〔AREIPGR Vol. 35: 56-70, 2019〕
doi:10.24514/00003222

Original Paper

Collaborative Exploration of Plant Genetic Resources in the Central Highlands of Vietnam, 2018

Daisuke KAMI [1)], Katsuyoshi MITSUDOME [2)], TRAN Thi Thu Hoai [3)], NGUYEN Van Kien [3)]

1) *Hokkaido Agricultural Research Center, National Agriculture and Food Research Organization (NARO)*, Hitsujigaoka 1, Toyohira-ku, Sapporo, Hokkaido 062-8555, Japan
2) *Kagoshima Prefectural Institute for Agricultural Development*, Hosoyamada 4938, Kushira, Kanoya, Kagoshima 893-1601, Japan
3) *Vietnamese Academy of Agricultural Science, Plant Resources Center*, Ankhanh, Hoaiduc, Hanoi, Vietnam

Communicated by Y. YOSHIOKA (Tsukuba University)
Received Aug. 28 2019, Accepted Feb. 10, 2020
Corresponding author: D. KAMI (e-mail: dkami@affrc.go.jp)

Summary

This report describes the first collaborative expedition to collect Vietnamese plant genetic resources in the National Agriculture and Food Research Organization (NARO), Japan and the Plant Resources Center (PRC) of the Vietnamese Academy of Agricultural Science to establish an international research enterprise within the framework of the Plant Genetic Resources in Asia Phase 2 project. We conducted a field survey in the central highland of Vietnam (Gia Lai Province) between August 28 and September 4, 2018 and collected a total 113 accessions (16 of *Amaranthus* sp., 2 of *Benincasa hispida*, 33 of *Cucumis melo*, 10 of *Cucumis sativus*, 25 of *Cucurbita moschata*, 3 of *Citrullus lanatus*, 1 of *Coccinia* sp., 2 of *Momordica charantia*, 1 of *Trichosanthes* sp., 7 of *Capsicum* sp., 10 of *Solanum* sp., 1 of *Solanum lycopersicum*, 1 of *Lablab purpureus*, and 1 of *Sorghum bicolor*). All accessions were stored as seeds, and subsets were transferred to the Genetic Resources Center, NARO, Japan.

KEY WORDS: *Amaranthus* spp., *Cucumis melo*, *Cucurbita moschata*, genetic resource, Vietnam

Introduction

Breeding programs have developed a wide variety of crop cultivars through the judicious use of diverse genetic resources. Therefore, the collection and characterization of local plant genetic resources

are crucial activities for developing new crop varieties with desirable traits, such as resistance to pests or diseases, high quality, and high yield. The plant genetic resources of Southeast Asia have been explored for decades, and cucurbitaceous crops were previously collected in Vietnam (Yoshida *et al.* 1997), Myanmar (Saito *et al.* 2005), and Laos (Sakata *et al.* 2008; Saito *et al.* 2009; Matsunaga *et al.* 2010). To promote further exploration of plant genetic resources, a new research project, the Plant Genetic Resources in Asia (PGRAsia) project, funded by the Ministry of Agriculture, Forestry and Fisheries of Japan, was started in 2014. An initial field survey was conducted from 2014 to 2018 to collect cucurbitaceous crops in Vietnam (Sugiyama *et al.* 2015; Shimomura *et al.* 2016; Kawazu *et al.* 2017; Fujito *et al.* 2018).

The Plant Genetic Resources in Asia (PGRAsia) Phase 2 project was started in 2018 to evaluate and explore the plant genetic resources of Asia. There are many ethnic groups in the highland region of Vietnam, so we hypothesized that numerous local varieties might be cultivated and maintained by these diverse ethnic groups. In the past, we have collected plant genetic resources in the northern area (Sugiyama *et al.* 2015; Shimomura *et al.* 2016; Kawazu *et al.* 2017) and the central area (Fujito *et al.* 2018), but not yet in the central highland area of Vietnam. Here, we report the first expedition into the central highlands of Vietnam focusing on horticultural crops.

Methods

The travel schedule is shown in Table 1. Routes that have been moved are shown in Fig. 1. We used an automobile as a means of transportation to collect genetic resources. In 2018, we explored Gia Lai Province (the central highland of Vietnam). We surveyed Krong Pa district (southeastern part of Gia Lai province) from August 28 to 30, Kong Chro district (eastern part of Gia Lai) from August 31 to September 2, and Dak Doa district (northern part of Gia Lai) from September 3–4. Our collections were restricted to local varieties and wild plants. We collected fruit and seed samples from markets (Photo 1) and farmers (Photo 2). Associated information on each sample, such as the sowing date, harvest date, usage, and cultivation methods, was also recorded. We also checked place names, local plant names, latitudes, longitudes, altitude, and the characteristics of the exploration sites. Latitude, longitude, and altitude were determined using a handheld GPS receiver (Garmin eTrex20J; Garmin International Inc., Olathe, KS, USA). We numbered the collected samples. We used branching numbers, such as “40-1” and “40-2”, when genetic resources of the same species obtained from the same farm were likely to be the same or genetically related strains.

The sampling number of fruits and seeds were basically assigned in order by sampling date. However, some fruits did not have mature seeds, resulting in missing numbers. Since the missing numbers were not managerially preferable, we assigned those missing number to fruits and seeds that were sampled later. Although we identified species based on the characteristics of plants and fruits, if they were difficult to be identified, we only listed their genus names.

Results and Discussion

The locations of exploration sites are shown in Fig. 1. We collected seeds from heavy or rotten fruits collected at the hotel where we stayed, and other fruits were seeded in the laboratory of the Vietnamese Academy of Agricultural Science, Plant Resources Center (PRC). The collected seeds were washed and dried immediately. We collected 16 accessions of *Amaranthus* sp., 2 of *Benincasa hispida*, 33 of *Cucumis melo*, 10 of *Cucumis sativus*, 25 of *Cucurbita moschata*, 3 of *Citrullus lanatus*, 1 of *Coccinia* sp., 2 of *Momordica charantia*, 1 of *Trichosanthes* sp., 7 of *Capsicum* sp., 10 of *Solanum* sp., 1 of

