

Original Paper

Collaborative Exploration of Legume and Amaranth Germplasm in Eastern Nepal from February 14 to 24, 2018

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Summary

This is a report for the Plant Genetic Resources in Asia (PGRAsia) project and the National Agriculture and Food Research Organization (NARO) genebank project for the collaborative collection and conservation of plant genetic resources in Nepal under the agreement between the National Agriculture Genetic Resources Center (NAGRC), Nepal Agricultural Research Council (NARC), and the Genetic Resources Center, NARO, Japan.

A field survey was conducted in Eastern Nepal from February 16th to February 21st, 2018, with the participants separated into teams A and B. Team A focused on cucumber and chili pepper and team B focused on legumes and amaranth. This report is the survey results from team B, with mention of some of the materials collected by team A. A total of 91 samples were collected and conserved in the gene bank at NAGRC, Nepal; these accessions consisted of 16 species from 10 genera, including *Amaranthus*, *Coriandrum*, *Cyclanthera*, *Glycine*, *Lablab*, *Macrotyloma*, *Perilla*, *Phaseolus*, *Solanum* and *Vigna*.

KEY WORDS: plant genetic resources, amaranth, legumes, Eastern Nepal

Introduction

A Joint Research Agreement (JRA) on the ‘Characterization and Evaluation of Plant Genetic Resources for Food and Agriculture’ was made in June 2015 between the National Institute of Agrobiological Sciences (NIAS) of Japan and the Nepal Agricultural Research Council (NARC) of Nepal. All obligations and rights of the NIAS under the JRA were transferred to the National Agriculture and Food Research Organization (NARO), owing to the merger of the NARO and NIAS in April 2016. Under the agreement, NARO and NARC have been implementing the Plant Genetic Resources in Asia (PGRAsia) project sponsored by the Ministry of Agriculture, Forestry and Fisheries (MAFF) of the Japanese government. The Japanese and Nepalese joint exploration teams conducted surveys of Central Nepal in 2015 (Nemoto *et al.* 2016), and for Western Nepal in 2016 (Takahashi *et al.* 2017; Yashiro *et al.* 2017). We have agreed to conduct explorations in Eastern Nepal during the 2017 Japanese fiscal year.

Method

After exploration preparations at NAGRC on February 15th, a field survey was conducted in Eastern Nepal from February 16th to February 21st, 2018 (Table 1). We travelled from Kathmandu to Biratnagar by domestic flight. At Biratnagar, we hired two cars and drove to the Ilam, Panchthar and Dhankuta districts. Members of the exploration party were separated into teams A and B; team A focused on Cucurbitaceae and *Capsicum* germplasm and team B mainly focused on food legumes and amaranth germplasm. This is the report of team B (including some samples collected by team A). We visited farmers and local markets to collect seed materials and related information.

Results and Discussion

In total, 91 seed samples (accessions) were conserved in the gene bank at NAGRC, Nepal (Table 2), following this investigation. These accessions consisted of 16 species from 10 genera, including *Amaranthus*, *Coriandrum*, *Cyclanthera*, *Glycine*, *Lablab*, *Macrotyloma*, *Perilla*, *Phaseolus*, *Solanum* and *Vigna*. Passport information of the collected materials are listed in Table 3. The altitudes of collection sites ranged from 536 m to 2,162 m.

Table 1. Itinerary of the field survey in Eastern Nepal, 2018

Date	Day	Itinerary	Work	Stay
14-Feb	Wed	Narita 11:45 -- (TG643) -- 17:05 Bangkok	Transportation, discussion at Kasetsart Univ.	Bangkok
15-Feb	Thu	Bangkok 10:30 -- (TG319) -- 12:45 Kathmandu	Transportation, preparing exploration at Genetic Resources Center, Nepal	Kathmandu
16-Feb	Fri	Kathmandu 9:05 -- (U4 703) -- 10:05 Biratnagar - (car) - Ilam	Transportation, start exploration	Ilam
17-Feb	Sat	Ilam - (car) - Phidim	Exploration	Phidim
18-Feb	Sun	Phidim - (car) - Birtamod	Exploration	Birtamod
19-Feb	Mon	Birtamod - (car) - Hile	Exploration	Hile
20-Feb	Tue	Hile - (walk) - Hile	Exploration by walk due to strike (Banda)	Hile
21-Feb	Wed	Hile - (car) - Biratnagar 17:05 -- (U4 714) -- 18:05 Kathmandu	Transportation	Kathmandu
22-Feb	Thu	cleaning collected materials at Genetic Resources Center, Nepal	cleaning collected materials	Kathmandu
23-Feb	Fri	Kathmandu 13:55-- (TG320) -- 18:30 Bangkok 23:45 -- (TG642) --	Transportation	on flight
24-Feb	Sat	-- 7:35 Narita	Transportation	

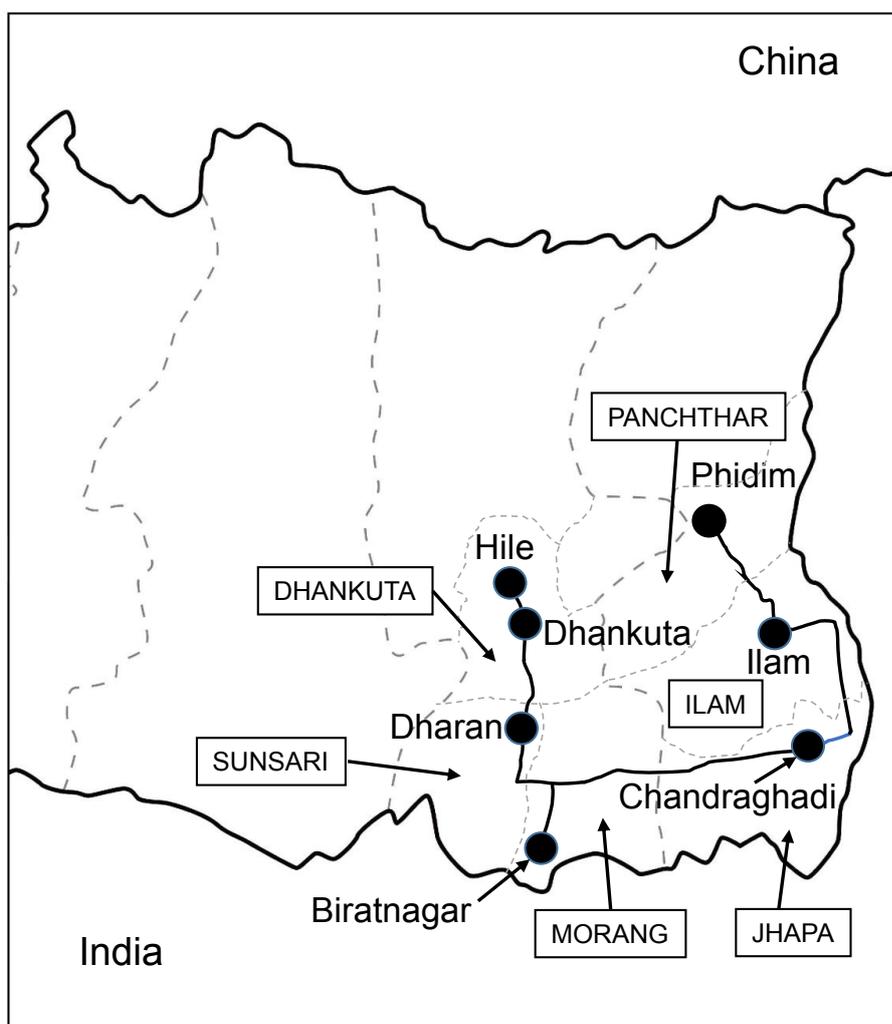


Fig. 1. Collection route in Eastern Nepal. The solid line indicates exploration routes and the solid circles indicate major towns. District names are shown in rectangles. Teams A and B conducted explorations using the same route.

We have collected 30 accessions from Ilam, 20 from Panchthar, and 41 from Dhankuta district, respectively (Table 3).

Food legumes

Seed samples of *Phaseolus vulgaris* (common bean) were collected from both foot hills and high hills with altitudes ranging from 536 m to 2,162 m. Seed colors of common bean were diverse and farmers kept various colored seeds mixed together (Photo 1). We have separated samples based on seed color and conserved them as different accessions (28 accessions; Table 2). Farmers referred to common bean as “Simi” in the Ilam and Panchthar districts, while farmers in the Dhankuta district sometimes called it “Bodi” (B54, B68, B69 and B89; Table 3). Common bean seemed to be the most important food legume in the high altitude areas of Eastern Nepal.

