water, add sugar, ghee, and <i>Churpe</i> (dried cottage cheese).
15.	Temok/ Temo	<i>Triticum aestivum</i> L.	Prepare a dough with a pinch of baking soda. Now apply turmeric powder-infused oil to the dough for coloration and leave as such for a few minutes. The dough is later made into desired shapes and steamed in a <i>mokto</i> (Steamer). It is relished with <i>dal</i> (lentil soup).
16.	Thukpa/Tenthuk	<i>Triticum aestivum</i> L.	To boiling water, add seasonal vegetables or meat, tomatoes, onions, garlic, spices, and local handmade noodles (wheat or barley). <i>Churpe</i> is added to enhance the flavour. Meat <i>thukpa</i> is typically prepared in the winter.
17.	Tirik/ Dherha/ Dhuntrik	<i>Triticum aestivum</i> L.	Wheat flour is made into dough with added salt, <i>chang</i> (local vine), soda/yeast and left overnight to ferment. Then, small chapattis are rolled out of the dough and cooked in local tandoor.
18.	Tsalmagungshi	<i>Hordeum vulgare</i> L.	To boiling water, add <i>sattu</i> , salt, chili, and local spices and cook until a thick consistency is achieved. Now make cup like shape of this paste and relish with <i>chutney</i> .
19.	Tsungpaksal	<i>Triticum aestivum</i> L., <i>Hordeum vulgare</i> L.	Wheat flour or barley <i>sattu</i> is kneaded with a pinch of salt. Make small round or oblong shapes out of dough and boil in water. It is relished with <i>chutney</i> and curd. Tsungpaksal is also used in <i>thukpa</i> .
20.	Zara	<i>Hordeum vulgare</i> L.	Boil water, then add <i>sattu</i> , salt, chili, and local spices and cook until a thick consistency is achieved. It is served with ghee (clarified butter), curd, <i>lassi</i> (buttermilk), and <i>chutney</i> .
21.	Zongpakshal	<i>Hordeum vulgare</i> L.	Make a dough, prepare small round-shaped balls and cook them in water before serving with <i>Thukpa</i> and tomato or chilli <i>chutney</i> .
22.	Zurvey	<i>Triticum aestivum</i> L., <i>Pisum sativum</i> ssp. <i>arvense</i> (L.) Asch. & Graebn.	Make a flour by grinding equal parts of locally grown <i>kala matar</i> ( <i>Pisumsativum</i> ssp. <i>arvense</i> ) and wheat grains. Now cook it in water as <i>halwa</i> (sweet thick paste of flour). Make oval-shaped balls out of it and serve with hot ghee (clarified butter) or <i>chutney</i> .

23.	Gyuma	Goat/ Sheep/ Yak	<i>Gyuma</i> (blood sausage) is made from the intestine of goat/sheep/yak. This is done by cleaning the intestine and filling it with a mixture of blood of goat/sheep/yak, <i>sattu</i> (roasted barley flour), salt, chilies, and spices. The stuffed intestine is boiled in water. Poke these with a needle, if no blood oozes after pricking, the <i>gyuma</i> has been cooked. They are fried and eaten and can also be stored.
24.	Luksha	Sheep	<i>Luksha</i> (sheep meat) is boiled and seasoned with salt and local spices. Heat a pan and pour oil into it, to this add jeera, onion along with chilies and turmeric powder. Now add a local spice called <i>gemen</i> ( <i>Allium jacquemontii</i> ). After frying well, add meat and cook thoroughly.
25.	Rasha	Goat	To prepare <i>rasha</i> (goat meat), heat a pan, pour oil to it. Add jeera, onion, along with chilies, salt, and spices like <i>gemen</i> ( <i>Allium jacquemontii</i> ) and sauté it well. Now add the meat and cook thoroughly.
26.	Shapchin/ Shekambo/ Seeka	Goat/Sheep/Yak	This is dried meat that is used during winters. The meat is boiled in water. In a heated pan, pour oil; to this add jeera, onion, turmeric powder, chilies and salt to taste. Now add <i>gemen</i> to enhance the flavour of this dish. This is enjoyed with <i>pak</i> ( <i>sattu</i> dish).
27.	Yaksha	Yak	To prepare yaksha or yak meat, pour oil into a pan and add jeera, onion, and sauté well. Then add chilies, salt, and spices. Now add the yak meat and thoroughly cook it. Local wild spice, <i>gemen</i> is particularly used for flavouring.

