

**EU support to maintaining the content and enhancing  
the EPPO Code content and system to meet new EU  
and global needs**

**Final Report**

**Agreement number - SANTE/2018/G5/EPPO/SI2.793173**

**Duration: 36 months (2018-12-11 to 2021-12-10)**

**Maximum budget: 150 000 EUR**



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# Final Report

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## 1. SHORT DESCRIPTION OF THE ACTION

Since 1997, EPPO has been maintaining in a database a set of five and six letter codes for plants of importance in agriculture and trade, and for plant pests. Codes are available for over 94 000 plant and pest species with over 490 000 common names in more than 80 languages (as of December 2021), in addition to the preferred scientific name and synonyms. Codes are not deleted, nor are the meanings changed retrospectively, so they provide a degree of stability for long term databases, even when the name or taxonomic relationships of an organism are changed by new scientific studies.

The Codes were originally developed by Bayer in the 1970s and are still used by phytopharmaceutical companies and regulators in the plant protection products area, including the EU. EPPO Codes are increasingly needed for other applications such as electronic phytosanitary certificates, and notifications of non-compliance following inspection of imported consignments. An increasing number of additional Codes are requested by the EU and EU stakeholders to meet these needs, as well as by other EPPO Code users (e.g. IPPC, CABI, phytopharmaceutical industry, NPPOs).

The Codes are publicly available in the EPPO Global Database (GD), and since 2014, at the explicit request of the EU Commission, Codes have been made an 'open-data' system. Because Codes are free access, there is no possibility for EPPO to charge users of the Codes. An EU contribution was therefore requested to enable the enhancement of the EPPO Code system to meet a number of new needs, both within the EU and globally. As a result, a first grant agreement for a one-year period (SANTE/2017/GS/EPPO/S12.768842) was signed between EPPO and the European Commission on the 15<sup>th</sup> of December 2017. The current grant agreement (SANTE/2018/G5/EPPO/SI2.793173) was signed between EPPO and the European Commission on the 10<sup>th</sup> of December 2018 for a 36 month-period and is in many ways a continuation of the first one.

The main objective of this action is to enhance the EPPO Code System so that it better meets the new EU and global needs. The action also aims to achieve the following more specific objectives:

- Creation of new EPPO Codes
- Enhancement of the EPPO Data Services (<https://data.eppo.int/>)
- Enhancement of the search and display facilities in the EPPO Global Database
- Development of a better communication between the EPPO Secretariat and the users of the EPPO Codes

## 2. CREATION OF NEW EPPO CODES

### 2.1 Methodology followed for the creation of new EPPO Codes

The creation of new Codes goes well beyond the simple creation of a combination of 5-6 letters, and differs between taxonomic and non-taxonomic Codes:

- Taxonomic Codes: the EPPO Secretariat verifies that the taxon does not already exist in the database under another name. The validity of the taxon has to be verified and detailed information should be gathered on its preferred scientific name with authority(ies), synonyms, common names, and taxonomic position. Consultation of taxonomic publications and websites is always requested. In some cases, taxonomic confusion may render this exercise more complicated than initially thought. It may also lead to changes of content for existing Codes due to recent taxonomic changes reflected in the scientific literature and taxonomic databases (e.g. new preferred name, new taxonomic classification), and to deactivations of Codes.

Consideration of the taxonomic position of one species may also lead to changes to the existing taxonomic tree at higher levels (e.g. genera, family, even up to class) and commonly to reclassification of many genera and species that are already in Global Database.

- Non-taxonomic Codes: as the EPPO harmonized classification and coding of the uses of plant protection products has been developed by the EPPO Panel on harmonization of data on plant protection products, requests for non-taxonomic Codes are reviewed by this Panel. As it meets only once a year, a fast-track procedure has been elaborated to better meet the needs of the users.

More details about the creation of new Codes can be found in a presentation made in 2021: [https://www.eppo.int/media/uploaded\\_images/MEETINGS/Meetings\\_2021/webinar/02\\_EPPO\\_Codes\\_2021\\_ASR\\_VL.pdf](https://www.eppo.int/media/uploaded_images/MEETINGS/Meetings_2021/webinar/02_EPPO_Codes_2021_ASR_VL.pdf)

## 2.2 Tools developed to record the number of Codes created

In order to calculate the number of new Codes created within a given period of time, basic statistic and administration tools were already in place in the EPPO Global Database, but additional ones have been developed to answer the particular needs of this project, i.e. to manage long lists of requests for new Codes or develop specific queries and control tools.

## 2.3 Numbers of new Codes created

During this three-year project, the following numbers of new Codes were created (see Appendix 1 and Excel file).

1 year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	Total
<b>4 323</b>	<b>4 997</b>	<b>4 518</b>	<b>13 838</b>

These new Codes were created:

- to answer specific requests made by NPPOs;
- to answer specific requests made by the European Commission;
- to answer the needs of the phytopharmaceutical industry;
- to answer the needs of the Minor Uses Coordination Facility (MUCF), and the EPPO harmonized classification of Plant Protection Products (PPPs) uses;
- to answer particular needs expressed by users (e.g. for tropical weeds, seed-borne pathogens, *Colletotrichum* species);
- to answer the needs of the EPPO Secretariat (e.g. to index the EPPO Reporting Service articles; to improve lists of host plants of regulated pests; to cover all biological control agents included in the EPPO Standard PM 6/3(4) *List of biological control agents widely used in the EPPO region* or all pests mentioned in the EPPO Standards on Diagnostics (PM 7 series); to add pests mentioned in the EPPO Study on bark and ambrosia beetles on non-coniferous wood; to add species from a recent international list of commercial timber tree species; to add species of cacti that are traded; to use recent reviews of taxonomic groups to update the content of Global Database; to add pests mentioned in the lists of quarantine pests of various countries; to add pests covered in the EPPO Q-bank Database (e.g. fungi, Tephritidae)..

**Note:** the creation of new codes represents only part of the time the EPPO Secretariat is spending on the coding system. Significant efforts are also made to follow taxonomic changes (i.e. changes in nomenclature and classification for species already in EPPO Global Database), to add authorities when they are missing, to verify the absence of duplicates, and to add common names in different languages.

