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Collaborative Exploration of Vegetable Genetic Resources in Kyrgyz in 2019

Yosuke YOSHIOKA ¹⁾, Daisuke KAMI ²⁾, Tomohiro KAKIZAKI ³⁾,
Katsunori TANAKA ⁴⁾, Nazgul ZHUMAKADYROVA ⁵⁾,
Bermet IMANBAEVA ⁵⁾, Adilet USUPBAEV ⁶⁾

- 1) Faculty of Life and Environmental Sciences, University of Tsukuba, 1-1-1 Tennodai, Tsukuba, Ibaraki 305-8572, Japan
- 2) Hokkaido Agricultural Research Center, NARO, 1 Hitsujigaoka, Toyohira, Sapporo, Hokkaido 062-8555, Japan
- 3) Institute of Vegetable and Floriculture Science, NARO, 360 Kusawa, Ano, Tsu, Mie 514-2392, Japan
- 4) Faculty of Agriculture and Life Science, Hirosaki University, 3 Bunkyo, Hirosaki, Aomori 036-8561, Japan
- 5) Department on Expertise of Agricultural Crops, Ministry of Agriculture, Food Industry and Melioration of the Kyrgyz Republic, 26, Taalay Street, Chong-Aryk, Bishkek 720016, Kyrgyz Republic
- 6) Institute for Biology, National Academy of Sciences of the Kyrgyz Republic, 256-a, Chui Avenue, Bishkek 720071, Kyrgyz Republic

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Corresponding author: Y. YOSHIOKA (e-mail: yoshioka.yosuke.fw@u.tsukuba.ac.jp)

Summary

The National Agriculture and Food Research Organization (NARO) and the Department on Expertise of Agricultural Crops, Ministry of Agriculture, Food Industry and Melioration of the Kyrgyz Republic started collaborative research in 2019 under the Plant Genetic Resources in Asia Project to survey vegetable genetic resources in Kyrgyz. As part of this research, two expeditions were conducted to collect seeds of vegetables and their wild relatives in the Chuy, Issyk-Kul, Naryn, and Talas regions in July 2019 as well as to collect squash and melon fruits and seeds in the Chuy, Jalal-Abad, and Osh regions in September 2019. We collected 254 accessions of 30 species of 16 genera and 7 families from habitats, markets, and farms. Fruit traits, such as morphology and sweetness, of the squashes and melons were evaluated. The collected seeds were equally divided into two sets, one of which is conserved in the Kyrgyz Genebank. The seeds of 221 accessions from the other set were transferred to the Genetic Resource Center, NARO, under a standard material transfer agreement.

KEY WORDS: plant genetic resources, leafy vegetables, squash, pumpkin, melon, Kyrgyz

Introduction

Kyrgyz is a landlocked country in Central Asia, bordered by Kazakhstan, Uzbekistan, Tajikistan, and China. It extends approximately 900 km from east to

west and 410 km from north to south and is dominated by the Tian Shan and Pamir mountain ranges, which together occupy approximately 65 % of the territory. According to Vavilov, the western Tian Shan range is

part of the Central Asian center of origin of cultivated plants (Dzunusova et al. 2008), home to populations of hexaploid wheat and small-seeded forms of pea and chickpea. Primary forms of white and yellow carrot cultivars, onion, garlic, and alfalfa originated and were grown here. The Tian Shan range is home to more than 100 species of wild relatives of agricultural crops. Many landraces developed by local farmers are valuable primary materials for use in the selection and development of new cultivars. Diversity among landraces and wild relatives is of great importance in breeding cultivated plants. However, farmers have lost many landraces and wild relatives of cultivated crops owing to low yield and susceptibility to diseases and pests; the introduction of high-yielding cultivars and hybrids, as in other countries; and loss of natural habitat to land development. Therefore, it is vital to collect and preserve genetic resources in these areas as soon as possible for future breeding.

In July 2019, the National Agriculture and Food Research Organization (NARO) in Japan and the Department on Expertise of Agricultural Crops, Ministry of Agriculture, Food Industry and Melioration of the Kyrgyz Republic established a Joint Research Agreement within the Plant Genetic Resources in Asia (PGRAsia) Project, under the trust of the Ministry of Agriculture, Forestry and Fisheries of Japan, to jointly preserve and ensure the effective use of genetic resources. Under the agreement, two expeditions to collect vegetable genetic resources in Kyrgyz were organized in 2019. Kyrgyz is divided into seven regions (Batken, Chuy, Issyk-Kul, Jalal-Abad, Naryn, Osh, and Talas) and two independent cities (Bishkek and Osh). According to surveys by the Kyrgyz Genebank, *Brassica* crops and their wild relatives are distributed in all regions. *Daucus* plants can be found mainly in the three eastern regions (Chuy, Issyk-Kul, and Naryn). *Spinacia* plants can be found mainly in Chuy, Jalal-Abad, and Osh. Cucurbits are grown mainly in Chuy, Jalal-Abad, Osh, and Batken. The two expeditions

were conducted to collect seeds of vegetables and their wild relatives in the northern and eastern regions in July and to collect fruits and seeds of squashes and melons in Chuy, Jalal-Abad, and Osh in September.

Methods

The first expedition was conducted from July 9 to 17, 2019. The main targets were leafy and root vegetables such as *Brassica* and *Allium* crops, radish, spinach, lettuce, carrot, and their wild relatives. We started with Bishkek and then explored the Chuy, Issyk-Kul, Naryn, and Talas regions by car (Fig. 1A; Table 1). We searched for and collected seeds of wild individuals of target crop species and their wild relatives in wheat and barley fields and in natural habitats such as roadsides, grasslands, pastures, hills, and mountains. We also stopped at markets (bazaars) to buy vegetable seeds. After interviewing sellers about local names, origins, cultivation, and use of the vegetables, we bought seeds of landraces (not commercial F₁ hybrids). Species identification was based on the external appearance of plants and seeds and the results of the interviews. We numbered the collected samples in order of collection. At each collection location, we recorded the place name and geographic coordinates using a handheld GPS receiver (eTrex Touch 35J, Garmin International Inc., Olathe, KS, USA).

The second expedition was conducted from September 19 to 26, 2019. The targets were squash and melon. We started with Bishkek and then explored Chuy, Jalal-Abad, and Osh by car (Fig. 1B; Table 1). We stopped at markets (bazaars), farms, and farmers' houses, and interviewed sellers as before (Photo 21). We collected mature fruits from representative accessions to cover the diversity in the regions. At each collection location, we recorded the place name and geographic coordinates using a handheld GPS receiver (Garmin eTrex20J, Garmin International Inc., Olathe, KS, USA). We numbered the collected samples as before.

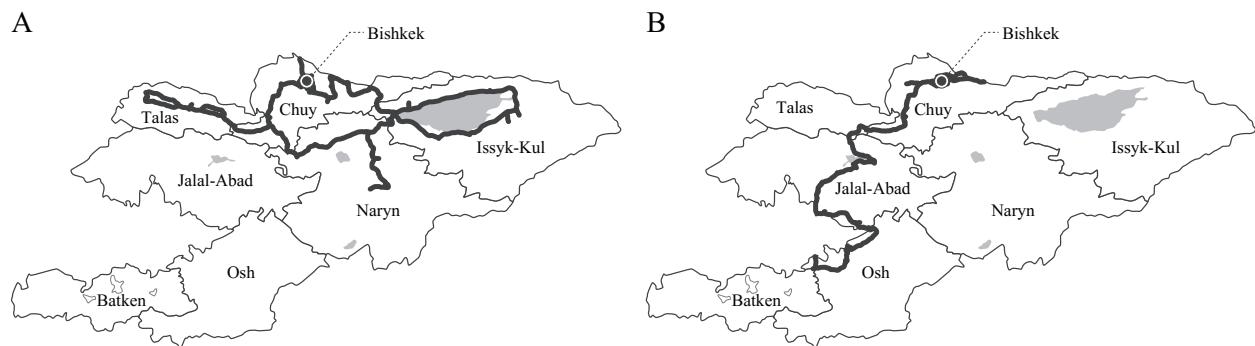


Fig. 1. The routes of the (A) first and (B) second expeditions in Kyrgyz in 2019.

Table 1. Itinerary of both expeditions to collect vegetable genetic resources in 2019

Date	Region for exploration
<i>First expedition</i>	
9-Jul	Bishkek, Chuy
10-Jul	Chuy, Issyk-Kul
11-Jul	Issyk-Kul
12-Jul	Issyk-Kul
13-Jul	Naryn
14-Jul	Naryn
15-Jul	Talas
16-Jul	Talas
17-Jul	Bishkek
<i>Second expedition</i>	
19-Sep	Bishkek, Chuy
20-Sep	Chuy
21-Sep	Chuy
23-Sep	Chuy, Osh
24-Sep	Chuy, Osh
25-Sep	Chuy, Jalal-Abad

However, as some fruits (C164, C176, C193, C242, and C256) were immature, we could not collect their seeds; therefore, we removed them from the collection list. Species identification was based on appearance and interviews as previously described. On the day of collection, we photographed the fruits, evaluated their traits, weighed them, and then harvested the seeds.

Results and Discussion

We collected 138 accessions on the first expedition and 116 on the second expedition (Tables 2 and 3). These accessions belonged to 30 species from 16 genera and 7 families. On the first expedition, we collected seeds of 60 accessions of cultivated and wild species in the genera *Aegopodium*, *Allium*, *Brassica*, *Lactuca*, and *Spinacia* from wheat and barley fields, roadsides, grasslands, pastures, hills, and mountains (Photos 1–16). In addition, we purchased seeds of 78 accessions from 19 species at markets in Bishkek, Chuy, Issyk-Kul, and Talas (Photos 17–20). On the second expedition, we collected 116 accessions from markets and farms (Table 3), mainly mature fruits of squashes and melons, and collected their seeds (except those of pumpkin C216 and melons C196 and C197) from farmers. Of these 116 samples, 48 were *Cucurbita maxima* Duch. ex Lam., 38 were *C. moschata* Duch., 7 were *C. pepo* L., and 23 were *Cucumis melo* L. All accessions were stored as dried seeds in the

Kyrgyz Genebank, and the seeds of 221 accessions were transferred to the Genetic Resources Center, NARO. The characteristics of these species are summarized below.