Supplementary Table S3 — Wild edible plants consumed in Spiti valley

S. No.	Botanical Name	Local Name	Family	Part Used	Uses	Recipe
1	<i>Allium carolinianum</i> Redouté	Lavodh	Amaryllidaceae	Flower, Leaf	Flavouring agent	The dried flower heads and leaves are used as a spice to flavour food.
2	<i>Allium humile</i> Kunth.	Gogpa Zimger	Amaryllidaceae	Leaf	Flavouring agent	The leaves are finely chopped, dried, and used for flavouring.
3	<i>Allium jacquemontii</i> Kunth	Pharna/Kotse (Leaves)/ Gemen (Flower)	Amaryllidaceae	Flower	Flavouring agent	Flowers are dried, ground, and used to enhance flavour of food.
4	<i>Allium przewalskianum</i> Regel	Gogparukpa	Amaryllidaceae	Leaf	Flavouring agent	The leaves are roughly chopped, dried, and used as spice to enhance the taste.
5	<i>Atriplex crassifolia</i> Ledeb.	Phaltora/ Rudhog-pa	Amaranthaceae	Leaf, shoot	Vegetable	Young shoots and leaves are chopped. Afterwards, heat the oil in a pan and add spices such as <i>gemen</i> , chilies, turmeric powder, and salt. Cook thoroughly after adding the chopped leaves.
6	<i>Barbarea intermedia</i> Boreau	Shangtse	Brassicaceae	Leaf	Vegetable	The leaves are chopped. Then, in a pan, heat the oil and add spices and salt to taste. Once the onion turns brown, add the chopped leaves and cook until the leaves get tender.
7	<i>Bunium persicum</i> (Boiss.) B.Fedtsch.	Kala zeera	Apiaceae	Seed	Flavouring agent	The seeds are dried and used to flavour a variety of foods.
8	<i>Campanula latifolia</i> L.	Zatrika	Campanulaceae	Leaf	Vegetable	Young shoots and leaves are chopped. Now heat the oil in a pan and add jeera, onion, chilies, and salt to taste. Cook until the leaves are tender.
9	<i>Capparis spinosa</i> L.	Kabra	Capparaceae	Leaf, fruits	Vegetable, fruit	The leaves are chopped. In a pan, heat the oil and add the jeera, onion, chilies, and salt according to taste. Cook until it is tender. The ripe fruits are consumed raw.
10	<i>Capsella bursa-pastoris</i> (L.) Medik.	Sogkapa	Brassicaceae	Aerial parts	Vegetable	Aerial parts of the plant are boiled. Heat the oil in a pan and add the local spices like <i>lavodh</i> ( <i>Allium carolinianum</i> ) along with onion, chilies and salt to taste. Now add boiled leaves to it and cook well for few times.
11	<i>Carum carvi</i> L.	Mawo	Apiaceae	Seed	Flavouring agent	Seeds are collected, dried and used as a spice.