Table 1. Itinerary of the field survey in Vietnam, 2018

Date (month/day)	Day	Itinerary	Stay
8/26	Sun	Haneda airport - Noibai airport - Plant Resources Center (PRC; Hanoi)	Hanoi
8/27	Mon	Hanoi - Noibai airport - Pleiku airport - Pleiku City	Pleiku
8/28	The	Pleiku City - Chu' Se town - Phu Can commune (Krong Pa district) - Chu' Gu commune (Krong Pa district) - la Mlah commune (Krong Pa district)	Phu Tuc
8/29	Wed	Phu Tuc town (Krong Pa district) - Krong Nang commune (Krong Pa district) - Chu' Rcam commune (Krong Pa district)	Phu Tuc
8/30	Thu	Phu Tuc town - la Rsuom commune (Krong Pa district) - Chu' Rcam commune (Krong Pa district) - Chu' Ngoc commune (Krong Pa district)	Phu Tuc
8/31	Fri	Phu Tuc town - Yang Trung commune (Kong Chro district) - An Trung commune (Kong Chro district)	Kong Chro
9/1	Sat	Kong Chro town (Kong Chro district) - Ya Ma commune (Kong Chro district) - Dak Ko Ning commune (Kong Chro district)	Kong Chro
9/2	Sun	Kong Chro town - Yang Nam commune (Kong Chro district)	Kong Chro
9/3	Mon	Kong Chro town - Hnol commune (Dak Doa district) - Pleiku City	Pleiku
9/4	The	Pleiku City - Ha Dong commune (Dak Doa district)	Pleiku
9/5	Wed	Pleiku City (Harvesting seeds from rotten or big fruits, washing and drying the seeds in hotel)	Pleiku
9/6	Thu	Pleiku City - Pleiku airport - Noibai airport - PRC	Hanoi
9/7	Fri	Hanoi City - PRC (Harvesting seeds from fruits, washing and drying the seeds in	Hanoi
9/8	Sat	Hanoi City - PRC (Harvesting seeds from fruits, washing and drying the seeds in	Hanoi
9/9	Sun	Hanoi City - Noibai airport - Haneda airport	Tokyo

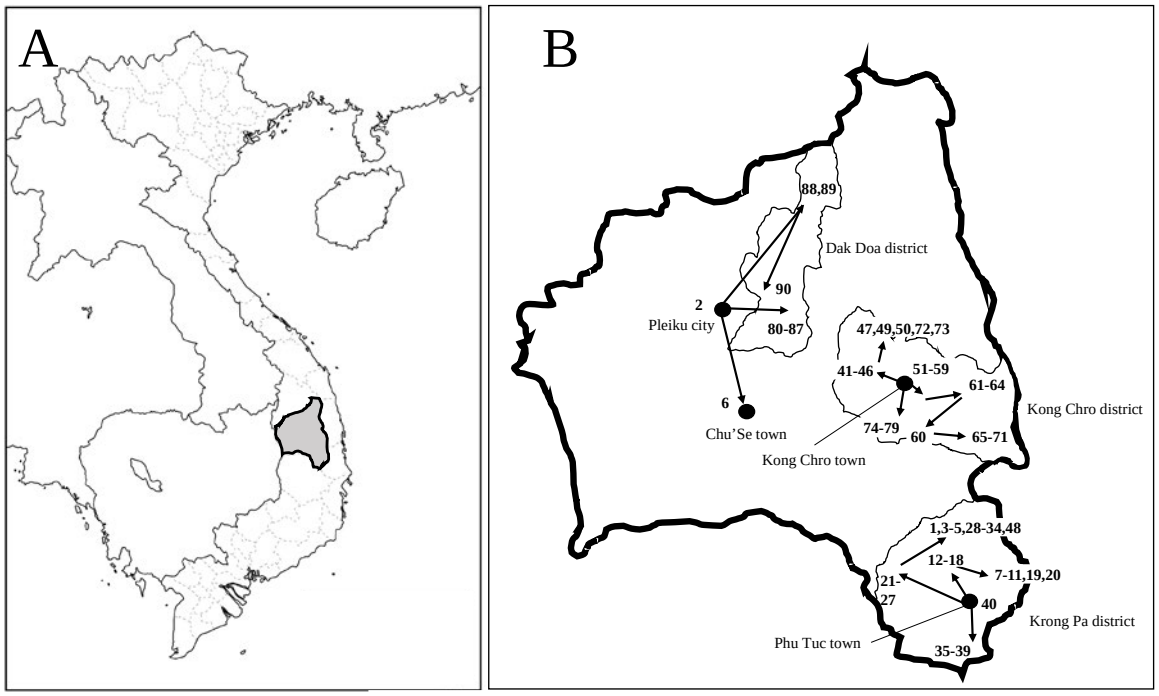

Fig. 1. The collection site, Gia Lai Province of Vietnam. A indicates the location of Gia Lai Province in Vietnam. Gia Lai Province is the gray area within A. B is an enlarged view of Gia Lai Province. In B, arrows indicate the direction of movement, and closed circles indicate the place of accommodation at the time of collection. Sampling numbers of the genetic resources are indicated at the site of their collection.

Solanum lycopersicum, 1 of *Lablab purpureus*, and 1 of *Sorghum bicolor* (Table 2). In this report, several characteristics of amaranth, melon, squash, pepper, and eggplant that were harvested during this trip are described.

Amarantaceae

***Amaranthus* sp.**

In amaranth exploration, we decided to collect only seeds from mature plants, such as in Photo 3. Seeds of amaranths were not purchased at the market but obtained from farmers' fields and gardens (Table 3). We collected 16 samples of amaranth in Gia Lai. In Krong Pa district, we obtained eight samples as seeds; they were all wild plants. In Kong Chro district, we obtained seven samples as seeds; of those, three samples were cultivated and the other four were wild plants. In Dak Doa district, we obtained one accession that had been cultivated in a farmer's garden. Leaves of most amaranth plants collected were green, but those of one plant (No. 7) were red. In addition, many plants had thorns on the stem.

Cucurbitaceae (melon, cucumber, and squash)

Melon and cucumber

In Gia Lai province, we collected a total of 33 samples of *Cucumis melo* (Table 4). We collected 21 accessions in the Krong Pa district. In this district, we obtained three samples from farmers as seeds (Nos. 13, 19 and 26), and the other 18 samples from farmers as fruits (Photo 4). In the Kong Chro district, we collected 10 accessions. In this area, we obtained four samples from farmers as seeds, and six samples as fruits. Nos. 50-1 and 50-2 were purchased at a local market, and the others were obtained from farmers. In the Dak Doa district, we collected two melon fruits (Nos. 81-1 and 81-2) from a farmer. The fruit shapes of collected melons were globular or elliptical. The fruit skin color of many was often green or yellow with white stripes, but three melons (Nos. 76-1, 76-2 and 76-3) were white. Among the mature fruits examined in this sampling, we judged those that had no recognizable smell as cucumber, not melon.

We collected 10 samples of cucumber in Gia Lai province (Table 5). In Krong Pa district, we obtained No. 27 from a farmer as seeds. In Dak Doa district, nine samples were obtained from farmers as fruits (Photo 5). The fruit shape of collected cucumbers was oval or cylindrical, and the fruit skin color was white, green or yellow. Only No. 88 had white stripes on the fruit skin.