Among the three *Vigna* crops collected, *Vigna mungo* (black gram) seemed most common in these districts (14 accessions; Table 2). Black and green seeded varieties were collected. The altitudes of collection sites ranged from 536 m to 2,162 m (Table 3). Farmers in the Ilam and Panchthar districts called *V. mungo* “Mash”, while some farmers in the Dhankuta district called it “Dahl” (B78 and B83; Table 3).

Table 2. Number of collected samples in Eastern Nepal (Team B)

Scientific name	Crop	Naturally growing plant	Total
<i>Amaranthus caudatus</i>	2	-	2
<i>Amaranthus cruentus</i>	1	-	1
<i>Amaranthus hybridus</i>	5	1	6
<i>Amaranthus hypochondriacus</i>	8	1	9
<i>Coriandrum sativum</i>	1	-	1
<i>Coriandrum</i> sp.	1	-	1
<i>Cyclanthera pedata</i>	2	-	2
<i>Glycine max</i>	5	-	5
<i>Lablab purpureus</i>	2	-	2
<i>Macrotyloma uniflorum</i>	4	-	4
<i>Perilla frutescens</i>	1	-	1
<i>Phaseolus vulgaris</i>	28	-	28
<i>Solanum aethiopicum</i>	1	-	1
<i>Vigna mungo</i>	14	-	14
<i>Vigna umbellata</i>	8	-	8
<i>Vigna unguiculata</i>	6	-	6
Total	89	2	91

* Seven samples collected by Team A included

Vigna umbellata (rice bean) was common and was collected from both the foot hills and the high hills (altitudes from 536 m to 2,162 m; Table 3). Seed colors were variable from pale brown (B28, B33, B35, B58 and B76), to reddish (B53 and B77) and black mottled (B57). It was called “Banmara” in the Ilam and Panchthar districts, and “Rangalo” or “Mashyang” in the Dhankuta district.

Cultivation of *Vigna unguiculata* (cowpea) seemed to be restricted to lower altitude areas (altitude from 536 m to 1,125 m; Table 3). It was called “Bodi” in Panchthar and Dhankuta districts. We could not collect cowpea from the Ilam district. Seed colors of *V. unguiculata* collected in the Panchthar district were either brown (B42) or pale brown (B39 and B46), while those collected in the Dhankuta district were white with black eyes (B56 and B62) or white with brown eyes (B65).

Five seed samples were collected for *Glycine max* (soybean) (Table 2). It was called “Bhatamas” in the Panchthar and Dhankuta districts. We could not collect soybean from the Ilam district. Seed colors of soybean were brown (B29, B40 and B59), pale yellow (B55), or black (B67).

Four seed samples of *Macrotyloma uniflorum* (horse gram) were collected, three of which were from commercial markets. Cultivation of horse gram seemed to be rare in these districts. It was called “Gahat” in the Panchthar and Dhankuta districts. Some farmers told us that seeds of horse gram were used in local medicines.

Two seed samples of *Lablab purpureus* (hyacinth bean) were collected from the Panchthar (B36) and Ilam (B47; Photo 2) districts. Both have black colored seeds. Cultivation of hyacinth bean seemed to be restricted to lower altitude areas (altitudes of the collection sites were 634 m and 1,239 m).

Amaranthus

In total, 18 seed samples were collected for the genus *Amaranthus* (Table 2), for four different species: two samples of *Amaranthus caudatus* (A45 and B79), one of *Amaranthus cruentus* (B23; Photo 3), six of *Amaranthus hybridus*, and nine of *Amaranthus hypochondriacus* (e.g. B24; Photo 4). The altitudes of collection sites ranged from 624 m to 1,954 m. Farmers called all four species of *Amaranthus* “Latte”.

Amaranthus are well adapted to the dry and non-irrigated farm land cropping systems in Nepal. Eastern Nepal, surveyed in this exploration, has more precipitation and humidity compared with Western Nepal because of the influence of monsoons from the Bengal Bay. Therefore, cultivation of amaranths in Eastern Nepal is lower than in Western Nepal. In this exploration, among the 18 seed samples collected, 12 samples were from species usually used as grain food; *Amaranthus caudatus*, *Amaranthus cruentus*, and *Amaranthus hypochondriacus*. However, based on the interviews from farmers, almost all samples were used as vegetables and not as grain foods. Their seeds were brown or black. Only one sample of *Amaranthus hypochondriacus* (B85) used as a grain food was collected from the Dhankuta district. The seed color of this collection was pale yellow. Many farmers interviewed mentioned that they used to use amaranth as a grain food, but that they currently only use it as a vegetable crop. They recognized that the amaranth leaves tasted good and they produced a valuable vegetable. These results reveal that amaranths are regarded as vegetables rather than grain foods in Eastern Nepal.

Kaywa (Slipper gourd)

Two samples of Kaywa (*Cyclanthera pedata*; A18 and A43) were collected. The fruits have large internal cavities and the end of the fruit is pointed. In Bhutan, which is another Himalayan country, this vegetable is popular and is called “Olachoto”, meaning bird's beak, due to the shape of the fruit. In Nepal, this fruit is called “Tukruke Karela”, meaning a small gourd or “Chuche Karela” meaning gourd with protrusions. These names are based on the fruits morphology. As some varieties of Kaywa have spines on the surface of the fruit. Kaywa originated in the Andean highlands and is considered to be suitable for cultivation in Himalayan highlands such as Nepal and Bhutan.

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ネパール東部における植物遺伝資源の 共同探索（チーム B：豆類とアマランサス）、 2018 年 2 月 14 日～ 24 日

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和文摘要

本報告は農林水産省委託プロジェクト研究「海外植物遺伝資源の収集・提供強化」および国立研究開発法人農業・食品産業技術総合研究機構（農研機構）農業生物資源ジーンバンク事業の予算により実施され、農研機構・遺伝資源センターとネパール国立農業研究評議会との間で締結した共同研究協定に基づいて行われたネパール東部における豆類およびアマランサス遺伝資源の探索・収集に関わる調査報告書である。

調査は、2018 年 2 月 14 日～ 24 日にかけてネパール東部のイラム県、パンチタール県、ダンクタ県において行った。探索は、チーム A（トウガラシ属およびウリ科野菜）とチーム B（豆類とアマランサス）に分かれて実施した。本報告は、チーム B の報告（一部チーム A の収集品を含む）である。探索の結果、10 属（*Amaranthus*, *Cariandrum*, *Cyclanthera*, *Glycine*, *Lablab*, *Macrotyloma*, *Perilla*, *Phaseolus*, *Solanum*, *Vigna*）、16 種、91 点の遺伝資源を収集し、収集品はネパール国立農業遺伝資源センターに保存した。