Leafy and root vegetables and their wild relatives

Of the 60 accessions collected in natural habitats, 44 were of *Brassica* (Table 3). We identified their species based on morphology and phenology. Of these, 30 were *B. nigra* L., collected from roadsides, vacant lands, grasslands, and wheat and barley fields in Chuy, Issyk-Kul, Naryn, and Talas. We collected four accessions of *B. juncea* L. in Naryn and Talas and three of *B. rapa* L. in Chuy. The remaining seven accessions were on the verge of dying, and thus, we could not identify their species from their morphology. Many *B. rapa* and *Raphanus sativus* L. plants were in full bloom, indicating that August would be a better month to collect these species.

The second most common genus collected in natural habitats was *Allium*: one each of *A. tianschanicum* Rupr. and *A. caesium* Schrenk, and six unknown species. These plants were growing on hills and mountains in Issyk-Kul, Naryn, and Talas. There were many *Allium* plants in full bloom, including likely wild relatives of Welsh onion (*A. fistulosum* L.) on a mountain slope in Chuy. Unfortunately, we could not obtain mature seeds from these plants. Therefore, August would also be a better month to collect wild *Allium* species.

We also collected seeds from three *Aegopodium* sp., three *Lactuca serriola* L., and two *Spinacia turkestanica* Iljin plants that grew on roadsides and grasslands in Bishkek, Chuy, and Talas. The two *S. turkestanica* accessions may be valuable because this species can be crossed with spinach (*S. oleracea* L.). Wild *Spinacia* plants are known to bear mature seeds in June in Kyrgyz; thus, it is better to collect them in June. During the first expedition, we noted many *Daucus* plants in full bloom, but we could not obtain mature seeds from them. Therefore, August would also be a better month to collect *Daucus* seeds.

During the first expedition, we visited five markets in Bishkek, Chuy, Issyk-Kul, Naryn, and Talas. Seed shops in the markets, except in Naryn, sold seeds of local vegetable cultivars and imported F₁ hybrids from Europe and China. We only purchased the seeds of local cultivars: 12 radish (*R. sativus*); 9 carrot (*Daucus carota* L.); 8 onion (*Allium cepa* L.); 5 cabbage (*Brassica oleracea* L.); 3 lettuce (*Lactuca sativa* L.); 2 dzhusay (*Allium ramosum* L.); and 1 each of celery (*Apium graveolens* L.), fava bean (*Vicia faba* L.), mustard (*Sinapis alba* L.), parsley (*Petroselinum crispum* (Mill.) Fuss), spinach (*S. oleracea*), and turnip (*B. rapa*).

Table 2. Summary of genetic resources collected in Kyrgyz in 2019

Family	Species	Number
Amaranthaceae	<i>Spinacia oleracea</i>	1
	<i>Spinacia turkestanica</i>	2
	<i>Allium caesium</i>	1
	<i>Allium cepa</i>	8
	<i>Allium ramosum</i>	2
	<i>Allium</i> sp.	6
	<i>Allium tianschanicum</i>	1
Apiaceae	<i>Aegopodium</i> sp.	3
	<i>Apium graveolens</i>	1
	<i>Daucus carota</i>	9
	<i>Petroselinum crispum</i>	1
Asteraceae	<i>Lactuca sativa</i>	3
	<i>Lactuca serriola</i>	3
Brassicaceae	<i>Brassica juncea</i>	4
	<i>Brassica nigra</i>	30
	<i>Brassica oleracea</i>	5
	<i>Brassica rapa</i>	4
	<i>Brassica</i> sp.	7
	<i>Raphanus sativus</i>	12
	<i>Sinapis alba</i>	1
Cucurbitaceae	<i>Citrullus lanatus</i>	1
	<i>Cucumis melo</i>	26
	<i>Cucumis sativus</i>	10
	<i>Cucurbita maxima</i>	48
	<i>Cucurbita moschata</i>	38
	<i>Cucurbita pepo</i>	9
	<i>Cucurbita</i> sp.	6
Fabaceae	<i>Vicia faba</i>	1
Solanaceae	<i>Capsicum</i> sp.	2
	<i>Lycopersicon esculentum</i>	9
	Total	254

Squash and pumpkin

We collected three *Cucurbita* crop species in markets (Photo 22) and farms (Photo 23). We purchased the seeds of eight accessions at markets in Bishkek, Chuy, Issyk-Kul, and Talas on the first expedition (Table 3). Among those, interviews indicated that two accessions were zucchini (*C. pepo*) cultivars, but we could not identify the species of the other six. On the second expedition, we obtained mature fruits and seeds at markets or farms in Bishkek, Chuy, Jalal-Abad, and Osh (Table 3). According to interviews, squash and pumpkin fruits are usually used as ingredients for dumplings and breads. Squashes and pumpkins are usually sown from April to May and harvested from August to September

in Kyrgyz. Therefore, we could see the fields where squash was growing during the expeditions (Photos 24 and 25). Most farms do not use pesticides or inorganic fertilizers; thus, these squash cultivars might be easy to grow even in poor soils and have disease resistance. All three species had a variety of fruit skin colors and shapes, indicating high genetic diversity (Table 4). Their characteristics are described below.

Fruits of *C. maxima* varied from 1.1 to 6.9 kg in weight (C184; Photo 26), indicating wider diversity than in Japan, where the fruit weight of commercial squash cultivars is about 0.5 to 3 kg. The fruits of most accessions were flat, but those of others were globular, discoid, oval, elongate, and heart shaped. Fruit skin

Table 4. Characteristics of squash and pumpkin fruit accessions collected in Kyrgyz in 2019

Coll. No.	JP No.	Local name	Fruit weight (kg)	Fruit shape	Fruit skin color
<i>Cucurbita maxima</i>					
C141	271574	Local variety	6.00	Flattened	Dark green
C142	271575	Local variety	5.60	Globular	Ash green
C147	271580	Twikva	4.00	Globular	Gray
C148	271581	Local variety	6.10	Flattened	Gray
C156	271589	Local variety	2.20	Flattened	Green
C157	271590	Local variety	1.20	Flattened	Light green
C158	271591	Local variety	1.70	Flattened	Gray
C159	271592	Local variety	6.70	Globular	Light green
C160	271593	Local variety	6.40	Disc	White
C161	271594	Local variety	2.50	Flattened	Green
C162	271595	Local variety	6.40	Flattened	Light orange
C167	271599	Local variety	6.00	Globular	Gray
C173	271605	Local variety	3.20	Flattened	Light green
C174	271606	Local variety	3.50	Flattened	Light green
C175	271607	Local variety	2.30	Globular	White
C177	271608	Local variety	1.10	Flattened	Green
C178	271609	Local variety	1.70	Flattened	Green
C184	271615	Local variety	6.90	Disc	Gray
C185	271616	Local variety	3.10	Flattened	Gray
C187	271618	Local variety	2.40	Flattened	Ash green
C190	271621	Local variety	1.80	Flattened	Ash green
C191	271622	Local variety	2.50	Flattened	Ash green
C192	271623	Local variety	1.50	Globular	Dark green
C198	271628	Solla	na	Flattened	Ash green
C201	271631	Solla	na	Flattened	Light green
C202	271632	Solla	na	Disc	Dark green
C204	271634	Solla	na	Elongate	Ash green
C209	271639	Solla	na	Flattened	Ash green
C210	271640	Solla	na	Globular	White
C211	271641	Solla	na	Flattened	Dark orange
C213	271643	Solla	na	Flattened	Green
C224	271654	Local variety	3.20	Flattened	Ash green
C225	271655	Local variety	2.30	Flattened	Gray and pink
C226	271656	Local variety	2.90	Globular	Dark green
C227	271657	Local variety	5.10	Flattened	Ash green
C228	271658	Local variety	2.50	Flattened	Gray
C229	271659	Local variety	2.70	Flattened	Green
C239	271669	Local variety	3.70	Flattened	Ash green
C240	271670	Local variety	2.40	Globular	Gray
C247	271676	Local variety	4.50	Disc	Gray
C248	271677	Local variety	3.90	Disc	Green
C249	271678	Wokuvo	2.50	Flattened	Dark green
C250	271679	Wokuvo	3.60	Flattened	Dark green
C252	271681	Local variety	2.90	Elongate	Gray
C253	271682	Local variety	2.20	Oval	Gray
C254	271683	Local variety	2.00	Oval	Ash green
C259	271687	Tyrpanka	4.10	Heart	Dark green
C260	271688	Tyrpanka	3.90	Flattened	Green

colors of most accessions were green (including light green, ash-green, and dark green); however, we also found gray, white, and orange skin colors. Interestingly, C225 (Photo 27) had a mottled gray and pink coloration, a combination not found in Japanese squash cultivars.

Fruits of *C. moschata* varied from 0.7 to 11.0 kg (C169; Photo 28), also indicating wider diversity than

in Japan, where the weight is about 3 to 4 kg. The fruit shapes of this species were also diverse. The most common shapes were flattened, pyriform, and globular, but we also found elongate, discoid, oval, and crookneck. In particular, one elongate accession, C230, had very little distortion; this type was also not found in Japan. The fruit skin colors of most accessions were brown, but

Table 4. (Continued).