Table 2. A summary of collected plant samples in Vietnam, 2018

Family	Scientific name	Plant name	Total
Amarantaceae	*Amaranthus* sp.	Amaranth	16
Cucurbitaceae	*Benincasa hispida* (Thunb.) Cogn.	Winter melon (Wax gourd)	2
	Cucumis melo L.	Melon	33
	Cucumis sativus L.	Cucumber	10
	Cucurbita moschata Duch.	Squash	25
	Citrullus lanatus (Thunb.) Matsum. *et Nakai*	Water melon	3
	Coccinia sp.		1
	Momordica charantia L.	Bitter melon (Balsam pear)	2
	Trichosanthes sp.		1
Solanaceae	*Capsicum* sp.	Chili pepper	7
	Solanum sp.	Eggplant	10
	Solanum lycopersicum L.	Tomato	1
Fabaceae	*Lablab purpureus* (L.) *Sweet*	Lablab bean	1
Gramineae	*Sorghum bicolor* (L.) Moench ssp. *bicolor*	Sorghum	1
Total		Total	113

Squash

In the local markets, fruits, edible shoots (Photo 6), and flowers of squash were available in abundance. We collected 25 samples of squash. Because squash fruits are heavy, the fruits were cut as shown in Photo 7 and seeds were collected in the hotel after the exploration. We obtained No. 6 as a fruit from the local market in Chu' Se town. Additionally, we collected seeds of one accession (No. 40) and six fruits from farmers' houses in the Krong Pa district. Squash fruits (Nos. 35-37) were purchased at the local market in this district. In the Kong Chro district, five fruit samples were collected from farmers, and we obtained three plant resources (Nos. 56, 66 and 79), as seeds from a farmer. Six fruits were collected from farmers in the Dak Doa district.

As shown in Table 6, we collected many squashes regardless of the district. The collected squash fruits were mostly disk-like in shape. Besides that, we also obtained shapes like dumbbell, oval, heart-shape and cylindrical. The fruit skin colors were green or brown, and many squash samples had spots on fruit skins. Therefore, squash genetic resources were considered to be genetically diverse in Gia Lai Province. In addition, squashes were planted with cassava or rice in three districts (Photo 8).

In this exploration, we collected only *Cucurbita moschata*. Additionally, in previous exploration of Vietnam, only *C. moschata* was collected, not *C. maxima* (Sugiyama *et al.* 2015; Shimomura *et al.* 2016; Kawazu *et al.* 2017; Fujito *et al.* 2018). Generally, *C. moschata* prefers hotter areas than do other squash species (Hayase 2004). The temperature and humidity in our exploration area were higther than those in Japan. In areas where the temperature and humidity are high, plants are expected to be susceptible to different environmental stresses. Ara *et al*. (2013) showed that the roots of *C. moschata* exhibited comparatively little oxidative damage compared to those of *C. maxima* and "Maxchata" (an interspecific inbred line between *moschata* and *maxima*). In addition, *C. moschata* has been reported to have a stronger tolerance to plant diseases (e.g., powdery mildew and zucchini yellow mosaic virus) than *C. pepo* and *C. maxima* (Provvidenti *et al*. 1984; Lebeda and Křístková 1994). Therefore, since the temperature and humidity in Vietnam were higher than those in Japan, we hypothesized that *C. moschata* have been adapted because of its resistance to environmental stresses and plant diseases.

Solanaceae

***Capsicum* sp.**

As shown in Table 7, we collected seven chili pepper genetic resources as fruits in this sampling. In Pleiku City, we purchased one sample at the local market. Photo 9 shows the pepper fruits (No. 2) purchased at Ron market in Pleiku City. In these samples, fruits of various pepper species were mixed. In Krong Pa district, we obtained four accession from farmers' fields. In addition, we obtained two samples from farmers' fields in Kong Chro district. All mature pepper samples had red fruit skins and were cone-shaped regardless of the sampling sites.

***Solanum* sp. (Eggplant)**

We collected 10 samples of eggplant in Krong Pa and Kong Chro districts of Gia Lai province (Table 8). All eggplant genetic resources were obtained from farmers as fruits. In contrast, eggplants were not found in the Dak Doa district. Photo 10 is a picture of No. 14 eggplant fruits obtained from a farmer. The fruit shape of all eggplant genetic resources was globular. The skin colors of many genetic resources were yellow; however, those of Nos. 23 and 28 were purple.

Other plant resources

In addition, two accessions of winter melon (Nos. 49 and 57), three of water melon (Nos. 53, 74 and 78), one of *Coccinia* sp. (No. 59; Photo 11), one of *Trichosanthes* sp. (No. 80), two of bitter melon (Nos. 38 and 47; Photo 12), one of tomato (No. 71), one of lablab bean (No. 41), and of sorghum (No. 42) were collected (Table 9).

All accessions have been stored as seeds in the PRC, and subsets were transferred to the Genetic Resources Center, NARO, Japan.

Acknowledgments

We thank Dr. Keita Sugiyama (Hokkaido Agricultural Research Center, NARO) for providing appropriate advice on this manuscript. This work was supported by a grant (PGRAsia Project phase 2) from the Ministry of Agriculture, Forestry, and Fisheries of Japan.

References

Ara N, Nakkanong K, Lv W, Yang J, Hu Z and Zhang M (2013) Antioxidant enzymatic activities and gene expression associated with heat tolerance in the stems and roots of two cucurbit species ("*Cucurbita maxima*" and "*Cucurbita moschata*") and their interspecific inbred line "*Maxchata*". Int J Mol Sci 14:24008-24028.

Fujito S, Shimomura K, Hoai TTT and Kien NV (2018) Collaborative exploration of the vegetable genetic resources in Vietnam, 2017. AREIPGR 34: 228-244.

Hayase K (2004) Watermelon and squash, *Yasai Engei Daihyakka* Vol. 5 (2nd edition). Rural Culture Association Japan, pp. 301-469.

Kawazu Y, Kato M, Hoai TTT and Kien NV (2017) Collaborative exploration of plant genetic resources in Vietnam, 2016. AREIPGR 33: 89-113.

Lebeda A and Křístková E (1994) Field resistance of *Cucurbita* species to powdery mildew (*Erysiphe cichoracearum*). Z Pflanzenk Pflanzen 101:598-603.

Matsunaga H, Sugiyama M, Tanaka K and Deuanhaksa C (2010) Collaborative exploration of the vegetable genetic resources in Laos, 2009. AREIPGR 26: 65-81.

Provvidenti R, Gonsalves D and Humaydan HS (1984) Occurrence of zucchini yellow mosaic virus in cucurbits from Connecticut, New York, Florida and California. Plant Disease 68: 443-446.

Saito T, Matsumoto M, Htaik T H and Yi SS (2005) Collaborative exploration of vegetables genetic resources in Myanmar, 2005. AREIPGR 22: 115-133 (in Japanese with an English summary).

Saito A, Tanaka K and Deuanhaksa C (2009) Collaborative exploration of the vegetable genetic resources in Laos, 2008. AREIPGR 25: 111-145.

Sakata Y, Kato K, Saito T, Tanaka K and Deuanhaksa C (2008) Collaborative exploration of the vegetable genetic resources in Laos, 2007. AREIPGR 24: 161-183.

Shimomura K, Sugiyama K, Yoshioka Y, Hoai TTT and Kien NV (2016) Collaborative exploration of plant genetic resources in Vietnam, 2015. AREIPGR 32: 159-181.

Sugiyama M, Ebana K, Kami D, Hoai TTT and Kien NV (2015) Collaborative exploration of cucurbitaceous crops in Vietnam, 2014. AREIPGR 31: 189-201.

Yoshida T, Wako T, Thuan PV and Canh DX (1997) Collaborative exploration of the vegetable genetic resources in Vietnam. AREIPGR 13: 173-187.