### 3. ANSWERS TO SPECIFIC REQUESTS OR NEEDS

#### 3.1 EUROPHYT

The following 9 requests for new Codes have been made by the Europhyt-Interception team in 2019 and 2020 (none in 2021):

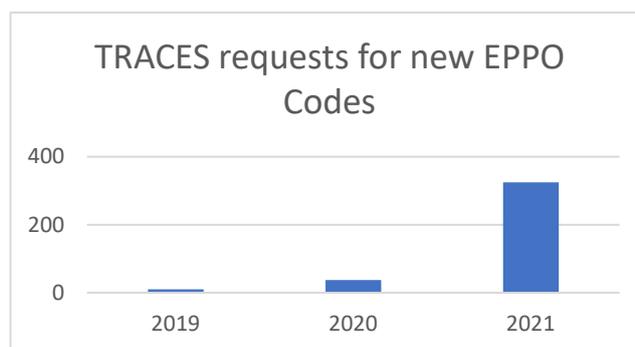
Pest names	EPPO Codes	Year
<i>Chrysobothris quadriimpressa</i>	CHRBQU	2019
<i>Chrysobothris sexsignata</i>	CHRBSX	2019
<i>Gaphisurus fasciatus</i>	GRFSFA	2019
<i>Leptostylus transversus</i>	LSTYTR	2019
<i>Macrochenus guerinii</i>	MCCHGU	2019
<i>Momordica hispida</i> (= <i>M. dioica</i> , <i>M. tuberosa</i> )	MONTU	2019
<i>Silvanoprus fagi</i>	SILVFA	2019
<i>Chariessa pilosa</i>	CRSAPI	2020
<i>Minthea squamigera</i>	MINTSQ	2020

#### 3.2 TRACES

##### 3.2.1 Requests from the TRACES team

Individual requests are regularly made by the TRACES team, and as a result 373 new Codes (mainly for plant species) were created: 10 in 2019, 37 in 2020, and 325 in 2021.

It can be noted that a sharp increase occurred in 2021, most probably reflecting the wider use of TRACES by EU Member States (see Appendix 2).



##### 3.2.2 Requests from the Dutch NPPO in relation to TRACES

During the implementation phase of TRACES, the Dutch NPPO raised some concerns about the fact that the EPPO Coding system was still lacking many plant names when compared to their national IT systems, and also contained duplicated plant names (e.g. homonyms with different author's names or preferred name and synonyms of the same species covered by different EPPO Codes) which were creating confusion for their users. The EPPO Secretariat was made aware of this at the end of 2019 and discussions were immediately initiated with the Dutch NPPO. In 2020, a list of approximately 300 plant names was analyzed and missing Codes were created. In addition, the EPPO Secretariat developed new IT tools to detect duplicated names. A thorough analysis was made during the second semester of 2020 and all necessary corrections were made (i.e. removal of homonyms and deactivation of unnecessary codes). It is now planned to conduct regular 'cleaning operations' to avoid these duplications of names.

#### 3.3 PPPAMS

The EPPO Secretariat is in regular contact with the PPPAMS team in the European Commission, DG SANTE, and most of the work concerning the development of non-taxonomic Codes is done within the framework of the EPPO Panel on Harmonization of data on plant protection products and the Working Party on Plant Protection Products.

During the 10<sup>th</sup> Meeting of the Panel on Harmonization of data on plant protection products which took place in Brussels (2020-03-03/04), a practical demonstration of PPPAMS was made to all participants. This allowed the EPPO Secretariat and the Panel members to better understand how EPPO Codes (both taxonomic and non-taxonomic) are being used in the database. In October 2020, a useful teleconference was held between the PPPAMS team and the EPPO Secretariat to discuss the practical use of EPPO Codes in PPPAMS. The aim of this teleconference was also to reflect on possible technical solutions to solve difficulties encountered in PPPAMS when using non-taxonomic codes that are not part of the new EPPO harmonized classification of plant protection uses<sup>1</sup>. The EPPO Secretariat recommended again that the non-taxonomic codes which are not part of the EPPO classification of plant protection uses should not be made available to PPPAMS users and presented IT solutions on how to exclude these codes from PPPAMS.

### 3.4 List of Invasive Alien Species of Union concern

At its own initiative, the EPPO Secretariat decided to create Codes for all species included in the List of Invasive Alien Species of Union concern (EU Regulation 1143/2014<sup>2</sup>), as many animal species were not coded for. In addition, the complete EU list can now be obtained and viewed from the EPPO Global Database: <https://gd.eppo.int/rppo/EU/categorization>

List	Organism	Main type taxo	Year addition
IAS of Union concern	Acacia saligna	Plantae	2019
IAS of Union concern	Acridotheres tristis	Animalia	2019
IAS of Union concern	Ailanthus altissima	Plantae	2019
IAS of Union concern	Alopecurus aegyptiacus	Animalia	2017
IAS of Union concern	Alternanthera philoxeroides	Plantae	2017
IAS of Union concern	Andropogon virginicus	Plantae	2019
IAS of Union concern	Arthurdendylus triangulatus	Platyhelminthes	2019
IAS of Union concern	Asclepias syriaca	Plantae	2017
IAS of Union concern	Baccharis halimifolia	Plantae	2016
IAS of Union concern	Cabomba caroliniana	Plantae	2016
IAS of Union concern	Callosciurus erythraeus	Rodentia	2016
IAS of Union concern	Cardiospermum grandiflorum	Plantae	2019
IAS of Union concern	Cenchrus setaceus	Plantae	2017
IAS of Union concern	Cortaderia jubata	Plantae	2019
IAS of Union concern	Corvus splendens	Animalia	2016
IAS of Union concern	Ehrharta calycina	Plantae	2019

<sup>1</sup> These non-taxonomic Codes (e.g. NNNGG for cereal plants, NNNA for spice plants) have been created by Bayer and are still included in the EPPO Global Database (under a separate subgroup of Codes called 'Unclassified') because they might be useful to other users. However, some of these Codes may overlap with Codes specifically created for the new EPPO harmonized classification of plant protection products uses, such as NNNGG (cereal plants) with 3CERC (cereal crops), or NNNA (spice plants) with 3SPIC (spice crops).

<sup>2</sup> Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species

### 3.5 Transfer of Q-bank database to EPPO

Q-bank is a diagnostic database focusing on quarantine pests. It was originally created as part of a Dutch project, then it was further developed in the framework of the EU-funded project QBOL. At the end of the QBOL project, the database was financed by the Dutch Ministry of Economic Affairs from 2011 to 2019. In May 2019, the database was transferred to EPPO to secure its future development and maintenance. The database is now called EPPO-Q-bank (<https://qbank.eppo.int/>). It mainly contains DNA sequences for blasting, protocols for barcoding, and information on where to find biological material for diagnostic purposes. A unique feature of this EPPO database is that its contents are managed and maintained by 19 curators and not by the EPPO Secretariat. As in all other EPPO databases, EPPO Codes are used as a unique identifier for each taxon.