Coll. No.	JP No.	Local name	Fruit weight (kg)	Fruit shape	Fruit skin color
<i>Cucurbita moschata</i>					
C140	271573	Local variety	4.70	Crooked neck	Brown
C149	271582	Local variety	8.20	Flattened	Brown
C150	271583	Local variety	4.50	Elongate	Light brown
C152	271585	Local variety	3.20	Pyriform	Brown
C153	271586	Local variety	3.20	Globular	Green
C154	271587	Local variety	2.50	Pyriform	Brown
C155	271588	Local variety	3.50	Oval	Brown
C165	271597	Muskat holland	9.10	Flattened	Brown
C169	271601	Local variety	11.00	Elongate	Green
C181	271612	Local variety	2.50	Globular	Brown
C182	271613	Local variety	3.30	Flattened	Brown
C183	271614	Local variety	5.60	Flattened	Brown
C186	271617	Local variety	4.00	Pyriform	Green
C188	271619	Local variety	4.00	Elongate	Brown
C189	271620	Local variety	0.70	Pyriform	Brown
C199	271629	Romashka	na	Disc	Brown
C200	271630	Ashkabak	na	Flattened	Light brown
C203	271633	Ashkabak	na	Globular	Brown
C205	271635	Ashkabak	na	Disc	Brown
C206	271636	Ashkabak	na	Pyriform	Brown
C212	271642	Kara Ashkabak	na	Disc	Dark green
C216	271646	Ashkabak	na	na	na
C223	271653	Local variety	11.00	Flattened	Green
C230	271660	Local variety	4.50	Elongate	Brown
C231	271661	Local variety	2.10	Pyriform	Brown
C232	271662	Local variety	2.30	Globular	Brown
C233	271663	Local variety	1.40	Flattened	Brown
C234	271664	Local variety	1.10	Flattened	Brown
C235	271665	Local variety	1.90	Elongate	Brown
C236	271666	Local variety	3.30	Globular	Brown
C237	271667	Local variety	2.70	Elongate	Brown
C238	271668	Local variety	3.10	Globular	Brown
C241	271671	Local variety	3.00	Globular	Brown
C243	271672	Wokuvo	2.50	Pyriform	Brown
C244	271673	Wokuvo	3.20	Pyriform	Brown
C245	271674	Wokuvo	6.00	Flattened	Brown
C246	271675	Wokuvo	3.00	Flattened	Brown
C251	271680	Local variety	4.30	Oval	Brown
<i>Cucurbita pepo</i>					
C179	271610	Local variety	1.70	Globular	Yellow
C180	271611	Local variety	2.15	Oval	Light yellow
C207	271637	Sary Ashkabak	na	Flattened	Yellow
C208	271638	Grimbill	na	Turban	Light orange
C255	271684	Local variety	0.60	Flattened	White
C257	271685	Local variety	0.50	Globular	Green and orange
C258	271686	Local variety	1.00	Globular	Orange

na, not available

four accessions were green.

Fruits of *C. pepo* varied from 0.5 to 2.2 kg. The fruit shapes included globular, flattened, turban-shaped, and oval. Fruit skin colors included yellow, orange, and white. Among these, C257 (Photo 29) was orange and green. The fruit morphology of these accessions was similar to that in Japan, except for that of C208

(Photo 30), with an unusual turban shape, so there is a possibility of misidentification. Therefore, the identification of C208 should be reconfirmed by trait evaluation or DNA analysis.

Melon

Melon is common in Kyrgyz and is sold in markets

or by roadsides (Photos 31 and 32). Melons are both grown locally and imported from neighboring countries (Uzbekistan, Kazakhstan, and Tajikistan). They are available year-round, though the main season is August. According to interviews with local people, melon seedlings are usually transplanted into ridge tops from early April to May. Basal fertilizer is applied before transplanting, and additional fertilizer is applied during growth. Fungicides are applied mainly to powdery mildew, which reduces fruit yield (Photo 33). Melon fruit fly also seems to be a problem (Photo 34). Two or three fruits can be harvested from one plant. Seeds for the next crop are collected by farmers or bought at the market. Melons are typically eaten raw and are sometimes dried for use as snacks (Photo 35).

We purchased seeds of three accessions at markets in Chuy and Talas on the first expedition, and mature fruits and seeds at markets or farms in Chuy, Jalal-Abad, and Osh (Table 3). Fruit quality traits of 21 accessions showed wide variation in weight, length, diameter, soluble solids content based on °Brix (SSC) as well as epicarp color (Table 5; Photos 36–40). The average SSC was $10.1\% \pm 1.9\%$, which is higher than that of melons from South Asia, including the Yunnan Province, China (Kato *et al.* 2006; Saito *et al.* 2009; Yi *et al.* 2009; Nhi *et al.* 2010; Tanaka *et al.* 2016, 2017, 2019), and comparable to that of melons from Kazakhstan (Tanaka

et al. 2014). In particular, the SSC values of eight accessions (C143, C145, C163, C168, C170, C195, C214, and C221) were $>11.0\%$, and these fruits were sweet, indicating that °Brix, often used in genetic studies of melons (Burger *et al.* 2002), is suitable for evaluating the sweetness of Kyrgyz melons, as in other countries.

Local people usually call melon by a local name in each region. During the second expedition, we collected 16 local cultivars (Tables 3 and 5). From the local name and fruit quality traits, we classified accessions into six horticultural groups: Ameri (Photo 31; elongated and oval fruit shape, thick skin with reticulation and crispy texture), Basvaldy (Photo 36; oblong fruit, ribbed and smooth thin skin), Cantaloupe (Photo 37; round and oval shape, ribbed skin, sometimes with reticulation), Cassava (Photos 38, 39, 40; round and oval shape, wrinkled thick skin), Chandala (round shape, yellow color, and smooth skin), and Zard (round to elliptical shape, thick skin, sometimes with reticulation). All groups were grown in Kazakhstan, while Ameri, Cassava, Chandala, and Zard are also grown in Uzbekistan and the Xinjiang Uighur Autonomous Region in China (Mavlyanova *et al.* 2005; Aierken *et al.* 2011; Tanaka *et al.* 2014). Ameri and Cassava melons have a shelf life of >1 month. Although we collected fruits from limited areas, their characteristics were highly diverse due to the presence of all six horticultural groups found there.

Table 5. Characteristics of 21 melon fruit accessions collected in Kyrgyz in 2019

Coll. No.	Fruit size				Fruit epicarp		Fruit flesh			Placenta		Hort. Group ²
	Weight (kg)	Length (cm)	Diameter (cm)	Shape index	Color ¹	On rind	Outer color ¹	Inner color ¹	Brix (°)	Color ¹	Number	
C143	10.5	40.5	27.0	1.5	Y	Netting	W	W	13.0	W	3	Zard
C144	3.1	20.0	19.5	1.0	PG		W	W	7.0	W	3	Cassava
C145	6.7	37.0	21.0	1.8	Y	Netting	W	W	11.2	W	3	Ameri
C146	0.8	13.0	12.5	1.0	YG		PG	W	7.2	W	3	Chandala
C151	2.8	23.0	15.5	1.5	Y	Sutures	G	W	9.0	W	3	Basvaldy
C163	2.7	25.5	17.0	1.5	Y		W	W	11.4	W	3	Zard
C166	2.4	19.0	19.0	1.0	Y	Sutures	W	W	8.0	W	3	Cantaloupe
C168	3.8	23.0	22.0	1.0	YG	Sutures & Netting	G	W	13.6	W	3	Hybrid
C170	6.2	30.0	20.0	1.5	Y	Netting	W	W	11.2	W	3	Zard
C171	2.2	19.0	16.5	1.2	YG		W	W	7.0	W	3	Cassava
C172	3.0	19.0	20.0	1.0	PG		PG	W	8.4	W	3	Cassava
C194	5.5	23.0	24.5	0.9	Y	Netting	W	W	10.8	W	3	Cassava
C195	6.8	26.0	23.0	1.1	Y		W	W	11.4	W	3	Cassava
C214	2.1	19.0	17.0	1.1	Y		W	W	12.2	W	3	Chandala
C215	1.7	14.0	17.0	0.8	Y		W	W	10.2	W	3	Cassava
C217	3.0	20.0	18.0	1.1	Y		PG	W	9.0	W	3	Cassava
C218	4.3	21.0	22.5	0.9	G	Crease	W	W	10.0	W	5	Cassava
C219	7.7	35.0	23.5	1.5	YG	Netting	W	W	9.4	W	3	Zard
C220	3.7	18.5	23.5	0.8	G		PG	W	10.6	W	3	Cassava
C221	4.7	21.0	22.5	0.9	O		PG	W	11.0	W	3	Cassava
C222	6.0	31.5	22.0	1.4	W	Netting	PG	W	10.6	W	3	Zard

¹ Y: Yellow, PG: Pale green, YG: Yellow-green, G: Green, O: Orange, W: White.

² Variety were assigned by local name and fruit characteristics.

Other fruit vegetables

In all regions, local cultivars of fruit vegetables and imported F₁ hybrid cultivars from Europe and China were sold in the markets. During interviews with sellers, we obtained seeds of 10 cucumbers, 1 watermelon, 9 tomatoes, and 2 local chili cultivars in the markets in Bishkek, Chuy, Issyk-Kul, and Talas during the first expedition (Table 3). We believe that these accessions originated in Kyrgyz or neighboring countries.

Conclusion

To the best of our knowledge, this is the first time that Japanese researchers were dispatched to Kyrgyz to collect vegetable genetic resources. From the Japanese perspective, the collection of 254 accessions was satisfactory. To date, few genetic resources that originated in Central Asia have been preserved at NARO: 157 in total, namely 135 from Kazakhstan, 3 from Kyrgyz, 1 from Tajikistan, 7 from Turkmenistan, and 11 from Uzbekistan. Among these, 145 accessions were cucurbits (122 melon, 14 watermelon, and 9 squash). Thus, the leafy and root vegetable accessions collected in this study are valuable additions. As this is the first introduction of cucurbits from Kyrgyz to the NARO Genebank, these accessions may have novel genetic backgrounds. Previously, Japanese researchers collected genetic resources several times in Southeast Asia, visiting Vietnam (Yoshida et al. 1997; Sugiyama et al. 2015; Shimomura et al. 2016; Kawazu et al. 2017; Fujito et al. 2018; Kami et al. 2019), Cambodia (Sugiyama et al. 2015; Shimomura et al. 2016; Tanaka et al. 2016, 2017, 2019; Okuzumi et al. 2017; Yashiro et al. 2019), Laos (Matsunaga et al. 2010), and Myanmar (Naito et al. 2017), but collected only *C. moschata* in *Cucurbita* species. Therefore, the addition of *C. maxima* and *C. pepo* is notable.