ベトナム中部高原における植物遺伝資源の共同探索，2018 年

嘉見 大助 [1)]・満留 克俊 [2)]・TRAN Thi Thu Hoai [3)]・
NGUYEN Van Kien [3)]

1) 国立研究開発法人 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 作物開発研究領域 園芸作物育種グループ
2) 鹿児島県農業開発総合センター 大隅支場　園芸作物研究室
3) ベトナム植物遺伝資源センター

和文摘要

本報告は国立研究開発法人農業・食品産業技術総合研究機構とベトナム植物遺伝資源センターと共同で実施された農林水産省委託プロジェクト研究「海外植物遺伝資源の民間等への提供促進」における，ベトナム中部高原における園芸作物遺伝資源の探索・収集に関わる調査結果である．中部高原のザライ省において 2018 年 8 月 28 日～ 9 月 4 日にかけて植物遺伝資源の探索・調査を行った．その結果，合計 113 点（アマランサス属 16 点，トウガン 2 点，メロン 33 点，キュウリ 10 点，ニホンカボチャ 25 点，スイカ 3 点，コッキニア属 1 点，カラスウリ属 1 点，ニガウリ 2 点，トウガラシ属 7 点，ナス属 10 点，トマト 1 点，フジマメ 1 点およびソルガム 1 点）を収集した．収集された遺伝資源は，ベトナム植物資源センターで保存された後，農研機構遺伝資源センターシーンバンクに移送された．

Table 3. Genetic resources of amaranth (*Amaranthus* sp.) collected in Vietnam in 2018

Sampling No.	JP No.	Cultivar name	Collection date (year/month/day)	Local name in Vietnam	Village or Market	Commune or Town	District	Latitude	Longitude	Altitude (m)	Type of samples	Sampling	Remark
7	268573	COL/VIETNAM/2018/HARC/013	2018/8/28	Djam Hrum Hrah	Dong Hung	Phu Can	Krong Pa	N13-11-10.97	E108-40-53.01	129	Seed	Farm field	Red leaves and stems; Sown in March
8	268574	COL/VIETNAM/2018/HARC/014	2018/8/28	Djam Hrum Seh	Dong Hung	Phu Can	Krong Pa	N13-11-10.97	E108-40-53.01	129	Seed	Farm field	Green leaves and stems; Sown in March
9	268575	COL/VIETNAM/2018/HARC/015	2018/8/28	Djam Hrum Nge	Dong Hung	Phu Can	Krong Pa	N13-11-10.97	E108-40-53.01	129	Seed	Farm field	Green leaves and stems; Sown in March
11	268577	COL/VIETNAM/2018/HARC/017	2018/8/28	Djam Hrum Seh	Dong Hung	Phu Can	Krong Pa	N13-11-10.97	E108-40-53.01	129	Seed	Farm field	Green leaves and stems
15	268581	COL/VIETNAM/2018/HARC/021	2018/8/28	Djam Hrum troi	Mlah	Chu' Gu	Krong Pa	N13-15-29.22	E108-55-29.35	120	Seed	Farm field	Green leaves and stems
31	268603	COL/VIETNAM/2018/HARC/043	2018/8/29	Djam Hrum troi	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Seed	Farm field	Green leaves and stems; Spains on leaves and stems
32	268604	COL/VIETNAM/2018/HARC/044	2018/8/29	Djam Hrum troi	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Seed	Farm field	Green leaves and stems; Spains on stems
33	268605	COL/VIETNAM/2018/HARC/045	2018/8/29	Djam Hrum Seh	Plang	Chu' Rcam	Krong Pa	N13-18-06.02	E108-36-08.20	134	Seed	Farm field	Green leaves, red stems
44	268616	COL/VIETNAM/2018/HARC/056	2018/8/31	Plei	Hle Hlang	Yang Trung	Kong Chro	N13-47-48.87	E108-30-08.17	346	Seed	Farm field	Green leaves and stems; Sown in August
45	268617	COL/VIETNAM/2018/HARC/057	2018/8/31	Plei	Hle Hlang	Yang Trung	Kong Chro	N13-47-48.87	E108-30-08.17	346	Seed	Farm field	Green leaves, red stems; Spains on the stems
46	268618	COL/VIETNAM/2018/HARC/058	2018/8/31	Plei	Hle Hlang	Yang Trung	Kong Chro	N13-47-48.87	E108-30-08.17	346	Seed	Farm field	Green leaves, red stems
62	268635	COL/VIETNAM/2018/HARC/075	2018/9/1	Plei	Bo Yo	Sro	Kong Chro	N13-41-02.25	E108-39-30.18	342	Seed	Farmer's garden	Green leaves, red stems
63	268636	COL/VIETNAM/2018/HARC/076	2018/9/1	Plei	Bo Yo	Sro	Kong Chro	N13-41-02.25	E108-39-30.18	342	Seed	Farmer's garden	Green leaves, red stems; Spains on leaves and stems
68	268641	COL/VIETNAM/2018/HARC/081	2018/9/1	Hla par	Kte	Dak Song	Kong Chro	N13-38-33.48	E108-43-08.53	340	Seed	Farmer's garden	Green leaves and stems
69	268642	COL/VIETNAM/2018/HARC/082	2018/9/1	Hla par tla	Kte	Dak Song	Kong Chro	N13-38-33.48	E108-43-08.53	340	Seed	Farmer's garden	Green leaves, red stems
90	268673	COL/VIETNAM/2018/HARC/113	2018/9/4	Rau den	Thon 3	Tan Binh	Dak Doa	N13-59-39.11	E108-07-50.57	761	Seed	Farmer's garden	Green leaves, red stems

Table 4. Genetic resources of melon (*Cucumis melo* L.) collected in Vietnam in 2018