12	<i>Chenopodium botrys</i> L.	Shiki	Amaranthaceae	Leaf	Vegetable	Leaves are washed and boiled in water. Now heat the oil in a pan and add jeera along with onion, chilies and salt to taste. Later, add boiled leaves and milk. Cook it well.
13	<i>Chenopodium foliosum</i> Asch.	Yar	Amaranthaceae	Leaf	Vegetable	The leaves are washed and boiled in water. In a pan, heat the oil and add jeera, onion, chilies, and salt. When the onion has turned brown, add the boiled leaves and milk.
14	<i>Chorispora sabulosa</i> Cambess	Shomfli	Brassicaceae	Leaf	Vegetable	Leaves of the plant are mixed with leaves of <i>Chenopodiumbotrys</i> , <i>Lactucatararica</i> , <i>Lepidiumlatifolium</i> and eaten as mixed <i>saag</i> (Leafy vegetable). To prepare <i>saag</i> , heat the oil in a pan and add spices and salt to taste. Now add boiled leaves to it and cook well.
15	<i>Christolea crassifolia</i> Cambess	Sanak	Brassicaceae	Leaf	Vegetable	Leaves are made as mixed <i>saag</i> along with other wild species like <i>Chenopodiumbotrys</i> , <i>Lactucatararica</i> , <i>Lepidiumlatifolium</i> , and <i>Codonopsis ovata</i> . To prepare it, leaves are boiled in water. Heat the oil in a pan and add the spices, onion, chilies, salt. Cook thoroughly after adding the boiled leaves.
16	<i>Codonopsis ovata</i> Benth.	Rutupka/ Ruchupka/ Nyuva	Campanulaceae	Leaf, fruits	Vegetable, fruit	Leaves of the plant is mixed with leaves of other wild plants and eaten as mixed <i>saag</i> (Leafy vegetable). To prepare <i>Saag</i> , leaves are boiled along with other wild species like <i>Chenopodiumbotrys</i> , <i>Lactucatararica</i> , <i>Lepidiumlatifolium</i> . Heat the oil in a pan and add the local spices such as <i>gemen</i> . Now add boiled leaves to it and cook well.
17	<i>Dracocephalum heterophyllum</i> Benth.	Jipsi Karpo	Lamiaceae	Flower, root	Vegetable, raw food	White flowers are plucked and eaten raw. The roots are washed thoroughly and boiled in water. Now heat the oil in a pan and add jeera, onion, turmeric powder, chilies and salt to taste. Then, add boiled roots to this and cook on medium flame for few minutes.
18	<i>Ephedra intermedia</i> Schrenk & C.A.Mey.	Tse	Ephedraceae	Fruit	Fruit	Ripe fruits are consumed raw.
19	<i>Hippophae rhamnoides</i> L.	Tirku	Elaeagnaceae	Fruit	Fruit, local brew	Fruits are eaten raw. <i>Tirku</i> (Seabuckthorn tea) is prepared by using juice or dried powder of fruit.
20	<i>Lactuca tatarica</i> (L.) C.A.Mey.	Khala	Asteraceae	Leaf	Vegetable	Leaves are washed and repeatedly boiled 3 to 4 times in water to remove its bitterness. Afterwards, heat the oil in a pan and add the jeera, local spice called <i>Pharna</i> ( <i>Allium jacquemontii</i> ), chilies and salt to taste. Now add boiled leaves to it and cook well.
21	<i>Lepidium latifolium</i> L.	Tagtogpa	Brassicaceae	Leaf	Vegetable	Leaves are cleaned and chopped well. Heat the oil in a pan and add jeera, onion, salt and chilies. Now add chopped leaves to it and cook well.
22	<i>Mentha longifolia</i> (L.) L.	Takchi, churp	Lamiaceae	Leaf	Flavouring agent	Dried and fresh leaves are used for making <i>chutney</i> , flavouring tea, and juices. To make <i>chutney</i> , leaves are cleaned and ground along with coriander leaves, chilies, garlic, and <i>pharna</i> ( <i>Allium jacquemontii</i> ) on <i>silbatta</i> (Grinding stone). Add salt to taste and is relished with various food items.