The transfer of Q-bank to EPPO in 2019 generated many requests for new Codes. More than 700 taxa had to be reviewed to see if new codes had to be created or if other modifications (changes in preferred names and synonyms or in the classification) were needed in GD. Many of these cases corresponded to look-alike organisms (as most quarantine pests are already coded for) for which DNA sequences were available in Q-bank. In 2021, a request was made by entomologist curators to create new Codes for more than 120 insect species (mainly fruit flies).

Specific IT tools were developed for the curators so that they could use 'temporary' codes (all starting by letter Z and followed by digits) for pests that are not yet included in the EPPO Code system and at the same time automatically inform by email the EPPO Secretariat that new Codes are needed. Once the new Code is ready, the temporary code is replaced by the EPPO Secretariat within a dedicated interface of EPPO-Q-Bank. The aim is to facilitate curator's work and avoid any unnecessary delays while they enter new data in EPPO-Q-bank.

### EPPO QBank Website

#### New temporary code

Temp code: Z00322  
latinname: Archibaccharis serratifolia  
author: (Kunth) S.F.Blake  
synonyms:  
taxopos: species; Archibaccharis  
references: <http://theplantlist.org/tpl1.1/record/gcc-133187>  
addinfos:

Please follow the link to replace the Temp Code to the EPPOCode: <https://qbank.eppo.int/admin/tmpcode2epPCODE?tempcode=Z00322>

Example of an email automatically generated by EPPO-Q-bank when temporary codes are used and new EPPO Codes are requested.



## EPPO-Q-bank

A database to support plant pest diagnostic activities

- My dashboard
- Messages
- Logout

Arthropods Bacteria Fungi Nematodes Phytoplasmas Plants Viruses and Viroids Blast against all Q-Bank sequences

### Temp code to EPPO Code

Temporary code

EPPOCode

Specific interface within EPPO-Q-bank to replace a temporary code by an EPPO Code.

### 3.6 Changes in taxonomy and nomenclature

With the increasing use of new molecular techniques and phylogenetic studies, biological classification is undergoing numerous modifications and it is a challenge for the EPPO Secretariat to follow changes that are taking place in all disciplines at a very rapid pace. When the EPPO Secretariat is informed of these changes (e.g. when studying scientific papers or via personal communications with experts), modifications are made to the database.

#### 3.6.1 How to apply the new nomenclature for fungi 'One fungus - One name' in GD?

In 2011, the 'International Code of Nomenclature for algae, fungi, and plants' was significantly changed during the XVIII International Botanical Congress in Melbourne (AU). In particular, it was agreed that in mycology, the use of separate names for asexual and sexual stages of fungi should no longer be permitted and as for other disciplines, each taxon should only have one name. This major revision, often called 'One fungus – One name', is a challenge for taxonomists who will have to review pleomorphic fungi and decide whether the different morphs described correspond to the same taxon, and decide which name should be kept (for genera, in most cases the oldest valid genus name will be chosen). It is also a challenge for database managers, the main difficulties for the EPPO Secretariat are to find the 'accepted' decisions about which genus names should be kept, and to reflect these changes in the EPPO Global Database.

For example, several fungi included in GD were previously placed under the genera *Guignardia* (sexual stages) and *Phyllosticta* (asexual stages). In order to follow the 'One fungus – One name', it was recently decided that *Phyllosticta* was the accepted genus name (and not *Guignardia*). As a consequence, most of the *Guignardia* species have been transferred into *Phyllosticta*. However, for some species previously attributed to *Guignardia*, it was not clear from the literature or from taxonomic databases (Mycobank, Index Fungorum) to which genus they should be attributed. The status of these species has not been clarified to date. For the moment, the EPPO Secretariat has decided to keep those species under 'Guignardia (rejected name)' with a note saying: '*Based on recent nomenclature changes (e.g. One fungus, One name), the name Phyllosticta was retained over Guignardia, and Guignardia is considered a synonym of Phyllosticta. However, the species that remain under Guignardia in EPPO Global Database have not been reallocated to Phyllosticta or other genera to date*'. In the future, it is hoped that adequate information will be found to allocate these remaining *Guignardia* species to the appropriate genus and deactivate the code for *Guignardia* (1GUICG), but this will probably take some time, or will never happen if these species are never included in studies allowing them to be reallocated to the proper genus.

In 2019, the EPPO Secretariat decided to start addressing the issue of 'one fungus – one name' by studying how the review could be performed for fungal families (e.g. Didymellaceae, Nectriaceae), or specific genera (e.g. *Phyllosticta*/*Guignardia*, *Stagonospora*/*Hendersonia*, *Monilinia*/*Monilia*, *Pochonia*, *Colletotrichum*/*Glomerella*, *Cytospora*/*Valsa*/*Leucostoma*, *Plagiostoma*/*Cryptodiaporthe*). Such review represents a major task. For each taxonomic group (genus or family), the current status of every genus or species in GD is reviewed, transfers or other changes are made, and uncertainties are expressed in notes. This type of review, starting with families containing major plant pathogenic genera/species was continued in 2020 and 2021 in a systematic manner, based on a list of all fungi taxa in GD, and will continue in the future but probably at a slower pace. In many cases, all families within orders were reviewed, for example Dothideales, Helotiales, Mycosphaerellales, Pleosporales or Venturiales. Because the taxonomy of fungi is a field with rapid progress, further adjustments will be necessary in the future.

### 3.6.2 Other taxonomic changes considered in GD

At its own initiative, the EPPO Secretariat decided to review in detail the classification of some pest or plant groups. These specific reviews generally lead to many synonymizations, transfers from one genus to another and addition of author's names when missing. The main difficulty in this type of exercise was to find suitable sources of reliable taxonomic information. Over the 3 year-project, the following specific topics were addressed:

- Extensive review of noctuids as these insects are no longer grouped under a single family 'Noctuidae', but have been reclassified into several families (e.g. Erebidae, Noctuidae sensu stricto, Nolidae, Notodontidae).
- Extensive review of the Curculionidae family (Coleoptera) and creation of subfamilies (e.g. Curculioninae, Platypodinae, Scolytinae) to move all genera and species to their currently accepted taxonomic position.
- Extensive review of the nematode classification.
- Review of the Eurytomidae family (Hymenoptera).
- Review of the *Formica* genus (Hymenoptera).
- Review of the Elsinoaceae family (Fungi)
- Review of the *Fusarium* genus (Fungi).
- Review of Pontederiaceae family (Plantae)
- Review of the genera *Fraxinus* and *Salix* (Plantae).
- Review of the Gammaproteobacteria.
- Use of the correct nomenclature for all 'Candidatus species' names (quotes are not well adapted to computer systems but this technical difficulty could be overcome).
- Addition of 16Sr groups and subgroups for 'Candidatus Phytoplasma spp.' in the notes.
- Apply changes made by the International Committee on Taxonomy of Viruses (ICTV) during the project period, in particular the introduction of new ranks in the classification in 2021 (e.g. realm, kingdom, phylum, class, order, family).