Staff at the Kyrgyz Genebank are also satisfied with the number of accessions collected. Owing to the need to conserve plant genetic resources in Kyrgyz, the Kyrgyz Genebank was established with support by the Swedish International Development Cooperation Agency and Nordic Genetic Resource Center (NordGen) in 2010. Since then, it has dispatched researchers all over the country, sometimes with international collaborators. More than 2000 accessions of cereals, legumes, oilseeds, vegetables, and their wild relatives have been conserved either *in situ* or *ex situ*. The resources collected during our expeditions could be used in future vegetable breeding projects. In addition, the seeds are backed up in Japan, enabling us to preserve these genetic resources. The PGRAsia project plans to fund collaborative

exploration of genetic resources in Kyrgyz for the next three years. Further explorations could collect more diverse and valuable genetic resources with large genetic variations. We anticipate the establishment of collaborative research between Kyrgyz and Japan to utilize the genetic resources collected in this study.

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References

- Aierken Y, Akashi Y, Nhi PTP, Halide I, Tanaka K, Nishida H, Long CL, Wu MZ and Kato K (2011) Molecular analysis of the genetic diversity of Chinese Hami melon and its relationship to the melon germplasm from Central and South Asia. *J Jpn Soc Hortic Sci* 80: 52-65.
[<https://doi.org/10.2503/jjshs1.80.52>]
- Burger Y, Saar U, Katzir N, Paris HS, Yeselson Y, Levin I and Schaffer AA (2002) A single recessive gene for sucrose accumulation in *Cucumis melo* fruit. *J Am Soc Hortic Sci* 127: 938-943.
[<https://doi.org/10.21273/jashs.127.6.938>]
- Dzunusova M, Apasov R and Mammadov A (2008) National report on the state of plant genetic resources for food and agriculture in Kyrgyzstan. Food and Agriculture Organization of the United Nations (FAO), Rome, p. 49.
- Fujito S, Shimomura K, Tran TTH and Kien NV (2018) Collaborative exploration of the vegetable genetic resources in Vietnam, 2017. *AREIPGR* 34: 228-244.
[[View this article](#)]
- Kami D, Mitsudome K., Tran TTH and Kien NV (2019) Collaborative exploration of plant genetic resources in the central highlands of Vietnam, 2018. *AREIPGR* 35: 56-70.
[[View this article](#)]
- Kato K, Yoshino H, Matsuura S, Akashi Y and Tanaka K (2006) Cucurbitaceae crop. Genetic assay and study of crop germplasm in and around China (3rd). Takeda K (ed.). A Report of Grant-in-Aid for Scientific Research (A) (2003–2006): 69-85.

- Kawazu Y, Kato M, Tran TTH and Kien NV (2017) Collaborative exploration of plant genetic resources in Vietnam, 2016. AREIPGR 33: 89-113.
[View this article]
- Matsunaga H, Sugiyama M, Tanaka K and Deuanhaksa C (2010) Collaborative exploration of the vegetable genetic resources in Laos, 2009. AREIPGR 26: 65-81.
[View this article]
- Mavlyanova R, Rustamov A, Khakimov R, Khakimov A, Turdieva M and Padulosi S (2005) Melon of Uzbekistan. IPGRI, Rome, p. 206.
- Naito K, San San Aye, Min San Thein, Aung Phyoe Hein, Takei E, Osada T, Domon E, Watanabe K and Kawase M (2017) A field study to explore plant genetic resources in the Sagaing region and Shan state of Myanmar in 2016. AREIPGR 33: 265-293.
[View this article]
- Nhi PTP, Akashi Y, Hang TTM, Tanaka K, Yashen A, Yamamoto T, Nishida H, Long CL and Kato K (2010) Genetic diversity in Vietnamese melon landraces revealed by the analyses of morphological traits and nuclear and cytoplasmic molecular markers. Breed Sci 60: 255-266.
[\[https://doi.org/10.1270/jsbbs.60.255\]](https://doi.org/10.1270/jsbbs.60.255)
- Okuizumi H, Nonaka E, Layheng S, Chhourn O, Sophany S and Makara O (2017) Collaborative exploration and collection of plant genetic resources in Cambodia in December 2016. AREIPGR 33: 143-173.
[View this article]
- Saito A, Tanaka K and Deuanhaksa C (2009) Collaborative exploration of vegetable genetic resources in Laos, 2008. AREIPGR 25: 111-145.
[View this article]
- Shimomura K, Sugiyama K, Yoshioka Y, Tran TTH and Kien NV (2016) Collaborative exploration of plant genetic resources in Vietnam, 2015. AREIPGR 32: 159-181.
[View this article]
- Sugiyama M, Ebana K, Kami D, Tran TTH and Kien NV (2015) Collaborative exploration of cucurbitaceous crops in Vietnam, 2014. AREIPGR 31: 189-201.
[View this article]
- Tanaka K, Sugiyama M, Artemyeva AM, Mamypbelov Z, Sergevich TV, Alexanian SM, Otani S, Sakamoto K, Khaing MT, Yi SS, Long CL and Kato K (2014) Cucurbitaceae plant. Genetic assay and study of crop germplasm introduced/originated in East Asia. Kato K (ed.). A Report of Grant-in-Aid for Scientific Research (A) (2011–2013): 59-84.
- Tanaka K, Duong T-T, Yamashita H, Lay Heng S, Sophany Sand Kato K (2016) Collection of Cucurbit crops (Cucurbitaceae) from Eastern Cambodia in 2015. AREIPGR 32: 109-137.
[View this article]
- Tanaka K, Shigita G, Sophea Y, Thun V, Sophany S and Kato K (2017) Collection of melon and other Cucurbitaceous crops in Cambodia in 2016. AREIPGR 33: 175-205.
[View this article]
- Tanaka K, Shigita G, Dung TP, Sophea Y, Thun V, Sophany S and Kato K (2019) Collection of melon and other Cucurbitaceous crops in Cambodia in 2017. AREIPGR 35: 121-146.
[View this article]
- Yashiro K, Tanaka K, Sophea Y, Thun V, Sophany S and Kato K (2019) Collaborative exploration of Cucurbitaceae vegetable genetic resources in western and northwestern Cambodia in 2018. AREIPGR 35: 147-161.
[View this article]
- Yi SS, Akashi Y, Tanaka K, Cho TT, Khaing MT, Yoshino H, Nishida H, Yamamoto T, Win K, Watanabe K and Kato K (2009) Molecular analysis of genetic diversity in melon landraces (*Cucumis melo* L.) from Myanmar and their relationship with melon germplasm from East and South Asia. Genet Resour Crop Evol 56: 1149-1161.
[\[https://doi.org/10.1007/s10722-009-9438-y\]](https://doi.org/10.1007/s10722-009-9438-y)
- Yoshida T, Wako T, Thuan PV and Canh DX (1997) Collaborative exploration of the vegetable genetic resources in Vietnam. AREIPGR 13: 173-187 (in Japanese with an English summary).
[View this article]

2019 年キルギス共和国における野菜遺伝資源の共同探索

吉岡 洋輔¹⁾・嘉見 大助²⁾・柿崎 智博³⁾・田中 克典⁴⁾・

Nazgul ZHUMAKADYROVA⁵⁾・Bermet IMANBAEVA⁵⁾・Adilet USUPBAEV⁶⁾

- 1) 筑波大学 生命環境系
- 2) 農業・食品産業技術総合研究機構 北海道農業研究センター
- 3) 農業・食品産業技術総合研究機構 野菜花き研究部門
- 4) 弘前大学農学生命科学部
- 5) キルギス共和国農業食品産業土地改良省 農作物専門局
- 6) キルギス共和国国立科学アカデミー

和文摘要

国立研究開発法人農業・食品産業技術研究機構（NARO）とキルギス共和国農業食品産業土地改良省農作物専門局は、PGRAsia（Plant Genetic Resources in Asia）プロジェクトの一環として、キルギス国内における野菜遺伝資源の共同研究を 2019 年から開始した。2019 年は 7 月と 9 月にバトケン州を除くキルギス国内において 2 回の共同遺伝資源探索を実施した。1 回目の遺伝資源探索では自生地や市場で野菜類全般とその近縁植物の種子を収集した。2 回目は農家や市場でカボチャとメロンの果実と種子を入手し、果実形質を評価するとともに、種子を採取した。その結果、2 回の遺伝資源探索で 7 科 16 属 30 種に属する合計 254 点の野菜遺伝資源を収集することができた。収集した種子は 2 等分し、半分はキルギスジーンバンクで保存し、残りの半分のうち 216 点を SMTA（標準材料移転契約）により NARO 遺伝資源センターに移送した。