Table 3. Passport data of plant materials collected in Eastern Nepal

No.	Col. No.	JP No.	Scientific name	Local name	Col. Date (mm/dd/yyyy)	Status	Col. Site	Latitude	Longitude	Altitude (m)	Remarks
1	2	262157	<i>Phaseolus vulgaris</i>	Ghu Simi	2/16/2018	Landrace	Kolbung, 10 km from Fikkal Bazzar, Royung VDC, Ilam District	N26-49-34.72	E88-03-53.90	1,422	mid hills. Sowing: July-August, Harvest: Oct-Nov, Usage: Dual purpose
2	3	262158	<i>Phaseolus vulgaris</i>	Akase Simi	2/16/2018	Landrace	Kolbung, 10 km from Fikkal Bazzar, Royung VDC, Ilam District	N26-49-34.72	E88-03-53.90	1,422	mid hills. Sowing: Aug-Sep, Harvest: Oct-Nov, Usage: Dahl Khane, High Yielding
3	4	262159	<i>Phaseolus vulgaris</i>	Pahelno Simi	2/16/2018	Landrace	Kolbung, 10 km from Fikkal Bazzar, Royung VDC, Ilam District	N26-49-34.72	E88-03-53.90	1,422	mid hills. Sowing: Aug-Sep, Harvest: Oct-Nov, Usage: Dahl Khane
4	5	262160	<i>Phaseolus vulgaris</i>	Rato Simi	2/16/2018	Landrace	Kolbung, 10 km from Fikkal Bazzar, Royung VDC, Ilam District	N26-49-34.72	E88-03-53.90	1,422	mid hills. Sowing: Aug-Sep, Harvest: Oct-Nov, Usage: Dual purpose, Vegetables as well Dahl
5	6	262161	<i>Phaseolus vulgaris</i>	Hade Simi	2/16/2018	Landrace	Kolbung, 10 km from Fikkal Bazzar, Royung VDC, Ilam District	N26-49-34.72	E88-03-53.90	1,422	mid hills. Sowing: Aug-Sep, Harvest: Oct-Nov, Usage: Dahl Khane, Better then other
6	7	262162	<i>Perilla frutescens</i> var. <i>frutescens</i>	-	2/16/2018	Landrace	Kolbung, 10 km from Fikkal Bazzar, Royung VDC, Ilam District	N26-49-34.72	E88-03-53.90	1,422	mid hills. Sowing: April-May, Harvest: Oct-Nov
7	A18	262262	<i>Cyclanthera pedata</i>	Tukruke	2/17/2018	Landrace	Sumek, 7 km from Mai Pokhari, Ilam Municipality VDC, Ilam District	N26-59-36.40	E87-55-59.34	1,887	mid hills. Sowing: March-April, Harvest: Aug-Sept, Usage: Vegetable purpose.
8	A31	262275	<i>Amaranthus hybridus</i>	Seto Latte	2/18/2018	Landrace	Tari Gaun, 5 km from Phidim Bazzar, Phidim Municipality VDC, Panchthar District	N27-08-42.09	E87-45-03.70	1,024	mid hills. Sowing: March-April, Harvest: June-July. Used as a leafy vegetables
9	A32	262276	<i>Solanum aethiopicum</i>	Bee	2/18/2018	Landrace	Tari Gaun, 5 km from Phidim Bazzar, Phidim Municipality VDC, Panchthar District	N27-08-42.41	E87-45-05.26	1,023	mid hills. Sowing: Feb-March, Harvest: Sept-Oct. For vegetables
10	A43	262287	<i>Cyclanthera pedata</i>	Chuche Karela	2/19/2018	Landrace	Thumke, 5 km from Bhedetar, Sangurigadi VDC, Dhankuta District	N26-51-41.04	E87-20-19.67	1,605	mid hills. Sowing: Feb-March, Harvest: May-June, Usage: Green fruit. Smooth type and tasty
11	A45	262289	<i>Amaranthus caudatus</i>	Ganga Basi Latte	2/19/2018	Landrace	Thumke, 5 km from Bhedetar, Sangurigadi VDC, Dhankuta District	N26-51-37.76	E87-20-22.36	1,613	mid hills. Sowing: Feb-March, Harvest: Oct-Nov, Usage: For leaf.
12	A47	262291	<i>Coriandrum sativum</i>	Local Rayao	2/19/2018	Landrace	Namje tole, 3 km from Bhedetar, Sangurigadi Gaunpalika VDC, Dhankuta District	N26-51-13.83	E87-20-19.65	1,614	mid hills. Sowing: April-May, Harvest: Sept-Oct, For leaf as well as inflorescence stem. More inflorescence stem produce
13	A50	262294	<i>Coriandrum</i> sp.	Local Dhaniya	2/19/2018	Landrace	Namje tole, 3 km from Bhedetar, Sangurigadi Gaunpalika VDC, Dhankuta District	N26-51-13.83	E87-20-19.65	1,614	mid hills. Sowing: April-May, Harvest: Nov-Dec
14	B8	262163	<i>Phaseolus vulgaris</i>	Hallude	2/17/2018	Landrace	Okhre Barbote, 5 km from Biplate, Ilam Municipality VDC, Ilam District	N26-57-23.00	E87-55-58.00	1,194	high hills. Sowing: June-July, Harvest: Sep-Oct, Usage: Dahl and vegetable, Testy
15	B9	262164	<i>Phaseolus vulgaris</i>	Hade Simi	2/17/2018	Landrace	Okhre Barbote, 5 km from Biplate, Ilam Municipality VDC, Ilam District	N26-57-23.00	E87-55-58.00	1,194	high hills. Sowing: Aug-Sep, Harvest: Nov-Dec, Usage: Home consumption, Tasty
16	B10	262165	<i>Vigna mungo</i>	Kalo Mash	2/17/2018	Landrace	Okhre Barbote, 5 km from Biplate, Ilam Municipality VDC, Ilam District	N26-57-23.00	E87-55-58.00	1,194	high hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Green saladh and mature for cooking purpose, Big size and long
17	B13	262168	<i>Phaseolus vulgaris</i>	Seto Simi	2/17/2018	Landrace	Mai Pokhari, 1 km from Mai Pokhari, Santapur Gaun Palika VDC, Ilam District	N27-00-35.00	E87-56-00.00	2,113	high hills. Sowing: July-Aug, Harvest: Sep-Oct, Usage: Dahl
18	B14	262169	<i>Phaseolus vulgaris</i>	Chirke Simi	2/17/2018	Landrace	Mai Pokhari, 1 km from Mai Pokhari, Santapur Gaun Palika VDC, Ilam District	N27-00-35.00	E87-56-00.00	2,113	high hills. Sowing: July-Aug, Harvest: Nov-Dec
19	B15	262170	<i>Phaseolus vulgaris</i>	Kalo Simi	2/17/2018	Landrace	Mai Pokhari, 1 km from Mai Pokhari, Santapur Gaun Palika VDC, Ilam District	N27-00-35.00	E87-56-00.00	2,113	high hills. Sowing: July-Aug, Harvest: Sep-Oct, Usage: Dahl/ Vegetable
20	B16	262171	<i>Phaseolus vulgaris</i>	Hallude Simi	2/17/2018	Landrace	Mai Pokhari, 1 km from Mai Pokhari, Santapur Gaun Palika VDC, Ilam District	N27-00-35.00	E87-56-00.00	2,113	high hills. Sowing: July-Aug, Harvest: Sep-Oct, Usage: Dahl/ Vegetable
21	B17	262172	<i>Phaseolus vulgaris</i>	Seto Chirke	2/17/2018	Landrace	Mai Pokhari, 1 km from Mai Pokhari, Santapur Gaun Palika VDC, Ilam District	N27-00-35.00	E87-56-00.00	2,113	high hills. Sowing: July-Aug, Harvest: Sep-Oct, Usage: Vegetable purpose
22	B18	262173	<i>Phaseolus vulgaris</i>	Dalle Khairo simi	2/17/2018	Landrace	Mai Pokhari, 1 km from Mai Pokhari, Santapur Gaun Palika VDC, Ilam District	N27-00-35.00	E87-56-00.00	2,113	high hills. Sowing: July-Aug, Harvest: Sep-Oct, Usage: Vegetable purpose
23	B19	262174	<i>Phaseolus vulgaris</i>	Phikka Pahelno simi	2/17/2018	Landrace	Mai Pokhari, 1 km from Mai Pokhari, Santapur Gaun Palika VDC, Ilam District	N27-00-35.00	E87-56-00.00	2,113	high hills. Sowing: July-Aug, Harvest: Sep-Oct, Usage: Vegetable purpose
24	B20	262175	<i>Phaseolus vulgaris</i>	Khairo Simi	2/17/2018	Landrace	Mai Pokhari, 1 km from Mai Pokhari, Santapur Gaun Palika VDC, Ilam District	N27-00-35.00	E87-56-00.00	2,113	high hills. Sowing: July-Aug, Harvest: Sep-Oct, Usage: Dahl
25	B23	262178	<i>Amaranthus cruentus</i>	Rato Latte	2/17/2018	Landrace	Namuna, 2 km from Mai Pokhari, Santapur Gaun Palika VDC, Ilam District	N26-59-51.00	E87-55-47.00	1,954	mid hills. Sowing: May-june, Harvest: Nov-Dec, Usage: Food
26	B24	262179	<i>Amaranthus hypochondriacus</i>	Seto Latte	2/17/2018	Landrace	Dhara Pani, 10 km from Mai Pokhari, Ilam Municipality VDC, Ilam District	N26-58-00.00	E87-55-16.00	1,607	mid hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Leafy vegetables

Table 3. (Continued).