Sampling No.	JP No.	Cultivar name	Collection date (year/month/day)	Local name in Vietnam	Village or Market	Commune or Town	District	Latitude	Longitude	Altitude (m)	Type of samples	Sampling	Remark
1-1	268561	COL/VIETNAM/2018/HARC/001	2018/8/30	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farm field	Fruit has spherical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August
1-2	268562	COL/VIETNAM/2018/HARC/002	2018/8/30	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farm field	Fruit has spherical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August
1-3	268563	COL/VIETNAM/2018/HARC/003	2018/8/30	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farm field	Fruit has spherical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August
1-4	268564	COL/VIETNAM/2018/HARC/004	2018/8/30	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farm field	Fruit has spherical shape. It has a yellow skin and white stripes. Sowing in April, and harvesting in August
1-5	268565	COL/VIETNAM/2018/HARC/005	2018/8/30	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farm field	Fruit has spherical shape. It has a yellow skin and white stripes. Sowing in April, and harvesting in August
1-6	268566	COL/VIETNAM/2018/HARC/006	2018/8/30	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farm field	Fruit has spherical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August
3	268568	COL/VIETNAM/2018/HARC/008	2018/8/30	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farm field	Fruit is cylindrical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August
4-1	268569	COL/VIETNAM/2018/HARC/009	2018/8/30	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farm field	Fruit is cylindrical shape. It has a yellow skin and white stripes. Sowing in April, and harvesting in August
4-2	268570	COL/VIETNAM/2018/HARC/010	2018/8/30	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farm field	Fruit is cylindrical shape. It has a yellow skin and white stripes. Sowing in April, and harvesting in August
5	268571	COL/VIETNAM/2018/HARC/011	2018/8/30	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farm field	Fruit has spherical shape. It has a white skin. Sowing in April, and harvesting in August
13	268579	COL/VIETNAM/2018/HARC/019	2018/8/28	To mun	Mlah	Chu' Gu	Krong Pa	N13-15-29.22	E108-55-29.35	119	Seed	Farmer's warehouse	
19	268585	COL/VIETNAM/2018/HARC/025	2018/8/28	To mun	No 13	la Mlah	Krong Pa	N13-13-44.31	E108-45-00.31	120	Seed	Farmer's warehouse	
20-1	268586	COL/VIETNAM/2018/HARC/026	2018/8/28	To mun	No 13	la Mlah	Krong Pa	N13-13-44.31	E108-45-00.31	120	Fruit	Farmer's warehouse	Fruit is conical shape. It has a yellow skin and white stripes.
20-2	268587	COL/VIETNAM/2018/HARC/027	2018/8/28	To mun	No 13	la Mlah	Krong Pa	N13-13-44.31	E108-45-00.31	120	Fruit	Farmer's warehouse	Fruit is conical shape. It has a green skin and white stripes.
26	268594	COL/VIETNAM/2018/HARC/034	2018/8/29	To mun	Noo Be	la Rsuom	Krong Pa	N13-20-24.51	E108-32-03.91	127	Seed	Farmer's warehouse	
29-1	268597	COL/VIETNAM/2018/HARC/037	2018/8/29	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farmer's warehouse	Fruit is cylindrical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August
29-2	268598	COL/VIETNAM/2018/HARC/038	2018/8/29	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farmer's warehouse	Fruit is cylindrical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August
29-3	268599	COL/VIETNAM/2018/HARC/039	2018/8/29	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farmer's warehouse	Fruit is cylindrical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August
29-4	268600	COL/VIETNAM/2018/HARC/040	2018/8/29	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farmer's warehouse	Fruit is cylindrical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August
30-1	268601	COL/VIETNAM/2018/HARC/041	2018/8/29	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farmer's warehouse	Fruit is cylindrical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August
30-2	268602	COL/VIETNAM/2018/HARC/042	2018/8/29	To mun	Y	Chu' Rcam	Krong Pa	N13-19-04.78	E108-36-20.75	134	Fruit	Farmer's warehouse	Fruit is cylindrical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August

Table 4. (Continued).

Sampling No.	JP No.	Cultivar name	Collection date (year/month/day)	Local name in Vietnam	Village or Market	Commune or Town	District	Latitude	Longitude	Altitude (m)	Type of samples	Sampling	Remark
48	268620	COL/VIETNAM/2018/HARC/060	2018/8/31	Pia	Lang T	An Trung	Kong Chro	N13-46-38.62	E108-31-28.28	350	Fruit	Farmer's warehouse	Fruit is cylindrical shape. It has a green skin and white stripes.
50-1	268622	COL/VIETNAM/2018/HARC/062	2018/8/31	Pia	Lang T	An Trung	Kong Chro	N13-46-38.62	E108-31-28.28	350	Fruit	Local market	Fruit is cylindrical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August
50-2	268623	COL/VIETNAM/2018/HARC/063	2018/8/31	Pia	Lang T	An Trung	Kong Chro	N13-46-38.62	E108-31-28.28	350	Fruit	Local market	Fruit is cylindrical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August
52	268625	COL/VIETNAM/2018/HARC/065	2018/8/31	Pia	Mang	Ya Ma	Kong Chro	N13-46-19.50	E108-33-12.18	340	Seed	Farmer's warehouse	
61	268634	COL/VIETNAM/2018/HARC/074	2018/9/1	Pia	Cuoc	Sro	Kong Chro	N13-41-02.25	E108-39-30.18	342	Seed	Farm field	
65	268638	COL/VIETNAM/2018/HARC/078	2018/9/1	Pya pong	Kte	Dak Song	Kong Chro	N13-38-33.48	E108-43-08.53	340	Seed	Farmer's warehouse	
75	268648	COL/VIETNAM/2018/HARC/088	2018/9/2	To mun	Km1	Yang Nam	Kong Chro	N13-40-27.07	E108-30-11.95	333	Seed	Farmer's warehouse	
76-1	268649	COL/VIETNAM/2018/HARC/089	2018/9/2	To mun	Ya ma lon	Yang Nam	Kong Chro	N13-40-27.07	E108-30-11.95	333	Fruit	Farmer's warehouse	Fruit is cylindrical shape. It has a white skin. Sowing in April, and harvesting in August
76-2	268650	COL/VIETNAM/2018/HARC/090	2018/9/2	To mun	Ya ma lon	Yang Nam	Kong Chro	N13-40-27.07	E108-30-11.95	333	Fruit	Farmer's warehouse	Fruit is cylindrical shape. It has a white skin. Sowing in April, and harvesting in August
76-3	268651	COL/VIETNAM/2018/HARC/091	2018/9/2	To mun	Ya ma lon	Yang Nam	Kong Chro	N13-40-27.07	E108-30-11.95	333	Fruit	Farmer's warehouse	Fruit is cylindrical shape. It has a white skin. Sowing in April, and harvesting in August
81-1	268656	COL/VIETNAM/2018/HARC/096	2018/9/3	Pja pong	Hlang	Hnol	Dak Doa	N13-56-58.98	E108-13-12.20	669	Fruit	Farm field	Fruit has spherical shape. It has a yellow skin and white stripes. Sowing in April, and harvesting in August
81-2	268657	COL/VIETNAM/2018/HARC/097	2018/9/3	Pja pong	Hlang	Hnol	Dak Doa	N13-56-58.98	E108-13-12.20	669	Fruit	Farm field	Fruit has spherical shape. It has a yellow skin and white stripes. Sowing in April, and harvesting in August

Table 5. Genetic resources of cucumber (*Cucumis sativus* L.) collected in Vietnam in 2018