Table 3. List of accessions collected in Kyrgyz in 2019

Coll. No.	JP No.	Species	Crop name	Local name	Accession name	Coll. date	Coll. site	Type of coll. site	Latitude	Longitude	Altitude (m)
C01	271002	<i>Aegopodium</i> sp.	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C001	7/9/2019	Bishkek	Habitat	N42-42-57.60	E74-41-06.00	1,148
C02	271003	<i>Aegopodium</i> sp.	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C002	7/9/2019	Bishkek	Habitat	N42-42-57.60	E74-41-06.00	1,148
C03	271004	<i>Aegopodium</i> sp.	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C003	7/9/2019	Chuy	Habitat	N42-42-36.00	E74-43-55.20	1,276
C04	271005	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C004	7/9/2019	Prohladnoe, Chuy	Habitat	N42-43-44.40	E74-38-27.60	1,094
C05	271006	<i>Spinacia turkestanica</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C005	7/9/2019	Bash kara suu, Chuy	Habitat	N42-46-01.20	E74-32-56.40	1,103
C06	271007	<i>Brassica</i> sp.	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C006	7/9/2019	Bash kara suu, Chuy	Habitat	N42-46-01.20	E74-32-56.40	1,103
C07	271008	<i>Lactuca serriola</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C007	7/9/2019	Chuy	Habitat	N43-0-28.80	E74-26-13.20	701
C08	271009	<i>Brassica</i> sp.	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C008	7/9/2019	Chuy	Habitat	N43-0-28.80	E74-26-13.20	701
C09	271010	<i>Spinacia turkestanica</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C009	7/9/2019	Chuy	Habitat	N43-10-30.00	E74-23-31.20	645
C10	271011	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C010	7/10/2019	Ureuka, Chuy	Habitat	N42-45-21.60	E75-0-32.40	939
C11	271012	<i>Brassica rapa</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C011	7/10/2019	AK-Can, Chuy	Habitat	N42-49-04.80	E74-59-27.60	817
C12	271013	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C012	7/10/2019	AK-Can, Chuy	Habitat	N42-51-14.40	E74-59-24.00	782
C13	271014	<i>Lactuca serriola</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C013	7/10/2019	Chuy	Habitat	N42-56-20.40	E74-58-30.00	701
C14	271015	<i>Brassica rapa</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C014	7/10/2019	Burana, Chuy	Habitat	N42-46-48.00	E75-17-42.00	899
C15	271016	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C015	7/10/2019	Burana, Chuy	Habitat	N42-46-48.00	E75-17-42.00	899
C16	271017	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C016	7/10/2019	Burana, Chuy	Habitat	N42-44-31.20	E75-18-25.20	1,027
C17	271018	<i>Brassica</i> sp.	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C017	7/10/2019	Burana, Chuy	Habitat	N42-44-31.20	E75-18-25.20	1,027
C18	271019	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C018	7/10/2019	Almaluu, Chuy	Habitat	N42-41-27.60	E75-22-08.40	1,267
C19	271020	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C019	7/10/2019	Almaluu, Chuy	Habitat	N42-41-31.20	E75-23-38.40	1,297
C20	271021	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C020	7/10/2019	Almaluu, Chuy	Habitat	N42-41-31.20	E75-23-38.40	1,297
C21	271022	<i>Brassica rapa</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C021	7/10/2019	Almaluu, Chuy	Habitat	N42-41-31.20	E75-23-38.40	1,297
C22	271023	<i>Allium tianschanicum</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C022	7/10/2019	Issyk-Kul	Habitat	N42-36-36.00	E75-49-04.80	1,621
C23	271024	<i>Brassica</i> sp.	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C023	7/10/2019	Issyk-Kul	Habitat	N42-36-36.00	E75-49-04.80	1,621
C24	271025	<i>Lycopersicon esculentum</i>	Tomato	Novelty cup shape	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C024	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C25	271026	<i>Apium graveolens</i>	Celery	Chin-sai	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C025	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C26	271027	<i>Cucumis melo</i>	Melon	Long big	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C026	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C27	271028	<i>Brassica oleracea</i>	Cabbage	Zhambylskaya	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C027	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C28	271029	<i>Cucurbita</i> sp.	Squash	Honey	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C028	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C29	271030	<i>Cucurbita</i> sp.	Squash	Pear-shaped	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C029	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C30	271031	<i>Lactuca sativa</i>	Salad	Curly green	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C030	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C31	271032	<i>Cucumis sativus</i>	Cucumber	Parade	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C031	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C32	271033	<i>Allium ramosum</i>	Dzhusay	Ordinary thin	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C032	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C33	271034	<i>Brassica oleracea</i>	Cabbage	Later Judge	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C033	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C34	271035	<i>Daucus carota</i>	Carrot	Nanskaya	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C034	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C35	271036	<i>Cucumis melo</i>	Melon	Colkhoznik	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C035	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812

Table 3. (Continued).

Coll. No.	JP No.	Species	Crop name	Local name	Accession name	Coll. date	Coll. site	Type of coll. site	Latitude	Longitude	Altitude (m)
C36	271037	<i>Daucus carota</i>	Carrot	Yellow	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C036	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C37	271038	<i>Allium cepa</i>	Onion	Karatay	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C037	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C38	271039	<i>Cucurbita pepo</i>	Zucchini	Light coloured	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C038	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C39	271040	<i>Lactuca sativa</i>	Salad	Red	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C039	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C40	271041	<i>Petroselinum crispum</i>	Parsley	Tashkentskaya	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C040	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C41	271042	<i>Raphanus sativus</i>	Radish	Black	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C041	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C42	271043	<i>Capsicum</i> sp.	Pepper	Early semi-sweet	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C042	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C43	271044	<i>Lycopersicon esculentum</i>	Tomato	Big red	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C043	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C44	271045	<i>Raphanus sativus</i>	Radish	Dyikhan	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C044	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C45	271046	<i>Citrullus lanatus</i>	Watermelon	NA	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C045	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C46	271047	<i>Lycopersicon esculentum</i>	Tomato	Large pink color	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C046	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C47	271048	<i>Allium ramosum</i>	Dzhusay	Wide-leaved	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C047	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C48	271049	<i>Capsicum</i> sp.	Pepper	Lastochka sweet	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C048	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C49	271050	<i>Raphanus sativus</i>	Radish	Margelanskaya	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C049	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C50	271051	<i>Allium cepa</i>	Onion	Batun	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C050	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C51	271052	<i>Raphanus sativus</i>	Radish	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C051	7/10/2019	Tokmok, Chuy	Market	N42-51-07.20	E75-17-34.80	812
C53	271053	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C053	7/11/2019	Issyk-Kul	Habitat	N42-31-33.60	E76-35-52.80	1,784
C54	271054	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C054	7/11/2019	Bostari, Issyk-Kul	Habitat	N42-39-32.40	E77-12-36.00	1,664
C55	271055	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C055	7/11/2019	Temir, Issyk-Kul	Habitat	N42-41-49.20	E77-24-10.80	1,657
C56	271056	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C056	7/11/2019	Anabovo, Issyk-Kul	Habitat	N42-43-44.40	E77-36-50.40	1,677
C57	271057	<i>Raphanus sativus</i>	Radish	Margelanskaya	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C057	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C58	271058	<i>Cucumis sativus</i>	Cucumber	Konkurent	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C058	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C59	271059	<i>Lycopersicon esculentum</i>	Tomato	Volgogradskiy	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C059	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C60	271060	<i>Daucus carota</i>	Carrot	Shantane	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C060	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C61	271061	<i>Daucus carota</i>	Carrot	Long size	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C061	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C62	271062	<i>Cucumis sativus</i>	Cucumber	Shedriy	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C062	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C63	271063	<i>Vicia faba</i>	Beans	Local	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C063	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C64	271064	<i>Cucurbita</i> sp.	Squash	Mihailovskaya	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C064	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C65	271065	<i>Raphanus sativus</i>	Radish	Local	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C065	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C66	271066	<i>Lycopersicon esculentum</i>	Tomato	Local early ripeness	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C066	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C67	271067	<i>Daucus carota</i>	Carrot	Nanskaya	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C067	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C68	271068	<i>Daucus carota</i>	Carrot	Karatel	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C068	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C69	271069	<i>Raphanus sativus</i>	Radish	White tip	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C069	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C70	271070	<i>Allium cepa</i>	Onion	Dyshin rose color	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C070	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854

Table 3. (Continued).