No.	Col. No.	JP No.	Scientific name	Local name	Col. Date (mm/dd/yyyy)	Status	Col. Site	Latitude	Longitude	Altitude (m)	Remarks
27	B25	262180	<i>Amaranthus hypochondriacus</i>	Hariyo Latte	2/17/2018	Landrace	Dhara Pani, 10 km from Mai Pokhari, Ilam Municipality VDC, Ilam District	N26-58-00.00	E87-55-16.00	1,607	mid hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Food
28	B26	262181	<i>Vigna mungo</i>	Kalo Mash	2/17/2018	Landrace	Sakhejung, 25 km from Nepaltar, Ilam Municipality VDC, Ilam District	N26-59-22.00	E87-53-01.00	1,667	mid hills.
29	B27	262182	<i>Vigna mungo</i>	Khairo Mash	2/17/2018	Landrace	Sakhejung, 25 km from Nepaltar, Ilam Municipality VDC, Ilam District	N26-59-22.00	E87-53-01.00	1,667	mid hills.
30	B28	262183	<i>Vigna umbellata</i>	Banmara	2/17/2018	Landrace	Sakhejung, 25 km from Nepaltar, Ilam Municipality VDC, Ilam District	N26-59-22.00	E87-53-01.00	1,667	mid hills.
31	B29	262184	<i>Glycine max</i>	Nepali Bhatmas	2/17/2018	Landrace	Rake, 1 km from Rake bazaar, Phalgunanadha Gaupalika VDC, Panchthar District	N27-01-47.00	E87-48-20.00	2,162	high hills.
32	B30	262185	<i>Vigna mungo</i>	Pahelno Mash	2/17/2018	Landrace	Rake, 1 km from Rake bazaar, Phalgunanadha Gaupalika VDC, Panchthar District	N27-01-47.00	E87-48-20.00	2,162	high hills.
33	B31	262186	<i>Phaseolus vulgaris</i>	Rato simi	2/17/2018	Landrace	Rake, 1 km from Rake bazaar, Phalgunanadha Gaupalika VDC, Panchthar District	N27-01-47.00	E87-48-20.00	2,162	high hills.
34	B32	262187	<i>Macrotyloma uniflorum</i>	Kalo Gahat	2/17/2018	Landrace	Rake, 1 km from Rake bazaar, Phalgunanadha Gaupalika VDC, Panchthar District	N27-01-47.00	E87-48-20.00	2,162	high hills.
35	B33	262188	<i>Vigna umbellata</i>	Pahelno Banmara	2/17/2018	Landrace	Rake, 1 km from Rake bazaar, Phalgunanadha Gaupalika VDC, Panchthar District	N27-01-47.00	E87-48-20.00	2,162	high hills.
36	B34	262189	<i>Vigna mungo</i>	Kalo Mash	2/18/2018	Landrace	Thapatar, 5 km from Hiwa Khola, Phidim Municipality VDC, Panchthar District	N27-09-50.70	E87-45-54.30	624	foot hills. Sowing: July-August, Harvest: Oct-Nov
37	B35	262190	<i>Vigna umbellata</i>	Banmara	2/18/2018	Landrace	Thapatar, 5 km from Hiwa Khola, Phidim Municipality VDC, Panchthar District	N27-09-50.70	E87-45-54.30	624	foot hills. Sowing: July-August, Harvest: Oct-Nov
38	B36	262191	<i>Lablab purpureus</i>	Hiude Kalo	2/18/2018	Landrace	Thapatar, 5 km from Hiwa Khola, Phidim Municipality VDC, Panchthar District	N27-09-50.70	E87-45-54.30	624	foot hills. Sowing: May-June, Harvest: Sep-Oct
39	B37	262192	<i>Phaseolus vulgaris</i>	Dhankute Simi	2/18/2018	Landrace	Thapatar, 5 km from Hiwa Khola, Phidim Municipality VDC, Panchthar District	N27-09-50.70	E87-45-54.30	624	foot hills. Sowing: May-June, Harvest: Sep-Oct, Usage: Vegetable
40	B38	262193	<i>Phaseolus vulgaris</i>	Gheu Simi	2/18/2018	Landrace	Thapatar, 5 km from Hiwa Khola, Phidim Municipality VDC, Panchthar District	N27-09-50.70	E87-45-54.30	624	foot hills. Sowing: May-June, Harvest: Sep-Oct, Usage: Vegetable
41	B39	262194	<i>Vigna unguiculata</i>	Tane Bodi	2/18/2018	Landrace	Thapatar, 5 km from Hiwa Khola, Phidim Municipality VDC, Panchthar District	N27-09-50.70	E87-45-54.30	624	foot hills. Sowing: May-June, Harvest: Sep-Oct
42	B40	262195	<i>Glycine max</i>	Kalo Bhatamas	2/18/2018	Landrace	Thapatar, 5 km from Hiwa Khola, Phidim Municipality VDC, Panchthar District	N27-09-50.70	E87-45-54.30	624	foot hills. Sowing: May-June, Harvest: Sep-Oct
43	B41	262196	<i>Macrotyloma uniflorum</i>	Kalo Gahat	2/18/2018	Landrace	Thapatar, 5 km from Hiwa Khola, Phidim Municipality VDC, Panchthar District	N27-09-50.70	E87-45-54.30	624	foot hills. Sowing: Aug-Sep, Harvest: Dec-Jan
44	B42	262197	<i>Vigna unguiculata</i>	Lamo Bodi	2/18/2018	Landrace	Thapatar, 5 km from Hiwa Khola, Phidim Municipality VDC, Panchthar District	N27-09-50.70	E87-45-54.30	624	foot hills. Sowing: June-July, Harvest: Sep-Oct
45	B43	262198	<i>Amaranthus hybridus</i>	Hariyo Latte	2/18/2018	Landrace	Thapatar, 5 km from Hiwa Khola, Phidim Municipality VDC, Panchthar District	N27-09-50.70	E87-45-54.30	624	foot hills. Sowing: May-June, Harvest: Sep-Oct
46	B44	262199	<i>Vigna mungo</i>	Kalo mash	2/18/2018	Landrace	Pallotar, 3 km from Jorsal Bazaar, Phidim Municipality VDC, Panchthar District	N27-08-39.20	E87-45-04.00	1,065	mid hills. Sowing: July-August, Harvest: Oct-Nov
47	B45	262200	<i>Vigna mungo</i>	Pahelno Mash	2/18/2018	Landrace	Pallotar, 3 km from Jorsal Bazaar, Phidim Municipality VDC, Panchthar District	N27-08-39.20	E87-45-04.00	1,065	mid hills. Sowing: July-August, Harvest: Nov-Dec, Usage: Dahl
48	B46	262201	<i>Vigna unguiculata</i>	Kartike Bodi	2/18/2018	Landrace	Pallotar, 3 km from Jorsal Bazaar, Phidim Municipality VDC, Panchthar District	N27-08-39.20	E87-45-04.00	1,065	mid hills. Sowing: April-May, Harvest: Sep-Oct, Usage: Vegetable
49	B47	262202	<i>Lablab purpureus</i>	Tate Simi	2/18/2018	Landrace	Puwa Khola, 4 km from Biplate Bazaar, Ilam Municipality VDC, Ilam District	N26-59-14.30	E87-53-54.50	1,239	mid hills. Sowing: April-May, Harvest: July-Aug, Usage: Vegetable
50	B49	262204	<i>Phaseolus vulgaris</i>	Rato Simi	2/18/2018	Landrace	Kolbung, 5 km from Kolbung bazaar, Royung Gaun Palika VDC, Ilam District	N26-49-18.00	E88-03-59.70	1,482	mid hills. Sowing: May-June, Harvest: Sep-Oct, Usage: Vegetable
51	B50	262205	<i>Phaseolus vulgaris</i>	Kanchi(Hade) simi	2/18/2018	Landrace	Kolbung, 5 km from Kolbung bazaar, Royung Gaun Palika VDC, Ilam District	N26-49-18.00	E88-03-59.70	1,482	mid hills. Sowing: May-June, Harvest: Oct-Nov, Usage: Dahl

Table 3. (Continued).