### 3.7 Host plant lists in GD and synergies with the revision of the EPPO datasheet project

For more than 1700 pests of regulatory interest, the EPPO Global Database provides lists of host plants. In order to be included in the database, EPPO Codes are of course necessary for all these plant species. In recent years and in the framework of PRA and regulatory activities, EPPO Panels have expressed the wish to have more exhaustive and more accurate lists of host plants. As a consequence and since 2019/2020, the EPPO Secretariat is making efforts to provide exhaustive lists with bibliographic sources for each host plant record. In addition, the host plant categories that are displayed in the EPPO Global Database have been simplified. As the database already contains more than 21 000 host plant records, this represents a major undertaking which cannot be completed within a short period of time. However, to accelerate this process, synergies have been developed with the revision of the EPPO datasheets on regulated pests (each datasheet contains a list of host plants that is now automatically generated by the EPPO Global Database). It can be recalled that in March 2020, a distinct project was launched to revise the EPPO datasheets on regulated pests. Although this project is covered by a separate grant agreement (SANTE/2020/G1/EPPO/SI2.823766), some activities overlap with the development and enhancement of the EPPO Codes. Recent activities on host plants have had the following consequences on the EPPO Codes and the EPPO Global Database:

- New EPPO Codes: for example, many new codes had to be created for wild host plants of fruit flies (*Anastrepha* spp., *Bactrocera* spp.) or for host plants of highly polyphagous pests (*Helicoverpa armigera*, *Tomato spotted wilt virus*, *Spodoptera frugiperda*).
- New database features a text field has been added to indicate bibliographic sources for individual host records and new categories of hosts have been implemented.

- New IT tools: database managers now have the possibility to inject bulk data on host plants to save time on data entry.

### 3.8 Quarantine lists

The EPPO Global Database contains quarantine lists for a limited number of countries (in the Categorization section), and the EPPO Secretariat has the objective to increase the database coverage. For most countries, quarantine lists include several hundreds of names of regulated pests. In particular for countries that are outside the EPPO region, some regulated pest's names may not be included in the database. The status of each missing name needs to be reviewed in detail: it may be a synonym of a species already in the database, a species for which a new code should be created, or a name that cannot be easily resolved by the EPPO Secretariat (e.g. a disease corresponding to several pathogens, a combination genus/species that cannot be found in the literature). As a result of this analysis, new EPPO Codes have to be created and changes made to the database (e.g. to add synonyms). In the EPPO Global Database, a new comment field has been inserted in the Categorization section to display lists of names that could not be resolved for the country concerned. During this project, the EPPO Secretariat has added or updated the quarantine lists of:

- |             |           |           |
|-------------|-----------|-----------|
| - Argentina | - Egypt   | - Morocco |
| - Brazil    | - EU      | - Tunisia |
| - Canada    | - Georgia | - Turkey  |
| - Chile     | - Jordan  | - Ukraine |
| - COSAVE    | - Mexico  |           |
| - EAEU      | - Moldova |           |

## 4. MEETINGS RELATED TO EPPO CODES

### 4.1 EPPO Codes Users webinars

In order to facilitate the communication between the EPPO Secretariat and the users of the EPPO Codes, webinars took place in 2019 and 2021. Due to the pandemic situation in 2020 and the workload of the EPPO Secretariat during the International Year of Plant Health, no webinar took place in 2020. These webinars are open to all interested EPPO Codes users. The objectives of these meetings are to explain how the Codes are maintained and developed by the EPPO Secretariat, to share experience among users and collect feed-back about possible future improvements of the coding system. All presentations made during these webinars are available from the EPPO website.

Topics presented at the 4<sup>th</sup> webinar, 2019-02-20 - attended by more than 70 participants.

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Opening and introduction to EPPO activities	Nico Horn, EPPO Director-General
EPPO Codes: an overview	Anne-Sophie Roy, EPPO
EPPO Global Database online tools (live demo)	Damien Griessinger, EPPO
EPPO Codes to describe uses of plant protection products	Valerio Lucchesi, EPPO
EPPO Codes: new developments in the framework of the EU grant agreement	Anne-Sophie Roy, EPPO
Usage of EPPO Codes in plant protection industry	Kristin Hanzlik, BASF (for ECPA)
Harmonization of crop and pest data by using the EPPO Global database	Diego Guidotti, Regional Phytosanitary Service of Tuscany Region (Italy)

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Topics presented at the 5<sup>th</sup> webinar, 2021-06-22 - attended by more than 100 participants

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EPPO Codes: Building blocks for information systems	Anne-Sophie Roy and Valerio Lucchesi, EPPO
How to synchronize EPPO data with LogShipping	Damien Griessinger, EPPO (ppt file)
The use of EPPO codes for pesticide assessments performed by EFSA	Hermine Reich, EFSA
Stop worrying and use R to query EPPO	Michał Czyż, Kynetec
ISTA Reference Pest List & the use of EPPO codes	Nicolas Denancé, GEVES Beaucozoué (FR)
French Epidemiological Plant Health Surveillance Platform uses EPPO codes	Lucie Michel, INRAE (FR)
The use of EPPO codes in tropical weed science	Thomas Le Bourgeois, CIRAD (FR)
The use of EPPO codes by the INRAE biosafety information system	Nicolas Champseix, INRAE (FR)

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#### 4.2 Meetings of the Panel on Harmonization of data on plant protection products

Although the EPPO Panel on Harmonization of data on plant protection products was not specifically created for this project, a large part of its work relates to the development of the EPPO Codes, in particular for non-taxonomic entities that are of particular interest to those working in the area of plant protection products (PPPs). From 2019 to 2021, this Panel met every year (Milano, IT, 2019-02-20 – Brussels, 2020-03-03/04 - Teleconference, 2021-02-09/10) to establish a harmonized classification for plant protection product uses and create EPPO Codes that are needed to describe these uses. On several occasions, members of the PPPAMS team attended the Panel meetings and this was the opportunity to continue discussing the use of EPPO Codes in PPPAMS. In 2021, the revision of the EPPO Standard PP 1/248 *Harmonized classification and coding of the uses of PPP*<sup>3</sup> was finalized, as well as its associated EPPO Codes<sup>4</sup>.