Coll. No.	JP No.	Species	Crop name	Local name	Accession name	Coll. date	Coll. site	Type of coll. site	Latitude	Longitude	Altitude (m)
C71	271071	<i>Allium cepa</i>	Onion	Karatalskiy No.1	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C071	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C72	271072	<i>Cucumis sativus</i>	Cucumber	Maiskiy	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C072	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C73	271073	<i>Allium cepa</i>	Onion	Karatalskiy No.2	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C073	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C74	271074	<i>Allium cepa</i>	Onion	Karmen purple color	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C074	7/12/2019	Karakol, Issyk-Kul	Market	N42-29-31.20	E78-23-02.40	1,854
C75	271075	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C075	7/12/2019	Karakol, Issyk-Kul	Habitat	N42-28-55.20	E78-21-00.00	1,751
C76	271076	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C076	7/12/2019	Kuzul-suu, Issyk-Kul	Habitat	N42-22-51.60	E78-4-01.20	1,722
C77	271077	<i>Allium sp.</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C077	7/12/2019	Tong, Issyk-Kul	Habitat	N42-9-18.00	E77-5-02.40	1,729
C78	271078	<i>Allium sp.</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C078	7/12/2019	Tong, Issyk-Kul	Habitat	N42-9-18.00	E77-5-02.40	1,729
C79	271079	<i>Allium sp.</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C079	7/12/2019	Kesken-bell, Issyk-Kul	Habitat	N42-8-16.80	E76-46-15.60	2,063
C80	271080	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C080	7/12/2019	Kesken-bell, Issyk-Kul	Habitat	N42-8-16.80	E76-46-15.60	2,063
C81	271081	<i>Allium sp.</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C081	7/13/2019	Sary-Bulak, Naryn	Habitat	N42-4-08.40	E75-40-19.20	2,063
C82	271082	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C082	7/13/2019	Ottuk, Naryn	Habitat	N41-37-08.40	E75-50-49.20	2,192
C83	271083	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C083	7/13/2019	Jan-Bulak, Naryn	Habitat	N41-26-20.40	E75-48-46.80	1,955
C84	271084	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C084	7/13/2019	Jan-Bulak, Naryn	Habitat	N41-25-01.20	E75-48-46.80	1,903
C85	271085	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C085	7/13/2019	Dostuk, Naryn	Habitat	N41-24-21.60	E75-41-24.00	1,902
C86	271086	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C086	7/14/2019	Kok-jar, Naryn	Habitat	N42-11-34.80	E75-38-52.80	1,784
C87	271087	<i>Brassica juncea</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C087	7/14/2019	Kok-jar, Naryn	Habitat	N42-11-34.80	E75-38-52.80	1,784
C88	271088	<i>Brassica juncea</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C088	7/14/2019	Kok-jar, Naryn	Habitat	N42-11-34.80	E75-38-52.80	1,784
C89	271089	<i>Brassica juncea</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C089	7/14/2019	Kok-jar, Naryn	Habitat	N42-11-24.00	E75-33-28.80	1,831
C90	271090	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C090	7/14/2019	Kok-jar, Naryn	Habitat	N42-11-24.00	E75-33-28.80	1,831
C91	271091	<i>Brassica sp.</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C091	7/14/2019	Kuzart, Naryn	Habitat	N41-59-49.20	E74-56-38.40	2,126
C92	271092	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C092	7/14/2019	Kuzart, Naryn	Habitat	N41-59-49.20	E74-56-38.40	2,126
C93	271093	<i>Brassica sp.</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C093	7/14/2019	Baizak, Naryn	Habitat	N41-59-13.20	E74-35-45.60	1,822
C94	271094	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C094	7/14/2019	Baizak, Naryn	Habitat	N41-59-13.20	E74-35-45.60	1,822
C95	271095	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C095	7/14/2019	Kuzul-oi, Naryn	Habitat	N41-56-56.40	E74-9-43.20	1,765
C96	271096	<i>Allium sp.</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C096	7/14/2019	Koicomeren, Naryn	Habitat	N42-0-14.40	E74-10-30.00	1,833
C97	271097	<i>Brassica juncea</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C097	7/15/2019	Boo-terek, Talas	Habitat	N42-35-16.80	E71-45-00.00	1,060
C98	271098	<i>Brassica sp.</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C098	7/15/2019	Jicle, Talas	Habitat	N42-36-21.60	E71-33-25.20	922
C99	271099	<i>Allium sp.</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C099	7/15/2019	Kirov, Talas	Habitat	N42-40-01.20	E71-35-45.60	858
C100	271100	<i>Lactuca serriola</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C100	7/15/2019	Nokrovka, Talas	Habitat	N42-42-54.00	E71-41-49.20	833
C101	271101	<i>Allium caesium</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C101	7/15/2019	Nvldu, Talas	Habitat	N42-37-19.20	E72-3-25.20	1,336
C102	271102	<i>Daucus carota</i>	Carrot	Dynganskaya	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C102	7/16/2019	Talgy-Bulak, Talas	Market	N42-30-57.60	E72-14-42.00	1,389
C103	271103	<i>Cucumis melo</i>	Melon	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C103	7/16/2019	Talgy-Bulak, Talas	Market	N42-30-57.60	E72-14-42.00	1,389
C104	271104	<i>Cucurbita sp.</i>	Squash	yellow round medium shape	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C104	7/16/2019	Talgy-Bulak, Talas	Market	N42-30-57.60	E72-14-42.00	1,389
C105	271105	<i>Lycopersicon esculentum</i>	Tomato	TMK	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C105	7/16/2019	Talgy-Bulak, Talas	Market	N42-30-57.60	E72-14-42.00	1,389
C106	271106	<i>Cucumis sativus</i>	Cucumber	Ayaks	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C106	7/16/2019	Talgy-Bulak, Talas	Market	N42-30-57.60	E72-14-42.00	1,389

Table 3. (Continued).

Coll. No.	JP No.	Species	Crop name	Local name	Accession name	Coll. date	Coll. site	Type of coll. site	Latitude	Longitude	Altitude (m)
C107	271107	<i>Raphanus sativus</i>	Radish	Margelanskaya (green)	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C107	7/16/2019	Talgy-Bulak, Talas	Market	N42-30-57.60	E72-14-42.00	1,389
C108	271108	<i>Cucumis sativus</i>	Cucumber	Parade	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C108	7/16/2019	Talgy-Bulak, Talas	Market	N42-30-57.60	E72-14-42.00	1,389
C109	271109	<i>Raphanus sativus</i>	Radish	Red round	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C109	7/16/2019	Talgy-Bulak, Talas	Market	N42-30-57.60	E72-14-42.00	1,389
C110	271110	<i>Allium cepa</i>	Onion	White	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C110	7/16/2019	Talgy-Bulak, Talas	Market	N42-30-57.60	E72-14-42.00	1,389
C111	271111	<i>Brassica oleracea</i>	Cabbage	Slava medium shape	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C111	7/16/2019	Talgy-Bulak, Talas	Market	N42-30-57.60	E72-14-42.00	1,389
C112	271112	<i>Raphanus sativus</i>	Radish	Black	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C112	7/16/2019	Talgy-Bulak, Talas	Market	N42-30-57.60	E72-14-42.00	1,389
C113	271113	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C113	7/16/2019	Talgy-Bulak, Talas	Habitat	N42-32-02.40	E72-43-51.60	1,712
C114	271114	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C114	7/16/2019	Talgy-Bulak, Talas	Habitat	N42-32-02.40	E72-43-51.60	1,712
C115	271115	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C115	7/16/2019	Talgy-Bulak, Talas	Habitat	N42-32-02.40	E72-43-51.60	1,712
C116	271116	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C116	7/16/2019	Talgy-Bulak, Talas	Habitat	N42-31-08.40	E72-47-09.60	1,726
C117	271117	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C117	7/16/2019	Talgy-Bulak, Talas	Habitat	N42-31-08.40	E72-47-09.60	1,726
C118	271118	<i>Brassica nigra</i>	na	na	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C118	7/16/2019	Talgy-Bulak, Talas	Habitat	N42-31-08.40	E72-47-09.60	1,726
C119	271119	<i>Brassica oleracea</i>	White cabbage	Average	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C119	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C120	271120	<i>Cucurbita</i> sp.	Squash	Medicative	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C120	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C121	271121	<i>Lycopersicon esculentum</i>	Tomato	Volgograd	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C121	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C122	271122	<i>Lycopersicon esculentum</i>	Tomato	Rose color	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C122	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C123	271123	<i>Brassica rapa</i>	Turnip	White	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C123	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C124	271124	<i>Cucurbita pepo</i>	Zucchini	Zucchini	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C124	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C125	271125	<i>Allium cepa</i>	Onion	Manas	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C125	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C126	271126	<i>Cucumis sativus</i>	Cucumber	Ayax	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C126	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C127	271127	<i>Cucumis sativus</i>	Cucumber	Parade	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C127	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C128	271128	<i>Daucus carota</i>	Carrot	Nantskaya	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C128	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C129	271129	<i>Lycopersicon esculentum</i>	Tomato	TMK	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C129	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C130	271130	<i>Daucus carota</i>	Carrot	Yellow	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C130	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C131	271131	<i>Raphanus sativus</i>	Radish	Lola early ripeness	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C131	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C132	271132	<i>Cucumis sativus</i>	Cucumber	Fenix	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C132	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C133	271133	<i>Cucumis sativus</i>	Cucumber	Margelanskaya	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C133	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C134	271134	<i>Sinapis alba</i>	Mastard	Sederat	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C134	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C135	271135	<i>Raphanus sativus</i>	Radish	Margelanskaya	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C135	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C136	271136	<i>Cucurbita</i> sp.	Squash	Romashka (chamomile)	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C136	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C137	271137	<i>Spinacia oleracea</i>	Spinach	Round leaf	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C137	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749

Table 3. (Continued).