No.	Col. No.	JP No.	Scientific name	Local name	Col. Date (mm/dd/yyyy)	Status	Col. Site	Latitude	Longitude	Altitude (m)	Remarks
52	B51	262206	<i>Phaseolus vulgaris</i>	Chiribire simi	2/18/2018	Landrace	Kolbung, 5 km from Kolbung bazaar, Royung Gaun Palika VDC, Ilam District	N26-49-18.00	E88-03-59.70	1,482	mid hills. Sowing: June-July, Harvest: Oct-Nov, Usage: Vegetable
53	B52	262207	<i>Phaseolus vulgaris</i>	Khairo Simi	2/18/2018	Landrace	Kolbung, 5 km from Kolbung bazaar, Royung Gaun Palika VDC, Ilam District	N26-49-18.00	E88-03-59.70	1,482	mid hills. Sowing: July-August, Harvest: Nov-Dec, Usage: Vegetable
54	B53	262208	<i>Vigna umbellata</i>	Rangalo	2/19/2018	Landrace	Simsuwa, 5 km from Tamor River, Sanghurigadi Gau Palika VDC, Dhankuta District	N26-53-03.00	E87-19-48.00	536	foot hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Dahl
55	B54	262209	<i>Phaseolus vulgaris</i>	Alupande Bodi	2/19/2018	Landrace	Simsuwa, 5 km from Tamor River, Sanghurigadi Gau Palika VDC, Dhankuta District	N26-53-03.00	E87-19-48.00	536	foot hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Vegetable
56	B55	262210	<i>Glycine max</i>	Seto Bhatamas	2/19/2018	Landrace	Simsuwa, 5 km from Tamor River, Sanghurigadi Gau Palika VDC, Dhankuta District	N26-53-03.00	E87-19-48.00	536	foot hills. Sowing: July-August, Harvest: Oct-Nov, Usage: Vegetable
57	B56	262211	<i>Vigna unguiculata</i>	Majhe Bodi	2/19/2018	Landrace	Simsuwa, 5 km from Tamor River, Sanghurigadi Gau Palika VDC, Dhankuta District	N26-53-03.00	E87-19-48.00	536	foot hills. Sowing: Aug-Sep, Harvest: Oct-Nov, Usage: Vegetable
58	B57	262212	<i>Vigna umbellata</i>	Thulo Ban Rangalo	2/19/2018	Landrace	Simsuwa, 5 km from Tamor River, Sanghurigadi Gau Palika VDC, Dhankuta District	N26-53-03.00	E87-19-48.00	536	foot hills. Sowing: July-August, Harvest: Nov-Dec, Usage: Dahl
59	B58	262213	<i>Vigna umbellata</i>	Besi Rangalo	2/19/2018	Landrace	Simsuwa, 5 km from Tamor River, Sanghurigadi Gau Palika VDC, Dhankuta District	N26-53-03.00	E87-19-48.00	536	foot hills. Sowing: June-Aug, Harvest: Oct-Nov, Usage: Dahl
60	B59	262214	<i>Glycine max</i>	Nepali Bhatmas	2/19/2018	Landrace	Simsuwa, 5 km from Tamor River, Sanghurigadi Gau Palika VDC, Dhankuta District	N26-53-03.00	E87-19-48.00	536	foot hills. Sowing: June-July, Harvest: Sep-Oct, Usage: Dahl/Vegetables
61	B60	262215	<i>Vigna mungo</i>	Pahelni Mash	2/19/2018	Landrace	Simsuwa, 5 km from Tamor River, Sanghurigadi Gau Palika VDC, Dhankuta District	N26-53-03.00	E87-19-48.00	536	foot hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Dahl
62	B61	262216	<i>Vigna mungo</i>	Kalo Mash	2/19/2018	Landrace	Simsuwa, 5 km from Tamor River, Sanghurigadi Gau Palika VDC, Dhankuta District	N26-53-03.00	E87-19-48.00	536	foot hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Dahl
63	B62	262217	<i>Vigna unguiculata</i>	Magni Bodi	2/19/2018	Landrace	Hulak Tol, 1 km from Dhankut Bazaar, Dhankuta Municipality VDC, Dhankuta District	N26-58-16.70	E87-20-39.10	1,125	mid hills.
64	B63	262218	<i>Phaseolus vulgaris</i>	Jare Simi	2/19/2018	Landrace	Hulak Tol, 1 km from Dhankut Bazaar, Dhankuta Municipality VDC, Dhankuta District	N26-58-16.70	E87-20-39.10	1,125	mid hills.
65	B64	262219	<i>Macrotyloma uniflorum</i>	Gahat	2/19/2018	Landrace	Hulak Tol, 1 km from Dhankut Bazaar, Dhankuta Municipality VDC, Dhankuta District	N26-58-16.70	E87-20-39.10	1,125	mid hills.
66	B65	262220	<i>Vigna unguiculata</i>	Majhi Bodi	2/19/2018	Landrace	Hulak Tol, 1 km from Dhankut Bazaar, Dhankuta Municipality VDC, Dhankuta District	N26-58-16.70	E87-20-39.10	1,125	mid hills.
67	B66	262221	<i>Phaseolus vulgaris</i>	Gheu Simi	2/19/2018	Landrace	Nigale, 5 km from Hile Bazaar, Dhankuta Municipality VDC, Dhankuta District	N27-00-45.20	E87-19-25.90	1,704	mid hills. Sowing: Feb-march, Harvest: June-july, Usage: Vegetables
68	B67	262222	<i>Glycine max</i>	Kalo Bhatamas	2/20/2018	Landrace	Bokre, 5 km from Hile Bazaar, Pakhribas Gaupalika VDC, Dhankuta District	N27-02-44.90	E87-18-42.00	1,847	mid hills. Sowing: May-june, Harvest: Nov-Dec, Usage: Vegetables
69	B68	262223	<i>Phaseolus vulgaris</i>	Rajma Bodi	2/20/2018	Landrace	Bokre, 5 km from Hile Bazaar, Pakhribas Gaupalika VDC, Dhankuta District	N27-02-44.90	E87-18-42.00	1,847	mid hills. Sowing: Aug-Sep, Harvest: Nov-Dec, Usage: Vegetables
70	B69	262224	<i>Phaseolus vulgaris</i>	Mangsire Bodi	2/20/2018	Landrace	Bokre, 5 km from Hile Bazaar, Pakhribas Gaupalika VDC, Dhankuta District	N27-02-44.90	E87-18-42.00	1,847	mid hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Vegetables
71	B70	262225	<i>Vigna mungo</i>	Kalo Mash	2/20/2018	Landrace	Bokre, 5 km from Hile Bazaar, Pakhribas Gaupalika VDC, Dhankuta District	N27-02-44.90	E87-18-42.00	1,847	mid hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Dahl
72	B71	262226	<i>Vigna mungo</i>	Hariyo Mash	2/20/2018	Landrace	Bokre, 5 km from Hile Bazaar, Pakhribas Gaupalika VDC, Dhankuta District	N27-02-44.90	E87-18-42.00	1,847	mid hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Dahl
73	B72	262227	<i>Amaranthus hypochondriacus</i>	Rato Latte	2/20/2018	Landrace	Jor Dhara, 5 km from Hile Bazaar, Pakhriabs VDC, Dhankuta District	N27-00-00.00	E87-17-00.00	1,764	mid hills. Sowing: Feb-march, Harvest: Oct-Nov, Usage: Food
74	B73	262228	<i>Amaranthus hypochondriacus</i>	Rato Latte	2/20/2018	Landrace	Dhara Pani, Hile Bazaar, Pakhriabs VDC, Dhankuta District	N27-02-00.00	E87-17-00.00	1,727	mid hills.
75	B74	262229	<i>Amaranthus hypochondriacus</i>	Rato Latte	2/20/2018	Landrace	Kholitar, 10 km from Pakribas Reserch Centre, Pakhriabs Gaun Palika VDC, Dhankuta District	N27-02-00.00	E87-17-00.00	1,713	mid hills. Sowing: April-May, Harvest: Sep-Oct
76	B75	262230	<i>Amaranthus hypochondriacus</i>	Hariyo Latte	2/20/2018	Landrace	Kholitar, 10 km from Pakribas Reserch Centre, Pakhriabs Gaun Palika VDC, Dhankuta District	N27-02-00.00	E87-17-00.00	1,713	mid hills. Sowing: April-May, Harvest: Sep-Oct
77	B76	262231	<i>Vigna umbellata</i>	Seto Mashyang	2/20/2018	Landrace	Pakhriabs, 5 km from Pakribas Reserch Centre, Pakhriabs VDC, Dhankuta District	N27-02-00.00	E87-17-45.2	1,745	mid hills. Sowing: April-May, Harvest: Nov- Dec, Usage: Dahl

Table 3. (Continued).