#### 4.3 Meetings of the Working Party on Plant Protection Products

The EPPO Working Party on Plant Protection Products meets every year (in May or June) to direct the technical work of EPPO Panels concerned with efficacy evaluation and registration of plant protection products. From 2019 to 2021, the Working Party followed closely the development of the EPPO harmonized classification for plant protection uses and considered that it was completed in June 2021.

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<sup>3</sup> The newly adopted EPPO Standard PP 1/248 (3) *Harmonized system for classification and coding of the uses of plant protection products* can be viewed here : <https://pp1.eppo.int/standards/PP1-248-3>

<sup>4</sup> These Codes can be viewed here : <https://gd.eppo.int/taxon/> and the classification can be viewed as a tree here : <https://gd.eppo.int/PPPUse/>

During this revision process, more than 300 new Codes were created to describe the following main elements of the classification and were approved by the Working Party:

- Crop groups
- Treated objects
- Targets
- Crop destinations
- Locations of PPP use
- Treatments

In many cases, these non taxonomic codes are accompanied by a brief definition which appear in a note field in the EPPO Global Database.

Overview for a non-taxonomic code

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**Basic information**

- ▶ **EPPO Code:** 3GREEL
- ▶ **Preferred name:** greenhouses

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**Notes**

A walk-in, static, closed place of crops production with a usually translucent outer shell, which allows controlled exchange of material and energy with the surroundings and prevents release of plant protection products into the environment.

## 5. PROGRESS ON HELPDESK FACILITIES AND INFORMATION FOR THE EPPO CODES USERS

### 5.1 EPPO Codes Monthly Newsletter

A free monthly newsletter summarizing the main changes that are made to the EPPO Codes was launched in March 2018. Any interested person can obtain this newsletter by registering via the EPPO Global Database. As of December 2021, more than 900 users had registered to the mailing list. This newsletter is automatically generated from the database and displays in a simple way several lists of new and deactivated Codes (with links to replacement Codes).

Other modifications that are made to the database, such as changes in preferred scientific names, authors, synonyms, or common names are deliberately not shown to keep the newsletter easy to read. It was also considered that these more detailed modifications can be traced by other means in the core database files (e.g. for users who are downloading the core files via the EPPO Data Services).

By: [EPPO](#)  
 Date: EPPO/2021/EPPO Codes Monthly Newsletter: 2020-11  
 Date: version 2 December 2020 04:05:04

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**EPPO Codes Monthly Newsletter: 2020-11**

This free newsletter is addressed to all EPPO Codes users. Its objective is to summarize the main modifications that have been made to the database during a monthly period (the month covered is indicated in the title) and provide users with an easy and transparent way of tracing major changes. The Newsletter contains a list of newly created codes and a list of deactivated codes with their replacement codes. These lists are automatically generated from the database. Other modifications concerning data that is related to already existing codes, such as changes in preferred scientific names, authors of scientific names, synonyms, common names are not shown to keep the Newsletter easy to read. However, these modifications can be traced in the core database files (e.g. for users who are downloading EPPO Codes files via the EPPO Data Services).  
 More general information about the EPPO Codes can be found on the [EPPO website](#).

**Summary**

New codes: 409  
 Deactivated: 12

**New codes**

Microorganism

Code	Pref name
<a href="#">GRPHBA</a>	<a href="#">Graphium botryoceras</a>
<a href="#">LABRSP</a>	<a href="#">Labelesia sp.</a>
<a href="#">RAFESA</a>	<a href="#">Radtralis samoaensis</a>

Animal

Code	Pref name
<a href="#">BLASLSC</a>	<a href="#">Blattella subcostalis</a>
<a href="#">DIABLIG</a>	<a href="#">Diabrotica longicauda</a>
<a href="#">HPSDBRI</a>	<a href="#">Hypothenemus bicolor</a>
<a href="#">STMTLO</a>	<a href="#">Stenomanus lonati</a>
<a href="#">TRONDCCO</a>	<a href="#">Tropidocercus collaris</a>
<a href="#">TRONDSP</a>	<a href="#">Tropidocercus sp.</a>

Plant

As explained above, lists of Codes are automatically generated but the EPPO Secretariat has the possibility to add more text whenever needed and remains responsible for sending the newsletter once considered ready.

## 5.2 Guidance documents for users

Considering the important changes made to the lists of host plants and the publication of revised datasheets in the EPPO Global Database, the **general guide on how to use the EPPO Global Database** was revised in 2020: [https://gd.eppo.int/media/files/general\\_user-guide.pdf](https://gd.eppo.int/media/files/general_user-guide.pdf)

## 5.3 Visibility of Union funding

In accordance with Article II.8 of the agreement about the visibility of Union funding, the following text with the EU flag was added in early January 2019 to all pages of the EPPO Global Database (<https://gd.eppo.int>). *European Union funding: For a three-year period (2018-12-11 to 2021-12-10), EPPO has been awarded an EU grant for the further development of the EPPO code system (agreement nb: SANTE/2018/G5/EPPO/SI2.793173). The EU Commission is not responsible for any use that may be made of the information from this project subsequently included in the EPPO Global Database.*



**Disclaimer appearing at the bottom of every page in GD**

## 6. ENHANCEMENT OF THE EPPO DATA SERVICES

The core files of the EPPO Code system can be downloaded in several formats from a dedicated platform (EPPO Data Services: <https://data.eppo.int/>) to meet the different needs of the users. This platform requires constant IT maintenance and adjustments are regularly made to better serve the users or correct some IT issues. During the period considered, no major changes were made but the EPPO IT Officer has been regularly providing support to users of the EPPO Data Services.