Sampling No.	JP No.	Cultivar name	Collection date (year/month/day)	Local name in Vietnam	Village or Market	Commune or Town	District	Latitude	Longitude	Altitude (m)	Type of samples	Sampling	Remark
27	268595	COL/VIETNAM/2018/HARC/035	2018/8/29	To mun tuk	Ju	la Rsuom	Krong Pa	N13-19-06.14	E108-35-28.89	130	Seed	Farmer's warehouse	This is reported to be a cucumber
87-1	268664	COL/VIETNAM/2018/HARC/104	2018/9/3	Ja dak	Hlang	Hnol	Dak Doa	N13-56-28.59	E108-12-38.98	670	Fruit	Farm field	Fruit is ellipsoid shape. It has a white skin. Sowing in April, and harvesting in August
87-3	268665	COL/VIETNAM/2018/HARC/105	2018/9/3	Ja dak	Hlang	Hnol	Dak Doa	N13-56-28.59	E108-12-38.98	670	Fruit	Farm field	Fruit is ellipsoid shape. It has a green skin. Sowing in April, and harvesting in August
87-4	268666	COL/VIETNAM/2018/HARC/106	2018/9/3	Ja dak	Hlang	Hnol	Dak Doa	N13-56-28.59	E108-12-38.98	670	Fruit	Farm field	Fruit is ellipsoid shape. It has a yellow skin. Sowing in April, and harvesting in August
87-5	268667	COL/VIETNAM/2018/HARC/107	2018/9/3	Ja dak	Hlang	Hnol	Dak Doa	N13-56-28.59	E108-12-38.98	670	Fruit	Farm field	Fruit is ellipsoid shape. It has a yellow skin. Sowing in April, and harvesting in August
87-6	268668	COL/VIETNAM/2018/HARC/108	2018/9/3	Ja dak	Hlang	Hnol	Dak Doa	N13-56-28.59	E108-12-38.98	670	Fruit	Farm field	Fruit is ellipsoid shape. It has a yellow skin. Sowing in April, and harvesting in August
87-7	268669	COL/VIETNAM/2018/HARC/109	2018/9/3	Ja dak	Hlang	Hnol	Dak Doa	N13-56-28.59	E108-12-38.98	670	Fruit	Farm field	Fruit is ellipsoid shape. It has a green skin. Sowing in April, and harvesting in August
88	268670	COL/VIETNAM/2018/HARC/110	2018/9/4	Pya dak	Kon Mah Hor	Ha Dong	Dak Doa	N14-16-34.85	E108-14-29.03	886	Fruit	Farm field	Fruit is cylindrical shape. It has a green skin and white stripes. Sowing in April, and harvesting in August
89-1	268671	COL/VIETNAM/2018/HARC/111	2018/9/4	Pya dak	Kon Mah Hor	Ha Dong	Dak Doa	N14-16-34.85	E108-14-29.03	886	Fruit	Farm field	Fruit is cylindrical shape. It has a white skin. Sowing in April, and harvesting in August
89-2	268672	COL/VIETNAM/2018/HARC/112	2018/9/4	Pya dak	Kon Mah Hor	Ha Dong	Dak Doa	N14-16-34.85	E108-14-29.03	886	Fruit	Farm field	Fruit is cylindrical shape. It has a white skin. Sowing in April, and harvesting in August

Table 6. Genetic resources of squash (*Cucurbita moschata* Duch.) collected in Vietnam in 2018

Sampling No.	JP No.	Cultivar name	Collection date (year/month/day)	Local name in Vietnam	Village or Market	Commune or Town	District	Latitude	Longitude	Altitude (m)	Type of samples	Sampling	Remark
6	268572	COL/VIETNAM/2018/HARC/012	2018/8/28	Bi do	Tan O	Chu' Se town	Krong Pa	N13-41-31.37	E108-04-41.00	537	Fruit	Local market	Fruit is discoidal shape. It has a green skin. Sowing in May, and harvesting in August
12	268578	COL/VIETNAM/2018/HARC/018	2018/8/28	Ploi	Mlah	Phu Can	Krong Pa	N13-15-29.22	E108-55-29.35	119	Fruit	Farmer's warehouse	Fruit is discoidal shape. It has a light brown skin, brown spots. Sowing in May, and harvesting in August
16	268582	COL/VIETNAM/2018/HARC/022	2018/8/28	Ploi	No 13	la Mlah	Krong Pa	N13-13-01.33	E108-42-36.41	120	Fruit	Farmer's warehouse	Fruit is cylindrical shape. It has a green skin and brown stripes. Sowing in May, and harvesting in August
17	268583	COL/VIETNAM/2018/HARC/023	2018/8/28	Ploi	No 13	la Mlah	Krong Pa	N13-13-01.33	E108-42-36.41	120	Fruit	Farmer's warehouse	Fruit shape is discoidal shape. It has a brown skin and light brown spots. Sowing in May, and harvesting in August
18	268584	COL/VIETNAM/2018/HARC/024	2018/8/28	Ploi	No 13	la Mlah	Krong Pa	N13-13-01.33	E108-42-36.41	120	Fruit	Farmer's warehouse	Fruit shape is discoidal shape. It has a green skin and brown spots. Sowing in May, and harvesting in August
25-1	268592	COL/VIETNAM/2018/HARC/032	2018/8/29	Ploi	Noo Be	la RSuom	Krong Pa	N13-20-24.51	E108-32-03.91	127	Fruit	Farmer's warehouse	Fruit shape is discoidal shape. It has a green skin and brown spots. Sowing in May, and harvesting in August
25-2	268593	COL/VIETNAM/2018/HARC/033	2018/8/29	Ploi	Noo Be	la RSuom	Krong Pa	N13-20-24.51	E108-32-03.91	127	Fruit	Farmer's warehouse	Fruit shape is discoidal shape. It has a green skin and brown spots.
35	268607	COL/VIETNAM/2018/HARC/047	2018/8/30	Ploi	Phu Tuc market	Phu Tuc town	Krong Pa	N13-11-49.55	E108-41-05.30	130	Fruit	Local market	Fruit shape is ellipsoid. It has a brown skin and light brown spots. Sowing in May, and harvesting in August
36	268608	COL/VIETNAM/2018/HARC/048	2018/8/30	Ploi	Phu Tuc market	Phu Tuc town	Krong Pa	N13-11-49.55	E108-41-05.30	130	Fruit	Local market	Fruit shape is ovoid. It has a dark brown skin and brown spots. Sowing in May, and harvesting in August
37	268609	COL/VIETNAM/2018/HARC/049	2018/8/30	Ploi	Phu Tuc market	Phu Tuc town	Krong Pa	N13-11-49.55	E108-41-05.30	130	Fruit	Local market	Fruit shape is spherical. It has a dark yellow skin and brown spots. Sowing in May, and harvesting in August
40	268612	COL/VIETNAM/2018/HARC/052	2018/8/30	Ploi	Thuc	Chu' Ngoc	Krong Pa	N13-08-24.82	E108-46-12.52	135	Seed	Farmer's warehouse	
55	268628	COL/VIETNAM/2018/HARC/068	2018/9/1	Puol	Mang	Ya Ma	Kong Chro	N13-46-19.50	E108-33-12.18	340	Fruit	Farmer's warehouse	Fruit shape is cylindrical. It has a brown skin. Sowing in April, and harvesting in July
56	268629	COL/VIETNAM/2018/HARC/069	2018/9/1	Puol	Mang	Ya Ma	Kong Chro	N13-45-35.21	E108-34-36.24	330	Seed	Farmer's warehouse	
58	268631	COL/VIETNAM/2018/HARC/071	2018/9/1	Puol	Mang	Ya Ma	Kong Chro	N13-45-35.21	E108-34-36.24	330	Fruit	Farmer's warehouse	Fruit shape is ovoid. It has a green skin and brown spots. Sowing in April, and harvesting in July
64	268637	COL/VIETNAM/2018/HARC/077	2018/9/1	Puol	Bo Yo	SRo	Kong Chro	N13-41-02.25	E108-39-30.18	342	Fruit	Farmer's warehouse	Fruit shape is heart-shape. It has a green skin and brown spots.
66	268639	COL/VIETNAM/2018/HARC/079	2018/9/1	Puol	Kte	Dak Song	Kong Chro	N13-38-33.48	E108-43-08.53	340	Seed	Farmer's warehouse	
72	268645	COL/VIETNAM/2018/HARC/085	2018/9/1	Puol	Pro Ba	An Trung	Kong Chro	N13-48-38.49	E108-30-23.73	360	Fruit	Farmer's warehouse	Fruit shape is discoidal. It has a brown skin and light brown spots. Sowing in May, and harvesting in August
77	268652	COL/VIETNAM/2018/HARC/092	2018/9/2	Puol	Ya ma lon	Yang Nam	Kong Chro	N13-46-44.88	E108-33-01.06	342	Fruit	Farmer's warehouse	Fruit shape is ovoid. It has a brown skin and light brown spots. Sowing in May, and harvesting in August
79	268654	COL/VIETNAM/2018/HARC/094	2018/9/2	Puol	Ya ma lon	Yang Nam	Kong Chro	N13-46-44.88	E108-33-01.06	342	Seed	Farmer's warehouse	
82	268658	COL/VIETNAM/2018/HARC/098	2018/9/3	Tol	Hlang	Hnol	Dak Doa	N13-56-47.86	E108-13-18.84	674	Fruit	Farm field	Fruit shape is dumbbell. It hasa green skin and brown spots. Sowing in May, and harvesting in August
83-1	268659	COL/VIETNAM/2018/HARC/099	2018/9/3	Tol	Hlang	Hnol	Dak Doa	N13-56-47.86	E108-13-18.84	674	Fruit	Farm field	Fruit shape is ovoid. It has a green skin and brown spots. Sowing in May, and harvesting in August
83-2	268660	COL/VIETNAM/2018/HARC/100	2018/9/3	Tol	Hlang	Hnol	Dak Doa	N13-56-47.86	E108-13-18.84	674	Fruit	Farm field	Fruit shape is ovoid. It has a brown skin and spots. Sowing in May, and harvesting in August