No.	Col. No.	JP No.	Scientific name	Local name	Col. Date (mm/dd/yyyy)	Status	Col. Site	Latitude	Longitude	Altitude (m)	Remarks
78	B77	262232	<i>Vigna umbellata</i>	Rato Mashyang	2/20/2018	Landrace	Pakhriabs, 5 km from Pakribas Reserch Centre, Pakhriabs VDC, Dhankuta District	N27-02-00.00	E87-17-45.20	1,745	mid hills. Sowing: April-May, Harvest: Nov- Dec, Usage: Dahl
79	B78	262233	<i>Vigna mungo</i>	Mash Dahl	2/20/2018	Landrace	Pakhriabs, 5 km from Pakribas Reserch Centre, Pakhriabs VDC, Dhankuta District	N27-02-00.00	E87-17-45.20	1,745	mid hills. Sowing: April-May, Harvest: Nov- Dec, Usage: Dahl
80	B79	262234	<i>Amaranthus caudatus</i>	Rato Latte	2/20/2018	Landrace	Pakhriabs, 5 km from Pakribas Reserch Centre, Pakhriabs VDC, Dhankuta District	N27-02-00.00	E87-17-45.20	1,745	mid hills.
81	B80	262235	<i>Amaranthus hypochondriacus</i>	Seto Latte	2/20/2018	Landrace	Pakhriabs, 5 km from Pakribas Reserch Centre, Pakhriabs VDC, Dhankuta District	N27-02-00.00	E87-17-45.20	1,745	mid hills.
82	B81	262236	<i>Amaranthus hypochondriacus</i>	Seto Latte	2/20/2018	Landrace	Pakhriabs, 5 km from Pakribas Reserch Centre, Pakhriabs VDC, Dhankuta District	N27-02-00.00	E87-17-42.80	1,724	mid hills.
83	B82	262237	<i>Amaranthus hybridus</i>	Seto Latte	2/20/2018	Landrace	Pakhriabs, 5 km from Pakribas Reserch Centre, Pakhriabs VDC, Dhankuta District	N27-02-00.00	E87-17-42.80	1,724	mid hills.
84	B83	262238	<i>Vigna mungo</i>	Kalo Dahl	2/20/2018	Landrace	Pakhriabs, 5 km from Pakribas Reserch Centre, Pakhriabs VDC, Dhankuta District	N27-02-00.00	E87-17-40.50	1,728	mid hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Dahl
85	B84	262239	<i>Amaranthus hybridus</i>	Palungo Saag	2/20/2018	Landrace	Pakhriabs, 5 km from Pakribas Reserch Centre, Pakhriabs VDC, Dhankuta District	N27-02-00.00	E87-17-40.50	1,728	mid hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Dahl
86	B85	262240	<i>Amaranthus hypochondriacus</i>	Seto Latte	2/20/2018	Landrace	Pakhriabs, 5 km from Pakribas Reserch Centre, Pakhriabs VDC, Dhankuta District	N27-02-00.00	E87-17-40.50	1,728	mid hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Dahl
87	B86	262241	<i>Vigna mungo</i>	Kalo Mash	2/21/2018	Landrace	Pakhriabs, 25 km from Tambar Khola, Dhankuta Municipality VDC, Dhankuta District	N26-58-23.20	E87-19-56.00	630	foot hills. Sowing: June-July, Harvest: Nov-Dec, Usage: Dahl
88	B87	262242	<i>Amaranthus hybridus</i>	Rato Latte	2/21/2018	Landrace	Pakhriabs, Dhankuta Municipality VDC, Dhankuta District	N26-56-59.30	E87-09-56.90	680	foot hills.
89	B88	262243	<i>Macrotyloma uniflorum</i>	Gahat	2/21/2018	Landrace	Rudrabari, 20 km from Tambar Khola, Dhankuta Municipality VDC, Dhankuta District	N26-56-52.10	E87-55-22.49	1,278	mid hills.
90	B89	262244	<i>Phaseolus vulgaris</i>	Chirke Bodi	2/21/2018	Landrace	Rudrabari, 20 km from Tambar Khola, Dhankuta Municipality VDC, Dhankuta District	N26-56-52.10	E87-55-22.49	1,278	mid hills.
91	B90	262245	<i>Amaranthus hybridus</i>	Latte	2/17/2018	Landrace	Godhak Ghatta, 20 km from Ilam Bazaar, Ilam Municipality VDC, Ilam District	N26-56-52.10	E87-55-22.49	1,278	mid hills.



Photo 1. Diverse seed colors of *Phaseolus vulgaris*



Photo 2. *Lablab purpureus* (B47: JP 262202)

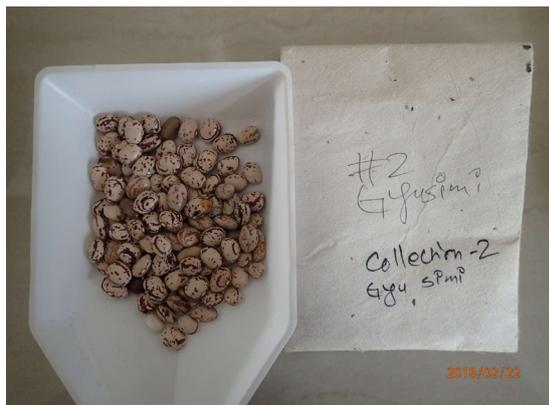


Photo 3. *Amaranthus cruentus* (B23: JP 262174)

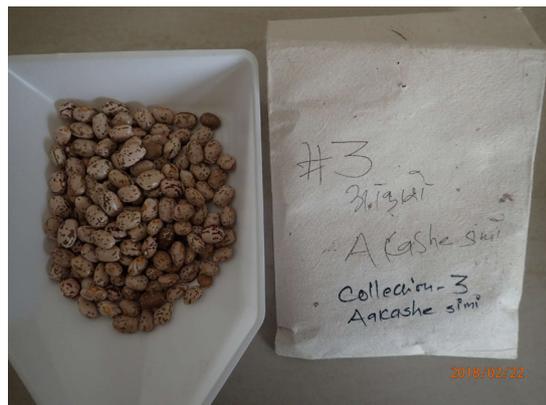


Photo 4. *Amaranthus hypochondriacus* (B24: JP 262175)

Sample photos



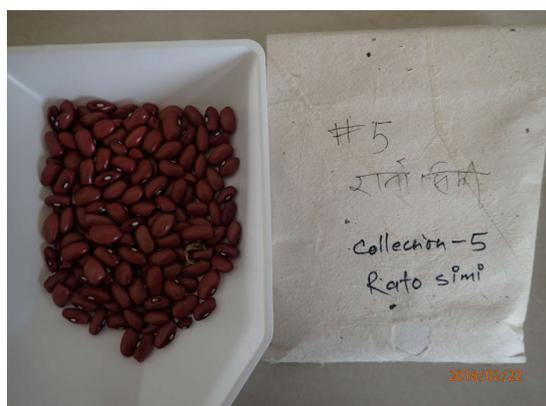
2. JP 262157, *Phaseolus vulgaris*, Ghu Simi, Ilam



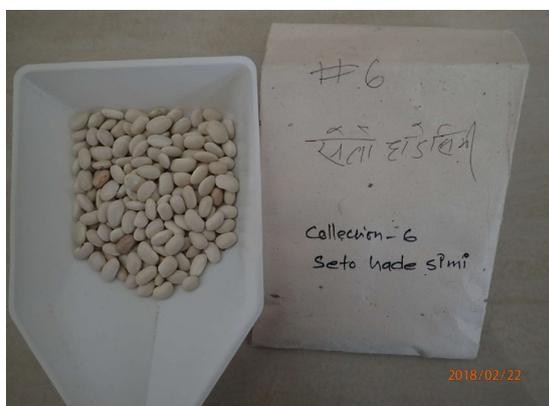
3. JP262158, *Phaseolus vulgaris*, Akase Simi, Ilam



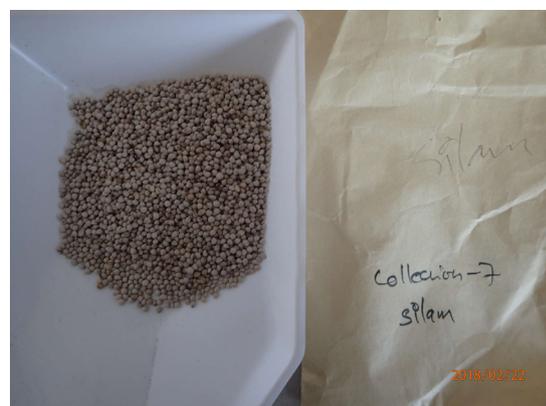
4. JP 262159, *Phaseolus vulgaris*, Pahelo Simi, Ilam