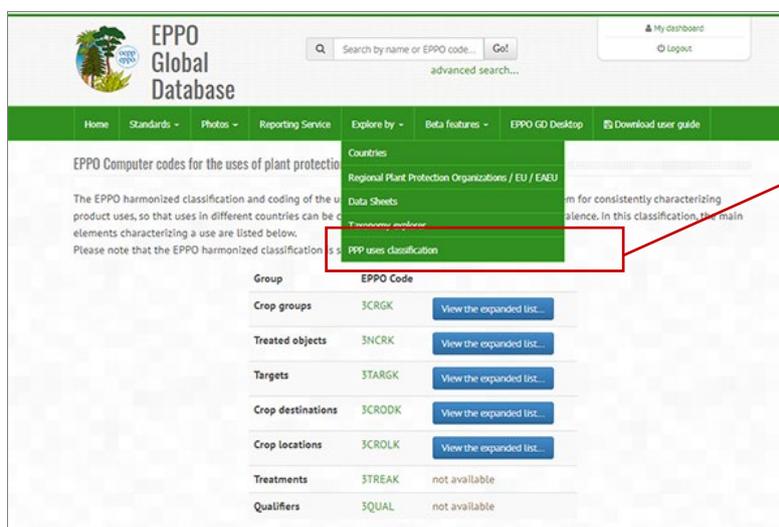
Format name	File type	Documentation
Bayer flat file	TXT	<a href="#">read more</a>
XML Datapacket	XML	<a href="#">read more</a>
XML Access	XML	<a href="#">read more</a>
XML Full	XML	<a href="#">read more</a>
SQLite database	SQLite3	<a href="#">in preparation</a>
SQL queries	TXT	<a href="#">in preparation</a>
LogShipping method	ZIP	<a href="#">read more</a>

**Currently available file formats in the EPPO Data Services Platform**

## 7. ENHANCEMENT OF THE SEARCH AND DISPLAY FACILITIES IN THE EPPO GLOBAL DATABASE

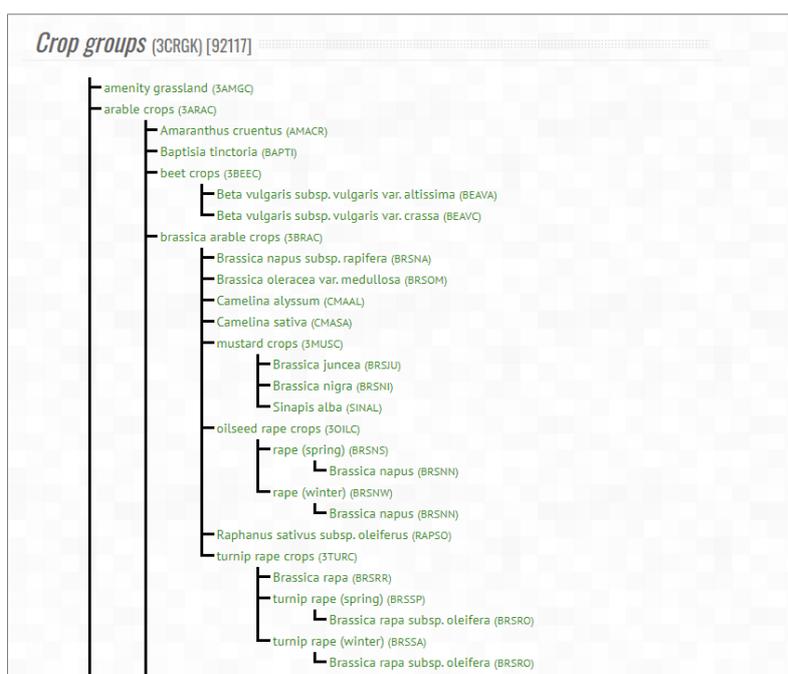
### 7.1 Visualization of the EPPO classification for PPP uses

The development of non-taxonomic Codes, and in particular those that are describing plant protection products uses, have required significant changes in the EPPO Global Database interface to search and display these Codes. In 2019, new features were included in the EPPO Global Database to allow users to visualize this classification.



Explore the PPP uses classification

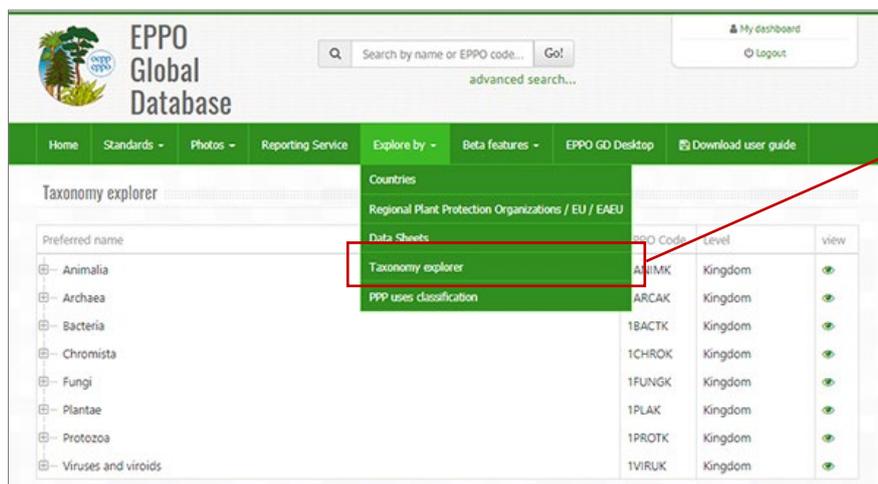
**How to explore GD to view the PPP uses classification**



**Visualization of the crop group classification.**

## 7.2 Visualization of the biological classification

In 2019, a new feature was added to the EPPO Global Database to allow users to view the taxonomic tree for all included organisms.



Use the Taxonomy explorer tool

**How to explore GD to view the taxonomic classification**

— Magnoliophyta	1MAGP	Phylum	👁
— Angiospermae	1ANGC	Class	👁
— Basal angiosperms	1BASD	Category	👁
— Amborellales	1AMBO	Order	👁
— Austrobaileyales	1AUSO	Order	👁
— Chloranthales	1CHLO	Order	👁
— Nymphaeales	1NYMO	Order	👁
— Cabombaceae	1CABF	Family	👁
— Hydatellaceae	1HYAF	Family	👁
— Nymphaeaceae	1NYMF	Family	👁
— Barclaya	1BCLG	Genus	
— Euryale	1EYUG	Genus	
— Nuphar	1NUPG	Genus	
— Nymphaea	1NYMG	Genus	
— Victoria	1VIJG	Genus	
— Victoria amazonica	VIJAM	Species	
— Victoria cruziana	VIJCR	Species	👁
— Victoria sp.	VIJSS	Species	👁