Table 6. (Continued).

Sampling No.	JP No.	Cultivar name	Collection date (year/month/day)	Local name in Vietnam	Village or Market	Commune or Town	District	Latitude	Longitude	Altitude (m)	Type of samples	Sampling	Remark
84	268661	COL/VIETNAM/2018/HARC/101	2018/9/3	Tol	Hlang	Hnol	Dak Doa	N13-56-47.86	E108-13-18.84	674	Fruit	Farm field	Fruit shape is dumbbell. It has a green skin and brown spots. Sowing in May, and harvesting in August
85	268662	COL/VIETNAM/2018/HARC/102	2018/9/3	Tol	Hlang	Hnol	Dak Doa	N13-56-47.86	E108-13-18.84	674	Fruit	Farm field	Fruit shape is dumbbell. It has a green skin and brown spots. Sowing in May, and harvesting in August
86	268663	COL/VIETNAM/2018/HARC/103	2018/9/3	Tol	Hlang	Hnol	Dak Doa	N13-56-47.86	E108-13-18.84	674	Fruit	Farm field	Fruit shape is discoidal. It has a green skin and brown spots. Sowing in May, and harvesting in August

Table 7. Genetic resources of chili pepper (*Capsicum* sp.) collected in Vietnam in 2018

Sampling No.	JP No.	Cultivar name	Collection date (year/month/day)	Local name in Vietnam	Village or Market	Commune or Town	District	Latitude	Longitude	Altitude (m)	Type of samples	Sampling	Remark
2	268567	COL/VIETNAM/2018/HARC/007	2018/8/27	Ot chi thien	Ron market		Pleiku City	N13-58-40.30	E107-59-48.2	779	Fruit	Local market	Annual plant; Sowing in April, and harvesting in August
10	268576	COL/VIETNAM/2018/HARC/016	2018/8/28	Amach tet	Dong Hung	Phu Can	Krong Pa	N13-11-10.97	E108-40-53.01	129	Fruit	Farm field	Annual plant; Sowing in April, and harvesting in August
24	268591	COL/VIETNAM/2018/HARC/031	2018/8/29	Amach tet	Phum J	la Rsuom	Krong Pa	N13-20-24.51	E108-32-03.91	127	Fruit	Farm field	Annual plant; Sowing in April, and harvesting in August
34	268606	COL/VIETNAM/2018/HARC/046	2018/8/29	Amach tet	Chu' Rcam market	Chu' Rcam	Krong Pa	N13-18-18.94	E108-36-04.38	130	Fruit	Local market	Annual plant; Sowing in April, and harvesting in August
39	268611	COL/VIETNAM/2018/HARC/051	2018/8/30	Amach tet	Group 8	Phu Tuc town	Krong Pa	N13-12-21.88	E108-40-56.69	128	Fruit	Farm field	Annual plant; Sowing in April, and harvesting in August
70	268643	COL/VIETNAM/2018/HARC/083	2018/9/1	A Amre Ngeng	Kte	Dak Song	Kong Chro	N13-38-33.48	E108-43-08.53	340	Fruit	Farm field	Perennial plant
73	268646	COL/VIETNAM/2018/HARC/086	2018/9/1	Amre	Pro Ba	An Trung	Kong Chro	N13-48-38.49	E108-30-23.73	360	Fruit	Farm field	Perennial plant

Table 8. Genetic resources of eggplant (*Solanum* sp.) collected in Vietnam in 2018

Sampling No.	JP No.	Cultivar name	Collection date (year/month/day)	Local name in Vietnam	Village or Market	Commune or Town	District	Latitude	Longitude	Altitude (m)	Type of samples	Sampling	Remark
14	268580	COL/VIETNAM/2018/HARC/020	2018/8/28	To rong	Mlah	Phu Can	Krong Pa	N13-15-29.22	E108-55-29.35	119	Fruit	Farmer's warehouse	Fruit is spherical shape. It has a yellow skin. Sowing in March and harvesting in August
21	268588	COL/VIETNAM/2018/HARC/028	2018/8/29	To rong	Phum J	la Rsuom	Krong Pa	N13-20-24.51	E108-32-03.91	148	Fruit	Farmer's warehouse	Fruit is spherical shape.It has a yellow skin. Sowing in March and harvesting in August
22	268589	COL/VIETNAM/2018/HARC/029	2018/8/29	To rong	Phum J	la RSuom	Krong Pa	N13-20-24.51	E108-32-03.91	148	Fruit	Farmer's warehouse	Fruit is spherical shape. It has a has yellow skin. Sowing in March and harvesting in August
23	268590	COL/VIETNAM/2018/HARC/030	2018/8/29	Ca nuc	Phum J	la RSuom	Krong Pa	N13-20-24.51	E108-32-03.91	148	Fruit	Farmer's warehouse	Fruit is spherical shape. It a has purple skin. Sowing in March and harvesting in August
28	268596	COL/VIETNAM/2018/HARC/036	2018/8/29	Ca nuc	Ju	Chu' Rcam	Krong Pa	N13-19-14.12	E108-36-22.94	139	Fruit	Farmer's warehouse	Fruit is spherical shape. It has a purple skin. Sowing in March and harvesting in August
43	268615	COL/VIETNAM/2018/HARC/055	2018/8/31	Pro	Hle Hlang	Yang Trung	Kong Chro	N13-47-37.58	E108-30-08.93	346	Fruit	Farmer's warehouse	Fruit is spherical shape. It has a purple skin. It has spains on the buds and stems.They are used as soup ingredients.
51	268624	COL/VIETNAM/2018/HARC/064	2018/8/31	Pro	Mang	Ya Ma	Kong Chro	N13-46-19.50	E108-33-12.18	340	Fruit	Farmer's warehouse	Fruit is spherical shape. It has a yellow skin. Perennial plant
54	268627	COL/VIETNAM/2018/HARC/067	2018/9/1	Pro	Mang	Ya Ma	Kong Chro	N13-46-19.50	E108-33-12.18	340	Fruit	Farmer's warehouse	Fruit is spherical shape. It has a yellow skin. Perennial plant
60	268633	COL/VIETNAM/2018/HARC/073	2018/9/1	Pro	Nhang Lon	Dak Ko Ning	Kong Chro	N13-41-10.83	E108-37-19.16	345	Fruit	Farmer's warehouse	Fruit is spherical shape. It has a yellow skin. Perennial plant
67	268640	COL/VIETNAM/2018/HARC/080	2018/9/1	Pro	Kte	Dak Song	Kong Chro	N13-38-33.48	E108-43-08.53	340	Fruit	Farmer's warehouse	Fruit is spherical shape. It has a yellow skin. Perennial plant