5. JP 262160, *Phaseolus vulgaris*, Rato Simi, Ilam



6. JP 262161, *Phaseolus vulgaris*, Hade Simi, Ilam



7. JP 262162, *Perilla frutescens*, Silam, Ilam



A18. JP 262262, *Cyclanthera pedata*, Tukruke, Ilam



A31. JP 262275, *Amaranthus hybridus*, Seto Latte, Panchthar



A32. JP 262276, *Solanum aetiopicum*, Bee, Panchthar



A43. JP 262287, *Cyclanthera pedata*, Chuche Karela, Dhankuta



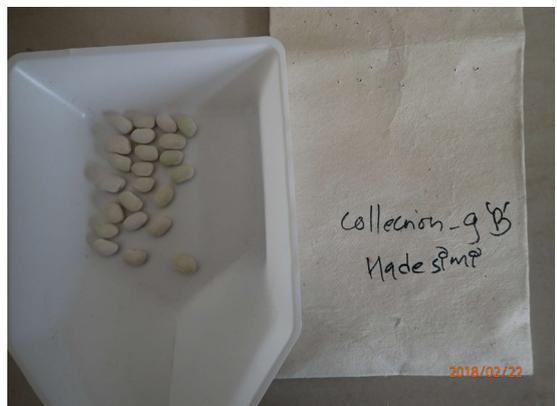
A45. JP 262289, *Amaranthus hypochondriacus*, Ganga Basi Latte, Dhankuta



A50. JP 262294, *Coriandrum sativum*, Local Dhaniya, Dhankuta



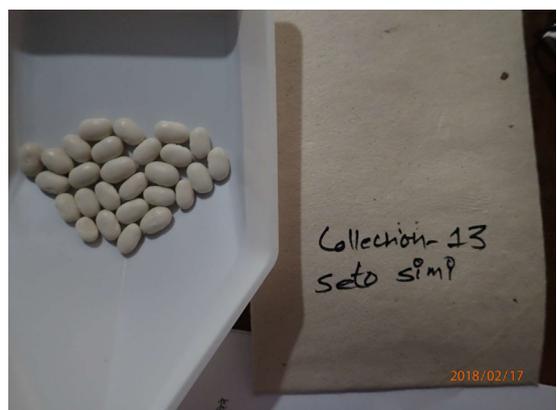
B08. JP 262163, *Phaseolus vulgaris*, Hallude, Ilam



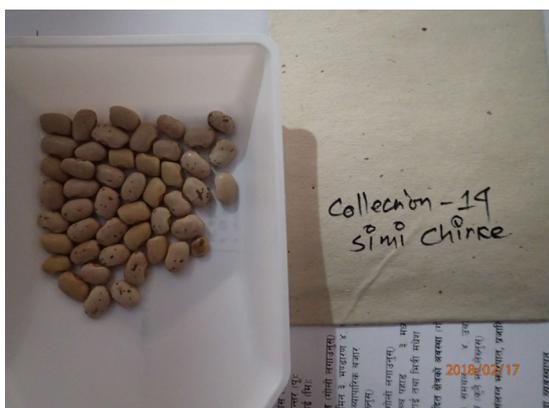
B09. JP 262164, *Phaseolus vulgaris*, Hade Simi, Ilam



B10. JP 262165, *Vigna mungo*, Kalo Mash, Ilam



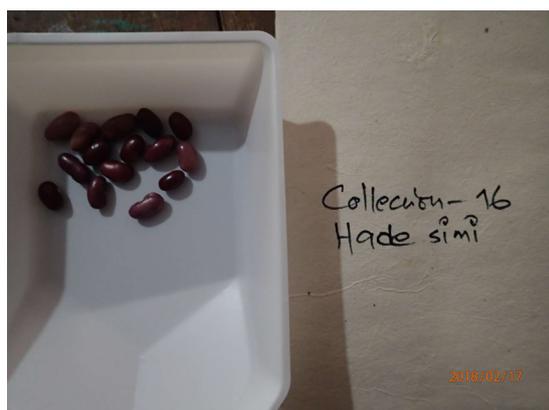
B13. JP 262168, *Phaseolus vulgaris*, Seto Simi, Ilam



B14. JP 262169, *Phaseolus vulgaris*, Chirke Simi, Ilam



B15. JP 262170, *Phaseolus vulgaris*, Kalo Simi, Ilam



B16. JP 262171, *Phaseolus vulgaris*, Hallude Simi, Ilam



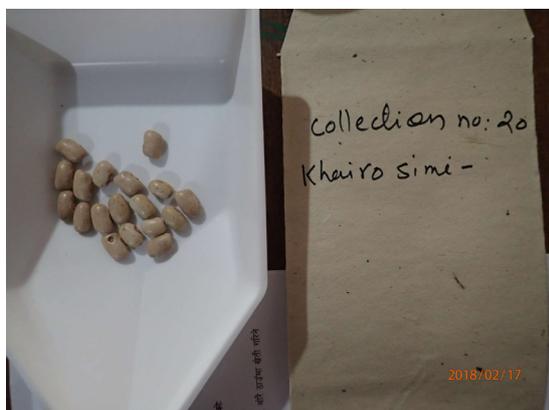
B17. JP 262172, *Phaseolus vulgaris*, Seto Chirke, Ilam



B18. JP 262173, *Phaseolus vulgaris*, Dalle Khairo Simi, Ilam



B19. JP 262174, *Phaseolus vulgaris*, Phikka Pahelo Simi, Ilam



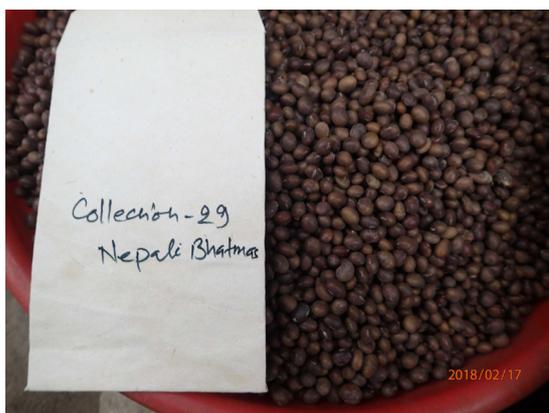
B20. JP 262175, *Phaseolus vulgaris*, Khairo Simi, Ilam



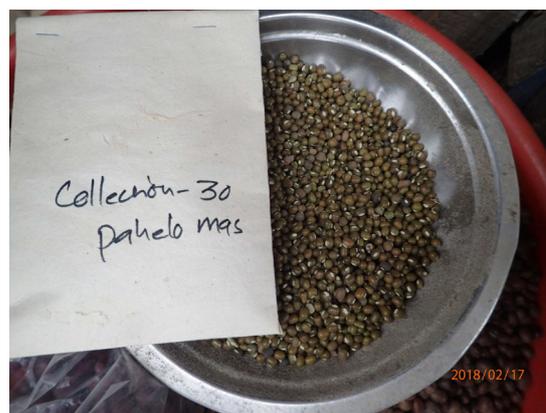
B26. JP 262181, *Vigna mungo*, Kalo Mash, Ilam

B27. JP 262182, *Vigna mungo*, Khairo Mash, Ilam

B28. JP 262183, *Vigna umbellata*, Banmara, Ilam



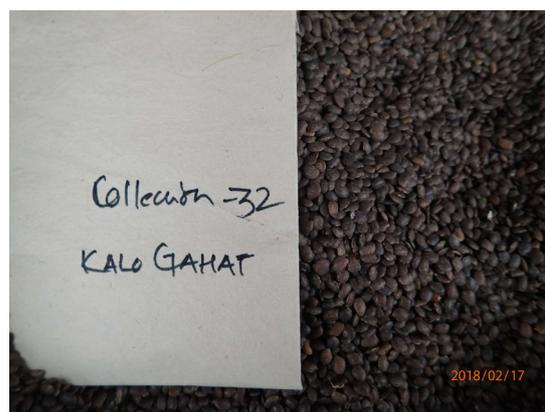
B29. JP 262184, *Glycine max*, Nepali Bhatmas, Panchthar