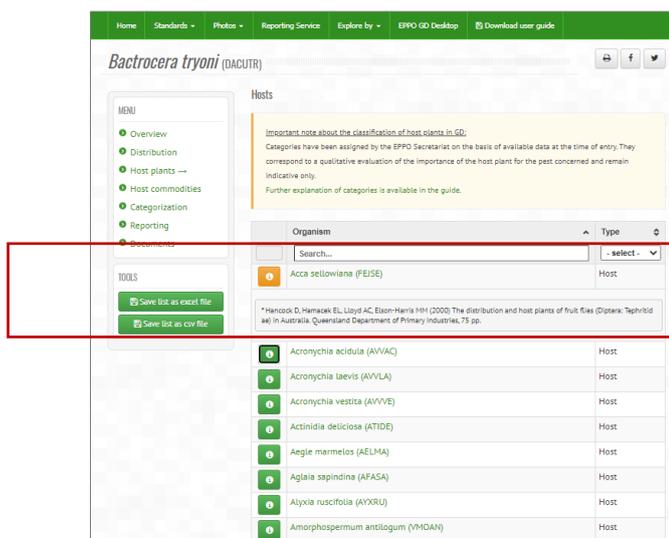
**Visualization of the taxonomic classification (here Victoria amazonica).**

## 7.3 EPPO GD Desktop

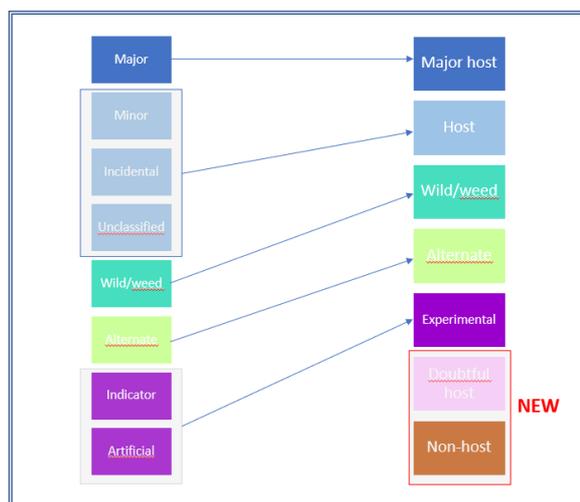
All EPPO Codes are displayed within the EPPO Global Database which is an online database where updates are made in real-time. As some EPPO member countries have expressed the wish that EPPO's information (including the EPPO Codes) should be available in the absence of any Internet connexion (e.g. when working in the field), therefore an 'off-line' version of the EPPO Global Database called 'EPPO GD Desktop' was launched during summer 2018. It is a piece of software which first needs to be installed on computers. Once installed, no Internet connexion is needed to run it. The EPPO GD Desktop now replaces PQR. GD Desktop was updated in January and June 2019, and in March 2021.

## 7.4 Synergies with the revision of the EPPO datasheets

In 2020, most enhancements of the search and display facilities in the EPPO Global Database were linked to the revision of the EPPO datasheets (part of another specific project and covered by another EU grant agreement) and to improvements made to lists of host plants of regulated pests. Since 2019, bibliographic sources are added to substantiate plant host records. All new host records are now accompanied by bibliographic sources and work is ongoing to document past host records. The establishment of more exhaustive lists of host plants inevitably requires that new EPPO Codes should be created (in particular for wild hosts).



Documented host plant lists in GD



Simplification of host plant categories in GD

## 8. A FEW CONCLUDING REMARKS

In the framework of this three-year project, a high number of Codes (more than 13 800) were created. However, from the EPPO Secretariat's point of view, the number of new Codes created reflects only a portion of the efforts that are made and should not be taken as the sole measurement of EPPO's work on EPPO Codes. Particular efforts were focused on creating new codes for plants that are important in trade, or that are hosts of regulated pests. In addition, most of the requests made to the EPPO Secretariat for the creation of new codes correspond to plants. Efforts were also made to detect and eliminate duplicated names to avoid creating confusion for the users of the database. The general maintenance of the database to correct all detected errors should also not be underestimated. These errors, in most cases duplications, are due to synonymization of names and are the main reasons for deactivating codes.

During this project, it has been possible to transfer into the coding system, the harmonized classification of plant protection product uses. This was a challenge for the EPPO Secretariat not only to arrive to an internationally agreed classification, but to set up a group of non-taxonomic codes (e.g. for crop groups), and to develop specific tools for displaying this classification which follow its own rules. For example, in this classification system, a particular plant (e.g. wheat) may belong to distinct crop groups (e.g. winter wheat or spring wheat) whereas in the biological classification, a species belongs to a single genus (i.e. multiple parents / single parent). A tree view has been developed to help users to better understand how this classification of plant protection product uses is structured.

The increasing implementation of molecular tools and phylogenetic studies has brought in numerous changes in the classification of organisms, and it is a challenge for the EPPO Secretariat to follow these changes that are taking place in all disciplines at a rapid pace. It should be underlined that EPPO is not an authority in taxonomy but follows a number of recognized taxonomic sources. Taxonomy is a complex area of science, where sometimes confusion and disagreements are taking place. During this project the EPPO Secretariat made particular efforts to update the taxonomy of important pests such as nematodes, particular insect pest families (e.g. Curculionidae, Noctuidae), fungi (to apply the 'One fungus – One name' new rules) and viruses.

During this project, communication with users has been improved through the constant adaptation of IT tools to query or download the coding system (e.g. logshipping), as well as through the organization of webinars and sending of a monthly newsletter dedicated to EPPO Codes.