Coll. No.	JP No.	Species	Crop name	Local name	Accession name	Coll. date	Coll. site	Type of coll. site	Latitude	Longitude	Altitude (m)
C138	271138	<i>Lactuca sativa</i>	Salad	Curly	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C138	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C139	271139	<i>Brassica oleracea</i>	Cabbage	Early ripeness	COL/KYRGYZ/2019/UT-NIVFS-KYRGYZGB/C139	7/17/2019	Osh Bazaar, Bishkek	Market	N42-52-30.00	E74-34-08.40	749
C140	271573	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C140	9/19/2019	Osh Bazaar, Bishkek	Market	N42-52-32	E74-34-15	479
C141	271574	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C141	9/19/2019	Osh Bazaar, Bishkek	Market	N42-52-32	E74-34-15	479
C142	271575	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C142	9/19/2019	Osh Bazaar, Bishkek	Market	N42-52-32	E74-34-15	479
C143	271576	<i>Cucumis melo</i>	Melon	Duboyka	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C143	9/19/2019	Toktogul Street, Bishkek	Market	N42-52-25	E74-34-13	489
C144	271577	<i>Cucumis melo</i>	Melon	Otd gio1	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C144	9/19/2019	Toktogul Street, Bishkek	Market	N42-52-25	E74-34-13	489
C145	271578	<i>Cucumis melo</i>	Melon	Duboyka	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C145	9/19/2019	Toktogul Street, Bishkek	Market	N42-52-25	E74-34-13	489
C146	271579	<i>Cucumis melo</i>	Melon	Andalek	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C146	9/19/2019	Toktogul Street, Bishkek	Market	N42-52-25	E74-34-13	489
C147	271580	<i>Cucurbita maxima</i>	Squash	Twikva	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C147	9/19/2019	Toktogul Street, Bishkek	Market	N42-52-25	E74-34-13	489
C148	271581	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C148	9/19/2019	Ysyk-Ata, Chuy	Farm	N42-56-52	E74-56-19	714
C149	271582	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C149	9/19/2019	Ysyk-Ata, Chuy	Farm	N42-56-52	E74-56-19	714
C150	271583	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C150	9/19/2019	Ysyk-Ata, Chuy	Farm	N42-56-52	E74-56-19	714
C151	271584	<i>Cucumis melo</i>	Melon	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C151	9/19/2019	Ysyk-Ata, Chuy	Farm	N42-56-52	E74-56-19	714
C152	271585	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C152	9/20/2019	Sokuruksky Lion, Chuy	Farm	N42-51-18	E74-14-50	735
C153	271586	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C153	9/20/2019	Sokuruksky Lion, Chuy	Farm	N42-51-18	E74-14-50	735
C154	271587	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C154	9/20/2019	Sokuruksky Lion, Chuy	Farm	N42-51-18	E74-14-50	735
C155	271588	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C155	9/20/2019	Sokuruksky Lion, Chuy	Farm	N42-51-18	E74-14-50	735
C155	271589	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C156	9/20/2019	Sokuruksky Lion, Chuy	Farm	N42-51-18	E74-14-50	735
C157	271590	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C157	9/20/2019	Sokuruksky Lion, Chuy	Farm	N42-51-18	E74-14-50	735
C158	271591	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C158	9/20/2019	Sokuruksky Lion, Chuy	Farm	N42-51-18	E74-14-50	735
C159	271592	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C159	9/20/2019	Sokuruksky Lion, Chuy	Farm	N42-51-18	E74-14-50	735
C160	271593	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C160	9/20/2019	Sokuruksky Lion, Chuy	Farm	N42-51-18	E74-14-50	735
C161	271594	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C161	9/20/2019	Sokuruksky Lion, Chuy	Farm	N42-51-18	E74-14-50	735
C162	271595	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C162	9/20/2019	Sokuruksky Lion, Chuy	Farm	N42-51-18	E74-14-50	735
C163	271596	<i>Cucumis melo</i>	Melon	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C163	9/20/2019	Belovodskoe, Chuy	Market	N42-51-17	E74-14-45	735
C165	271597	<i>Cucurbita moschata</i>	Squash	Muskat holland	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C165	9/20/2019	Belovodskoe, Chuy	Market	N42-51-17	E74-14-45	735
C166	271598	<i>Cucumis melo</i>	Melon	Duboka	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C166	9/20/2019	Belovodskoe, Chuy	Market	N42-51-17	E74-14-45	735
C167	271599	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C167	9/20/2019	Krasnooktyabrskiy, Chuy	Market	N42-51-12	E74-12-01	732
C168	271600	<i>Cucumis melo</i>	Melon	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C168	9/20/2019	Belovodskoe, Chuy	Market	N42-51-10	E74-11-48	741
C169	271601	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C169	9/20/2019	Kara-Balta, Chuy	Farm	N42-50-36	E73-58-19	746
C170	271602	<i>Cucumis melo</i>	Melon	Sary purha	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C170	9/20/2019	Sokruk, Chuy	Market	N42-50-02	E74-05-51	738
C171	271603	<i>Cucumis melo</i>	Melon	Abnawad	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C171	9/20/2019	Sokruk, Chuy	Market	N42-50-02	E74-05-51	738
C172	271604	<i>Cucumis melo</i>	Melon	Staraya Deba	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C172	9/20/2019	Tokmak, Chuy	Market	N42-51-05	E74-10-52	729
C173	271605	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C173	9/20/2019	Kara-Balta, Chuy	Market	N42-50-36	E73-58-19	682
C174	271606	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C174	9/20/2019	Kara-Balta, Chuy	Market	N42-50-36	E73-58-19	682
C175	271607	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C175	9/20/2019	Kara-Balta, Chuy	Market	N42-50-36	E73-58-19	682

Table 3. (Continued).

Coll. No.	JP No.	Species	Crop name	Local name	Accession name	Coll. date	Coll. site	Type of coll. site	Latitude	Longitude	Altitude (m)
C177	271608	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C177	9/21/2019	Kant, Chuy	Market	N42-53-26	E74-50-60	733
C178	271609	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C178	9/21/2019	Kant, Chuy	Market	N42-53-26	E74-50-60	733
C179	271610	<i>Cucurbita pepo</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C179	9/21/2019	Kant, Chuy	Market	N42-53-26	E74-50-60	733
C180	271611	<i>Cucurbita pepo</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C180	9/21/2019	Kant, Chuy	Market	N42-53-26	E74-50-60	733
C181	271612	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C181	9/21/2019	Kant, Chuy	Market	N42-53-26	E74-50-60	733
C182	271613	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C182	9/21/2019	Kant, Chuy	Market	N42-53-26	E74-50-60	733
C183	271614	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C183	9/21/2019	Kant, Chuy	Market	N42-53-26	E74-50-60	733
C184	271615	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C184	9/21/2019	Kant, Chuy	Market	N42-53-26	E74-50-60	733
C185	271616	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C185	9/21/2019	Kant, Chuy	Market	N42-53-26	E74-50-60	733
C186	271617	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C186	9/21/2019	Krasnorechenka, Chuy	Market	N42-53-49	E74-55-04	735
C187	271618	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C187	9/21/2019	Krasnorechenka, Chuy	Market	N42-53-49	E74-55-04	735
C188	271619	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C188	9/21/2019	Ibanovka, Chuy	Market	N42-53-29	E74-03-14	738
C189	271620	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C189	9/21/2019	Tokmak, Chuy	Market	N42-51-06	E75-17-40	814
C190	271621	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C190	9/21/2019	Tokmak, Chuy	Market	N42-51-06	E75-17-40	814
C191	271622	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C191	9/21/2019	Aral, Chuy	Farm	N42-51-04	E75-12-48	778
C192	271623	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C192	9/21/2019	Aral, Chuy	Farm	N42-51-04	E75-12-48	778
C194	271624	<i>Cucumis melo</i>	Melon	Abnawad	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C194	9/23/2019	Syot, Osh	Farm	N40-25-50.4	E72-8-25.1	696
C195	271625	<i>Cucumis melo</i>	Melon	Abnawad	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C195	9/23/2019	Syot, Osh	Farm	N40-25-50.4	E72-8-25.1	696
C196	271626	<i>Cucumis melo</i>	Melon	Korobka	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C196	9/23/2019	Syot, Osh	Farmers' storage	N40-22-33	E72-11-51.6	868
C197	271627	<i>Cucumis melo</i>	Melon	Korobka	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C197	9/23/2019	Syot, Osh	Farmers' storage	N40-22-33	E72-11-51.6	868
C198	271628	<i>Cucurbita maxima</i>	Squash	Solla	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C198	9/23/2019	Osh	Market	N40-15-56.8	E72-37-8.2	1,297
C199	271629	<i>Cucurbita moschata</i>	Squash	Romashka	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C199	9/23/2019	Osh	Market	N40-15-56.8	E72-37-8.2	1,297
C200	271630	<i>Cucurbita moschata</i>	Squash	Ashkabak	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C200	9/24/2019	Osh	Market	N40-32-26.2	E72-47-46.6	967
C201	271631	<i>Cucurbita maxima</i>	Squash	Solla	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C201	9/24/2019	Osh	Market	N40-32-26.2	E72-47-46.6	967
C202	271632	<i>Cucurbita maxima</i>	Squash	Solla	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C202	9/24/2019	Inrymar, Osh	Market	N40-35-40.4	E72-56-24.5	1,010
C203	271633	<i>Cucurbita moschata</i>	Squash	Ashkabak	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C203	9/24/2019	Inrymar, Osh	Market	N40-35-40.4	E72-56-24.5	1,010
C204	271634	<i>Cucurbita maxima</i>	Squash	Solla	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C204	9/24/2019	Inrymar, Osh	Market	N40-35-40.4	E72-56-24.5	1,010
C205	271635	<i>Cucurbita moschata</i>	Squash	Ashkabak	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C205	9/24/2019	Inrymar, Osh	Market	N40-35-40.4	E72-56-24.5	1,010
C206	271636	<i>Cucurbita moschata</i>	Squash	Ashkabak	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C206	9/24/2019	Inrymar, Osh	Market	N40-35-40.4	E72-56-24.5	1,010
C207	271637	<i>Cucurbita pepo</i>	Squash	Sary Ashkabak	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C207	9/24/2019	Inrymar, Osh	Market	N40-35-54	E72-57-28.2	1,019
C208	271638	<i>Cucurbita pepo</i>	Squash	Grimbill	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C208	9/24/2019	Inrymar, Osh	Market	N40-35-54	E72-57-28.2	1,019
C209	271639	<i>Cucurbita maxima</i>	Squash	Solla	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C209	9/24/2019	Inrymar, Osh	Market	N40-35-54	E72-57-28.2	1,019
C210	271640	<i>Cucurbita maxima</i>	Squash	Solla	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C210	9/24/2019	Inrymar, Osh	Market	N40-35-54	E72-57-28.2	1,019
C211	271641	<i>Cucurbita maxima</i>	Squash	Solla	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C211	9/24/2019	Inrymar, Osh	Market	N40-35-54	E72-57-28.2	1,019
C212	271642	<i>Cucurbita moschata</i>	Squash	Kara Ashkabak	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C212	9/24/2019	Inrymar, Osh	Market	N40-35-54	E72-57-28.2	1,019
C213	271643	<i>Cucurbita maxima</i>	Squash	Solla	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C213	9/24/2019	Inrymar, Osh	Market	N40-35-54	E72-57-28.2	1,019

Table 3. (Continued).