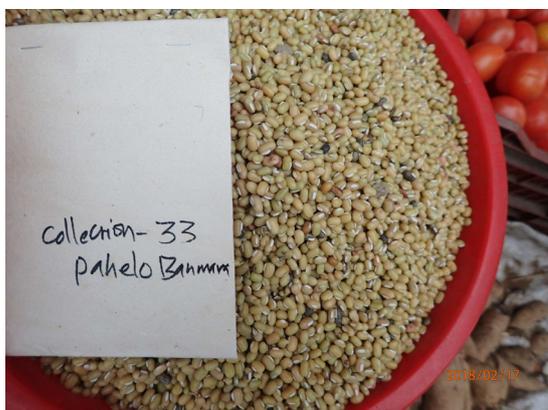
B30. JP 262185, *Vigna mungo*, Pahelo Mash, Panchthar



B31. JP 262186, *Phaseolus vulgaris*, Rato Simi, Panchthar



B32. JP 262187, *Macrotyloma uniflorum*, Kalo Gahat, Panchthar



B33. JP 262188, *Vigna umbellata*, Pahelo Banmara, Panchthar



B34. JP 262189, *Vigna mungo*, Kalo Mash, Panchthar



B35. JP 262190, *Vigna umbellata*, Banmara, Panchthar



B36. JP 262191, *Lablab purpureus*, Hiude Kalo, Panchthar



B37. JP 262192, *Phaseolus vulgaris*, Dhankute Simi, Panchthar



B38. JP 262193, *Phaseolus vulgaris*, Gheu Simi, Panchthar



B39. JP262194, *Vigna unguiculata*, Tane Bodi, Panchthar



B40. JP 262195, *Glycine max*, Kalo Bhatomas, Panchthar



B41. JP 262196, *Macrotyloma uniflorum*, Kalo Gahat, Panchthar



B42. JP 262197, *Vigna unguiculata*, Lamo Bodi, Panchthar



B43. JP 262198, *Amaranthus hybridus*, Hariyo Latte, Panchthar



B44. JP 262199, *Vigna mungo*, Kalo Mash, Panchthar



B45. JP 262200, *Vigna mungo*, Pahelno Mash, Panchthar



B46. JP 262201, *Vigna unguiculata*, Kartike Bodi, Panchthar



B47. JP 262202, *Lablab purpureus*, Tate Simi, Ilam



B49. JP 262204, *Phaseolus vulgaris*, Rato Simi, Ilam



B50. JP 262205, *Phaseolus vulgaris*, Kanchi Simi, Ilam



B51. JP 262206, *Phaseolus vulgaris*, Chiribire Simi, Ilam



B52. JP 262207, *Phaseolus vulgaris*, Khairo Simi, Ilam



B53. JP 262208, *Vigna umbellata*, Rangalo, Dhankuta



B54. JP 262209, *Phaseolus vulgaris*, Alpande Bodi, Dhankuta



B55. JP 262210, *Glycine max*, Bhatomas, Dhankuta



B56. JP 262211, *Vigna unguiculata*, Majhe Bodi, Dhankuta



B57. JP 262212, *Vigna umbellata*, Thulo Ban Rangalo, Dhankuta



B58. JP 262213, *Vigna umbellata*, Besi Rangalo, Dhankuta



B59. JP 262214, *Glycine max*, Nepali Bhatmas, Dhankuta



B60. JP 262215, *Vigna mungo*, Pahelni Mash, Dhankuta



B61. JP 262216, *Vigna mungo*, Kalo Mash, Dhankuta



B62. JP 262217, *Vigna unguiculata*, Magni Bodi, Dhankuta



B63. JP262218, *Phaseolus vulgaris*, Jare Simi, Dhankuta



B64. JP 262219, *Macrotyloma uniflorum*, Gahat, Dhankuta



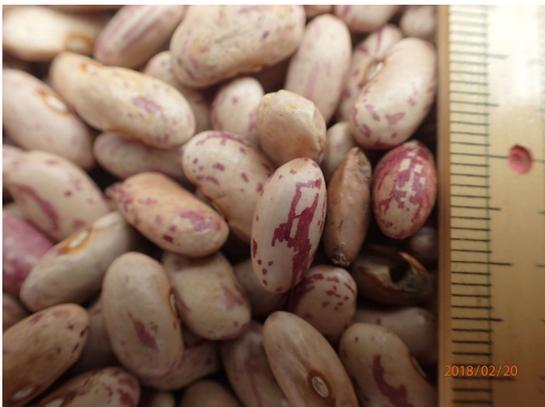
B65. JP 262220, *Vigna unguiculata*, Majhi Bodi, Dhankuta



B66. JP 262221, *Phaseolus vulgaris*, Gheu Simi, Dhankuta



B67. JP 262222, *Glycine max*, Kalo Bhatmas, Dhankuta



B68. JP 262223, *Phaseolus vulgaris*, Rajma Bodi, Dhankuta



B69. JP 262224, *Phaseolus vulgaris*, Mangsire Bodi, Dhankuta



B70. JP 262225, *Vigna mungo*, Kalo Mash, Dhankuta



B71. JP 262226, *Vigna mungo*, Hariyo Mash, Dhankuta



B72. JP 262227, *Amaranthus hypochondriacus*, Rato Latte, Dhankuta



B73. JP 262228, *Amaranthus hypochondriacus*, Rato Latte, Dhankuta



B74. JP 262229, *Amaranthus hypochondriacus*, Rato Latte, Dhankuta



B75. JP 262230, *Amaranthus hypochondriacus*, Hariyo Latte, Dhankuta



B76. JP 262231, *Vigna umbellata*, Seto Mashyang, Dhankuta



B77. JP 262232, *Vigna umbellata*, Rato Mashyang, Dhankuta



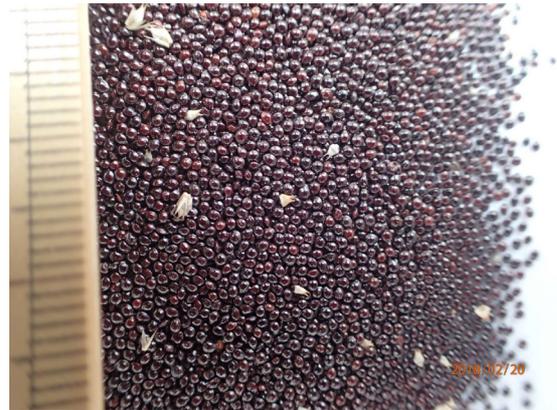
B78. JP 262233, *Vigna mungo*, Mash Dahl, Dhankuta



B79. JP 262234, *Amaranthus caudatus*, Rato Latte, Dhankuta



B80. JP 262235, *Amaranthus hypochondriacus*, Seto Latte, Dhankuta



B81. JP 262236, *Amaranthus hypochondriacus*, Seto Latte, Dhankuta



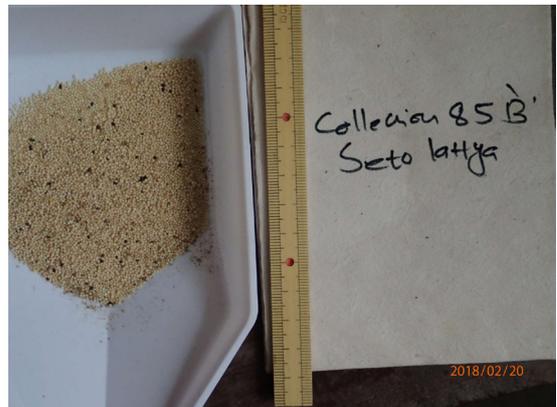
B82. JP 262237, *Amaranthus hybridus*, Seto Latte, Dhankuta



B83. JP 262238, *Vigna mungo*, Kalo Dahl, Dhankuta



B84. JP 262239, *Amaranthus hybridus*, Palungo Saag, Dhankuta



B85. JP 262240, *Amaranthus hypochondriacus*, Seto Latte, Dhankuta



B86. JP 262241, *Vigna mungo*, Kalo Mash, Dhankuta



B87. JP 262242, *Amaranthus hybridus*, Rato Latte, Dhankuta



B88. JP 262243, *Macrotyloma uniflorum*, Gahat, Dhankuta



B89. JP 262244, *Phaseolus vulgaris*, Chirke Bodi, Dhankuta