Table 9. Genetic resources of other plant species collected in Vietnam in 2018

Sampling number	JP number	Cultivar name	Scientific name	Plant name	Collection date (year/month/day)	Local name in Vietnam	Village	Commune or Town	District	Latitude	Longitude	Altitude (m)	Type of samples	Sampling
38	268610	COL/VIETNAM/2018/HARC/050	*Momordica charantia* L.	Bitter melon	2018/8/30	Kho qua rung	Group 8	Phu Tuc town	Krong Pa	N13-12-21.88	E108-40-56.69	128	Fruit	Farm field
41	268613	COL/VIETNAM/2018/HARC/053	*Sorghum bicolor* (L.) Moench ssp. *bicolor*	Sorghum	2018/8/31	Jui	Hle Hlang	Yang Trung	Krong Pa	N13-47-34.38	E108-30-15.27	350	Grain	Farm field
42	268614	COL/VIETNAM/2018/HARC/054	*Lablab purpureus* (L.) Sweet	Lablab bean	2018/8/31	Xlak	Hle Hlang	Yang Trung	Krong Pa	N13-47-34.38	E108-30-15.27	350	Grain	Farm field
47	268619	COL/VIETNAM/2018/HARC/059	*Momordica charantia* L.	Bitter melon	2018/8/31	Hla tang	Thon 6	An Trung	Krong Pa	N13-48-38.49	E108-30-23.73	360	Fruit	Farm field
49	268621	COL/VIETNAM/2018/HARC/061	*Benincasa hispida* Cogn.	Winter melon	2018/8/31	Bi dao	Lang T	An Trung	Kong Chro	N13-46-38.62	E108-31-28.28	350	Fruit	Local market
53	268626	COL/VIETNAM/2018/HARC/066	*Citrullus lanatus* (Thunb.) Matsum. et Nakai	Water melon	2018/8/31	Mcai	Mang	Ya Ma	Krong Pa	N13-46-19.50	E108-33-12.18	340	Seed	Farmer's warehouse
57	268630	COL/VIETNAM/2018/HARC/070	*Benincasa hispida* (Thunb.) Cogn.	Winter melon	2018/9/1	Po lang	Mang	Ya Ma	Kong Chro	N13-45-35.21	E108-34-36.24	330	Seed	Farmer's warehouse
59	268632	COL/VIETNAM/2018/HARC/072	*Coccinia* sp.		2018/9/1	Luc bat	Tnung 2	Ya Ma	Kong Chro	N13-45-46.83	E108-33-27.23	335	Fruit	Farm field
71	268644	COL/VIETNAM/2018/HARC/084	*Solanum lycopersicum* L.	Tomato	2018/9/1	Ca chua bi	Kte	Dak Song	Krong Pa	N13-39-56.22	E108-42-27.18	338	Fruit	Farmer's garden
74	268647	COL/VIETNAM/2018/HARC/087	*Citrullus lanatus* (Thunb.) Matsum. et Nakai	Water melon	2018/9/2	Pkai	Km1	Yang Nam	Krong Pa	N13-40-27.07	E108-30-11.95	333	Seed	Farmer's warehouse
78	268653	COL/VIETNAM/2018/HARC/093	*Citrullus lanatus* (Thunb.) Matsum. et Nakai	Water melon	2018/9/2	Mcai Mong	Km1	Yang Nam	Krong Pa	N13-46-44.88	E108-33-01.06	342	Seed	Farmer's warehouse
80	268655	COL/VIETNAM/2018/HARC/095	*Trichosanthes* sp.		2018/9/3	Rbang	Hlang	Hnol	Dak Doa	N13-56-58.98	E108-13-12.20	669	Fruit	Farm field

Photo 1. Ron Market in Pleiku City

Photo 2. Interviewing local people in No. 13 village, la Mlah commune, Krong Pa district

Photo 3. No. 7 amaranths plant in Dong Hung village, Phu Can commune, Krong Pa district

Photo 4. No. 1 melon fruits cultivated at a farmer`s garden, Y village, Chu' Rcam commune, Krong Pa district

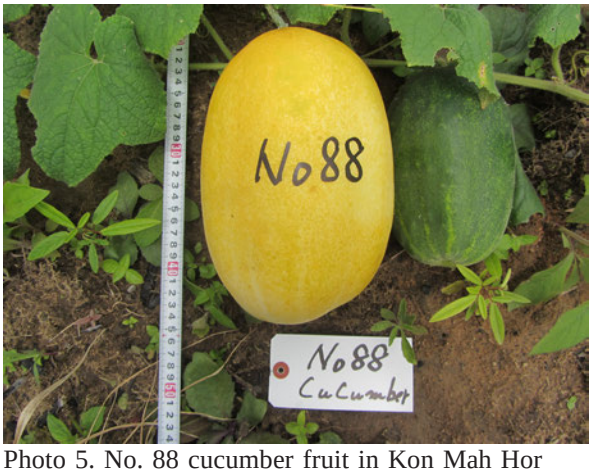

Photo 5. No. 88 cucumber fruit in Kon Mah Hor village, Ha Dong commune, Dak Doa district

Photo 6. Young shoots and leaves of squash (*Cucurbita moschata*) purchased at Ron market, Pleiku City

Photo 7. A cut squash fruit of No. 86 in Hlang village, Hnol commune, Dak Doa district

Photo 8. Squash plants cultivated with rice in Kon Mah Hor village, Ha Dong commune, Dak Doa district

Photo 9. No. 2 chili pepper fruits purchased at Ron market, Pleiku City

Photo 10. No. 14 eggplant fruits in Mlah village, Phu Can commune, Krong Pa district

Photo 11. No.59 fruits assumed to be *Coccinia* sp. in Tnung 2 village, Ya Ma commune, Kong Chro district

Photo 12. A mature fruit and flowers of No. 38 bitter melon in Group 8 village, Phu Tuc town, Krong Pa district