Coll. No.	JP No.	Species	Crop name	Local name	Accession name	Coll. date	Coll. site	Type of coll. site	Latitude	Longitude	Altitude (m)
C214	271644	<i>Cucumis melo</i>	Melon	Gold andalek	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C214	9/25/2019	Akman, Jalal-Abad	Market	N40-59-45.2	E72-40-24.6	710
C215	271645	<i>Cucumis melo</i>	Melon	Abnawad	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C215	9/25/2019	Akman, Jalal-Abad	Market	N40-59-45.2	E72-40-24.6	710
C216	271646	<i>Cucurbita moschata</i>	Squash	Ashkabak	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C216	9/25/2019	Nombekv, Jalal-Abad	Farmers' storage	N41-2-39.9	E72-24-20.6	616
C217	271647	<i>Cucumis melo</i>	Melon	Abnawad	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C217	9/25/2019	Uuruyar, Jalal-Abad	Market	N41-3-18.3	E72-14-34.8	549
C218	271648	<i>Cucumis melo</i>	Melon	Kempiol	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C218	9/25/2019	Uuruyar, Jalal-Abad	Market	N41-3-18.3	E72-14-34.8	549
C219	271649	<i>Cucumis melo</i>	Melon	Kyrkma	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C219	9/25/2019	Uuruyar, Jalal-Abad	Market	N41-3-18.3	E72-14-34.8	549
C220	271650	<i>Cucumis melo</i>	Melon	Abnawad	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C220	9/25/2019	Shalnaldy-Say, Jalal-Abad	Market	N41-11-53.4	E72-11-22.5	544
C221	271651	<i>Cucumis melo</i>	Melon	Abnawad	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C221	9/25/2019	Shalnaldy-Say, Jalal-Abad	Market	N41-11-53.4	E72-11-22.5	544
C222	271652	<i>Cucumis melo</i>	Melon	Korobka	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C222	9/25/2019	Shalnaldy-Say, Jalal-Abad	Market	N41-11-53.4	E72-11-22.5	544
C223	271653	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C223	9/23/2019	Mayavka, Chuy	Farm	N42-59-09	E74-32-54	659
C224	271654	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C224	9/23/2019	Mukan, Chuy	Market	N42-56-35	E74-38-18	670
C225	271655	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C225	9/23/2019	Mukan, Chuy	Market	N42-56-35	E74-38-18	670
C226	271656	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C226	9/23/2019	Mukan, Chuy	Market	N42-56-35	E74-38-18	670
C227	271657	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C227	9/23/2019	Mukan, Chuy	Market	N42-56-35	E74-38-18	670
C228	271658	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C228	9/23/2019	Mukan, Chuy	Market	N42-56-35	E74-38-18	670
C229	271659	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C229	9/23/2019	Budenovka, Chuy	Market	N42-53-49	E74-55-04	737
C230	271660	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C230	9/23/2019	Budenovka, Chuy	Market	N42-53-49	E74-55-04	737
C231	271661	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C231	9/23/2019	Budenovka, Chuy	Market	N42-53-49	E74-55-04	737
C232	271662	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C232	9/23/2019	Kenesh, Chuy	Market	N42-53-48	E74-56-26	733
C233	271663	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C233	9/23/2019	Kenesh, Chuy	Market	N42-53-48	E74-56-26	733
C234	271664	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C234	9/23/2019	Kenesh, Chuy	Market	N42-53-48	E74-56-26	733
C235	271665	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C235	9/23/2019	Kenesh, Chuy	Market	N42-53-48	E74-56-26	733
C236	271666	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C236	9/23/2019	Ivanovka, Chuy	Market	N42-53-29	E75-03-14	741
C237	271667	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C237	9/23/2019	Ivanovka, Chuy	Market	N42-53-29	E75-03-14	741
C238	271668	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C238	9/23/2019	Ivanovka, Chuy	Market	N42-53-29	E75-03-14	741
C239	271669	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C239	9/23/2019	Ivanovka, Chuy	Market	N42-53-27	E75-05-47	736
C240	271670	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C240	9/23/2019	Ivanovka, Chuy	Market	N42-53-27	E75-05-47	736
C241	271671	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C241	9/23/2019	Novopokrovka, Chuy	Market	N42-52-47	E74-42-11	741
C243	271672	<i>Cucurbita moschata</i>	Squash	Wokuvo	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C243	9/24/2019	Milyanfan, Chuy	Farm	N42-58-05	E74-46-49	661
C244	271673	<i>Cucurbita moschata</i>	Squash	Wokuvo	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C244	9/24/2019	Milyanfan, Chuy	Farm	N42-58-05	E74-46-49	661
C245	271674	<i>Cucurbita moschata</i>	Squash	Wokuvo	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C245	9/24/2019	Milyanfan, Chuy	Farm	N42-58-05	E74-46-49	661
C246	271675	<i>Cucurbita moschata</i>	Squash	Wokuvo	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C246	9/24/2019	Milyanfan, Chuy	Farm	N42-58-05	E74-46-49	661
C247	271676	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C247	9/24/2019	Hunchi, Chuy	Market	N42-58-30	E74-52-32	672
C248	271677	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C248	9/24/2019	Hunchi, Chuy	Market	N42-58-30	E74-52-32	672
C249	271678	<i>Cucurbita maxima</i>	Squash	Wokuvo	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C249	9/24/2019	Ken-Bulung, Chuy	Market	N42-52-49	E75-09-10	756

Table 3. (Continued).

Coll. No.	JP No.	Species	Crop name	Local name	Accession name	Coll. date	Coll. site	Type of coll. site	Latitude	Longitude	Altitude (m)
C250	271679	<i>Cucurbita maxima</i>	Squash	Wokuvo	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C250	9/24/2019	Ken-Bulung, Chuy	Market	N42-52-49	E75-09-10	756
C251	271680	<i>Cucurbita moschata</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C251	9/24/2019	Kemin, Chuy	Market	N42-47-33	E74-41-38	1116
C252	271681	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C252	9/24/2019	Vostok, Chuy	Market	N42-54-01	E74-41-06	699
C253	271682	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C253	9/24/2019	Vostok, Chuy	Market	N42-54-01	E74-41-06	699
C254	271683	<i>Cucurbita maxima</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C254	9/24/2019	Vostok, Chuy	Market	N42-54-01	E74-41-06	699
C255	271684	<i>Cucurbita pepo</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C255	9/24/2019	Vostok, Chuy	Market	N42-54-01	E74-41-06	698
C257	271685	<i>Cucurbita pepo</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C257	9/24/2019	Vostok, Chuy	Market	N42-54-01	E74-41-06	698
C258	271686	<i>Cucurbita pepo</i>	Squash	na	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C258	9/24/2019	Vostok, Chuy	Market	N42-54-01	E74-41-06	698
C259	271687	<i>Cucurbita maxima</i>	Squash	Tyrpanka	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C259	9/25/2019	Kara-Balta, Chuy	Market	N42-49-27	E73-50-31	768
C260	271688	<i>Cucurbita maxima</i>	Squash	Tyrpanka	COL/KYRGYZ/2019/HARC-HU-KYRGYZGB/C260	9/25/2019	Kara-Balta, Chuy	Market	N42-49-27	E73-50-31	768

na, not available



Photo 1. Survey of plants along the road.



Photo 2. Survey of plants on vacant land.



Photo 3. Survey of plants in grassland.



Photo 4. Survey of plants beside a wheat field.



Photo 5. Survey of plants in wheat field.



Photo 6. Survey of plants on a beach.



Photo 7. Survey of plants on a hill.



Photo 8. Survey of plants on a mountainside.



Photo 9. Wild relatives of spinach.



Photo 10. Wild relatives of carrot.



Photo 11. Wild relatives of onion.



Photo 12. Radish (white flower) and its wild relatives (yellow flower).



Photo 13. Collected *Brassica* plants.



Photo 14. Evaluation of collected plants.



Photo 15. Collection of seeds from *Brassica* plant.



Photo 16. Photographing collected seeds.



Photo 17. Market (bazaar) in Karakol, Issyk-Kul.



Photo 18. Seed shop in the bazaar.



Photo 19. Seed of local cultivars sold in the seed shop.



Photo 20. Purchasing seeds of local cultivars.



Photo 21. Interviewing local people at a roadside market, Kant city, Chuy.



Photo 22. *Cucurbita pepo* fruits at a local market, Kant city, Chuy.



Photo 23. *Cucurbita maxima* fruits stored in a farm, Sokuruksky Lion village, Chuy.



Photo 24. *Cucurbita moschata* fruits cultivated in a farm, Ysyk-Ata village, Chuy.



Photo 25. *Cucurbita maxima* fruits (white) cultivated in a farm, Aral village, Chuy.



Photo 26. C184 fruit (*Cucurbita maxima*; 6.9 kg).



Photo 27. C225 fruit (*Cucurbita maxima*).



Photo 28. C169 fruit (*Cucurbita moschata*; 11.0 kg).



Photo 29. C257 fruit (*Cucurbita pepo*; bicolor).



Photo 30. C208 fruit (*Cucurbita pepo*; turban shape).



Photo 31. Melon fruit shop in the bazaar, Bishkek.



Photo 32. Melon and watermelon shops along the main road.



Photo 33. Melon plants on a farm, Osh.

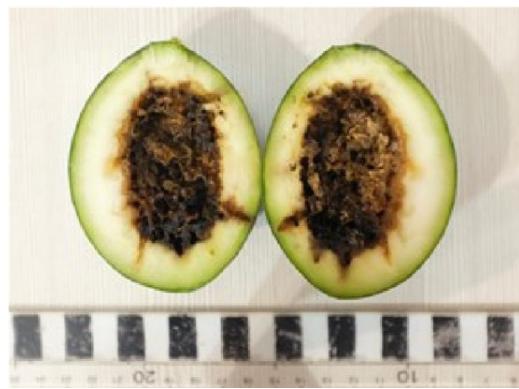


Photo 34. Young melon fruit with damage caused by fruit fly, Osh.



Photo 35. Dried melon fruit flesh.



Photo 36. C151 fruit (Basvaldy group).



Photo 37. C166 fruit (Cantaloupe group).



Photo 38. C144 fruit (Cassava group).



Photo 39. C171 fruit (Cassava group).



Photo 40. C218 fruit (Cassava group).