23	<i>Oxyria digyna</i> (L.) Hill	Chumcha/ lugsho	Polygonaceae	Leaf	Vegetable	The leaves are edible, both raw and cooked as vegetables. To cook it, leaves are cleaned and boiled in water. Now, in a pan, heat the oil and add jeera, <i>Pharna</i> ( <i>Allium jacquemontii</i> ), chilies and salt to taste. then add boiled leaves to it and cook well.
24	<i>Plantago depressa</i> Willd.	Tharam	Plantaginaceae	Leaf	Vegetable, raw food	Young leaves are eaten raw or also cooked as a vegetable. The leaves are cleaned, washed properly and chopped. In a pan, heat the oil and add the local spices. Then add the boiled leaves and cook well.
25	<i>Plantago himalaica</i> Pilg.	Tharam	Plantaginaceae	Leaf	Vegetable	Young leaves are consumed raw and also cooked as vegetable. Leaves are cleaned and chopped well before cooking. In a pan, heat the oil and add the local spices such as <i>Lavodh</i> ( <i>Allium carolinianum</i> ) and <i>Pharna</i> ( <i>A. jacquemontii</i> ) along with chilies and salt to taste. Then add the boiled leaves and cook until tender.
26	<i>Polygonum aviculare</i> L.	Byinasa	Polygonaceae	Leaf	Vegetable	Clean and chop the tender leaves. Now in a pan, heat the oil and add the local spices like <i>pharna</i> ( <i>Allium jacquemontii</i> ), chilies, and salt according to taste. Cook well after adding the boiled leaves.
27	<i>Potentilla anserina</i> L.	Dolosazim/ doma	Rosaceae	Stem	Raw food	Stem is sweet in taste and consumed raw.
28	<i>Rheum emodi</i> Wall.	Lichu/ chhurtsa	Polygonaceae	Leaf, flower, petiole	Vegetable, raw food	Leaves are cleaned, washed and properly chopped. Now heat the oil in a pan and add the local spices <i>gemen</i> ( <i>Allium jacquemontii</i> ). Then add the boiled leaves and cook well. Flowers are consumed raw while the petioles are pickled and eaten boiled.
29	<i>Rhodiola heterodonta</i> (Hook.f. & Thomson) Boriss.	Solo	Crassulaceae	Leaf, shoot	Vegetable	Young leaves and shoots are consumed raw, boiled, and with curd.
30	<i>Ribes orientale</i> Desf.	Nyange/ Yangaya	Grossulariaceae	Fruit	Fruit	Orange coloured fruits are eaten raw.
31	<i>Robinia pseudoacacia</i> L.	Kikar	Fabaceae	Seed	Vegetable	Seeds are consumed as vegetables. Seeds are boiled in water to lose their acidic taste and then cooked like peas. To cook it, heat the oil in a pan and add onion along with the local spice <i>pharna</i> ( <i>Allium jacquemontii</i> ), chilies, and salt to taste. Now add boiled seeds of <i>kikar</i> and cook them well.
32	<i>Rumex nepalensis</i> Spreng.	Chuldi	Polygonaceae	Leaf	Vegetable	Leaves are washed and boiled two to three times to get rid of their bitter taste and then cooked as <i>saag</i> . To prepare it, heat the oil in a pan and add the local spices <i>gemen</i> ( <i>Allium jacquemontii</i> ), along with chilies and salt to taste. Then add the boiled leaves and cook well.
33	<i>Rumex patientia</i> subsp. <i>orientalis</i> (Bernh. ex Schult. & Schult.f.) Danser	Shoma	Polygonaceae	Leaf	Vegetable	Leaves are boiled and then cooked as <i>Saag</i> . Heat the oil in a pan and add the local spices <i>gemen</i> ( <i>Allium jacquemontii</i> ), chilies, and salt. Then add the boiled leaves and cook well.
34	<i>Silene vulgaris</i> (Moench) Garcke.	Gandoli, lugsug	Caryophyllaceae	Leaf, shoot	Vegetable	Tender leaves and shoots are washed and boiled in water. Now, heat the oil in a pan and add jeera, <i>pharna</i> ( <i>Allium jacquemontii</i> ), chilies, and salt according to taste. Then add the boiled leaves and cook well.
35	<i>Sonchus oleraceus</i> L.	Khurmang	Asteraceae	Leaf	Raw food	Young leaves are consumed as salad.

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36	<i>Trigonella emodi</i> Benth.	Tuljima	Fabaceae	Leaf, shoot	Vegetable	Tender leaves and shoots are washed and boiled. Now, heat the oil in a pan and add jeera, <i>pharna</i> ( <i>Allium jacquemontii</i> ), chilies, and salt to taste. Finally add the boiled leaves and cook well.
37	<i>Urtica tibetica</i> W.T. Wang ex C.J. Chen	Zha/ sah	Urticaceae	Leaf, shoot	Vegetable	The young leaves and shoots are washed and boiled with the leaves of other wild plants ( <i>Chenopodiumbotrys</i> , <i>Lactucatararica</i> , and <i>Lepidiumlatifolium</i> ) and consumed as mixed saag (Leafy vegetable). To make Saag, heat the oil in a pan and add jeera, onion, chilies, and salt to taste. Cook thoroughly after adding the boiled leaves.

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