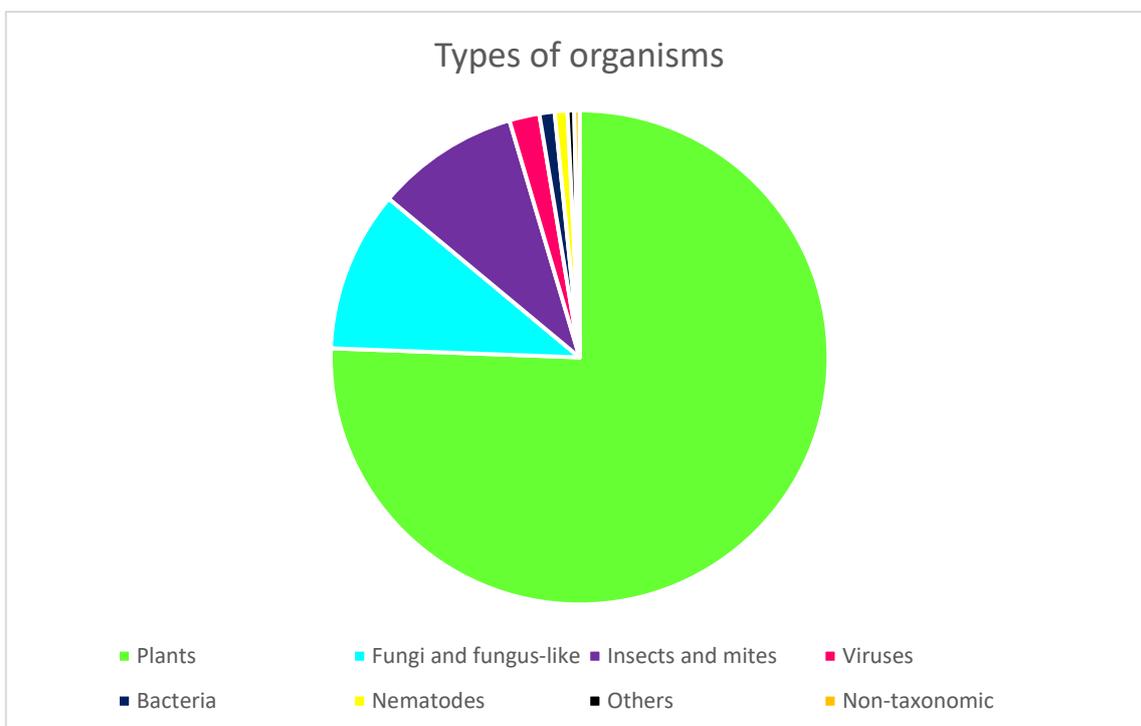
As the EPPO Global Database is an online database which can be managed remotely, the successive lockdowns due to COVID-19 have had limited impacts on the work. Although no one can totally ignore the negative impacts of this difficult situation on individuals and team interactions, the EPPO Secretariat has made all possible efforts to continue developing and improving the coding system and the database.

The EPPO Secretariat would like to thank the European Commission for this fruitful collaboration which has allowed huge progress to be made in the development and management of the EPPO coding system. The EPPO Secretariat will continue to actively work on the EPPO Codes, but at the pace allowed by the core budget of the Organization.

## APPENDIX 1

### New EPPO Codes created during the project

Types of organisms		nb
<b>Plants</b>		<b>10 460</b>
<b>Fungi and fungus-like</b>		<b>1 455</b>
<b>Insects and mites</b>		<b>1 293</b>
Insects	1235	
Mites	58	
<b>Viruses</b>		<b>271</b>
<b>Bacteria</b>		<b>137</b>
<b>Nematodes</b>		<b>114</b>
<b>Others</b>		<b>60</b>
Gastropoda	6	
Rodents	1	
Other animals	46	
Protozoa	7	
<b>Non-taxonomic</b>		<b>48</b>
<b>Total number</b>		<b>13 838</b>



**Important note:** For practical reasons, only the first 100 new EPPO Codes are presented below. The full list is provided in a separate Excel file ([ListNewCodes\\_2019-2021.xlsx](#)).

Scientific name	EPPO Code	Main category	Year
<i>Abelia corymbosa</i>	ABECO	Plantae	2021
<i>Abelmoschus angulosus</i>	ABMAN	Plantae	2019
<i>Abelmoschus crinitus</i>	ABMCR	Plantae	2019
<i>Abies hybrids</i>	ABIHY	Plantae	2020
<i>Abracris</i>	1ABRCG	Insecta	2019
<i>Abracris flavolineata</i>	ABRCFL	Insecta	2019
<i>Abracris sp.</i>	ABRCSP	Insecta	2019
<i>Abrus canescens</i>	ABRCA	Plantae	2021
<i>Abutilon longicuspe</i>	ABULO	Plantae	2021
<i>Abutilon palmeri</i>	ABUPA	Plantae	2020
<i>Abutilon persicum</i>	ABUPE	Plantae	2020
<i>Abutilon pseudocleistogamum</i>	ABUPS	Plantae	2021
<i>Abutilon virginianum</i>	ABUVG	Plantae	2020
<i>Abutilon viscosum</i>	ABUVS	Plantae	2019
<i>Acacia acanthoclada</i>	ACAAK	Plantae	2019
<i>Acacia acuminata</i>	ACAAZ	Plantae	2021
<i>Acacia adunca</i>	ACAAW	Plantae	2019
<i>Acacia ammobia</i>	ACAAO	Plantae	2019
<i>Acacia beckleri</i>	ACABC	Plantae	2019
<i>Acacia coventyi</i>	ACACW	Plantae	2019
<i>Acacia denticulosa</i>	ACADT	Plantae	2019
<i>Acacia drummondii</i>	ACADM	Plantae	2019
<i>Acacia fimbriata</i>	ACAFM	Plantae	2020
<i>Acacia flexifolia</i>	ACAFX	Plantae	2019
<i>Acacia gummifera</i>	ACAGU	Plantae	2019
<i>Acacia holosericea</i>	AC AHL	Plantae	2020
<i>Acacia iteaphylla</i>	ACAIT	Plantae	2019
<i>Acacia lineata</i>	ACALN	Plantae	2019
<i>Acacia spirorbis</i>	ACARR	Plantae	2021
<i>Acacia suaveolens</i>	ACASV	Plantae	2019
<i>Acacia triptera</i>	ACATP	Plantae	2019
<i>Acaciella</i>	1ZLZG	Plantae	2020
<i>Acaciella sp.</i>	ZLZSS	Plantae	2020
<i>Acaena magellanica</i>	ACEMA	Plantae	2020
<i>Acalitus plucheae</i>	ACLIPL	Acari	2019
<i>Acallepitrax</i>	1ACALG	Insecta	2019
<i>Acallepitrax nitens</i>	ACALNI	Insecta	2019
<i>Acalles</i>	1AAESG	Insecta	2019
<i>Acalles costifer</i>	AAESCO	Insecta	2019
<i>Acalles sp.</i>	AAESSP	Insecta	2019

Scientific name	EPPO Code	Main category	Year
<i>Acalymma blandula</i>	ACAYBL	Insecta	2019
<i>Acalypha pygmaea</i>	ACCPG	Plantae	2020
<i>Acalypha siamensis</i>	ACCSI	Plantae	2020
<i>Acalyphoideae</i>	1ACCS	Plantae	2020
<i>Acanthocalycium leucanthum</i>	AKCLE	Plantae	2021
<i>Acanthocereus maculatus</i>	ACTMA	Plantae	2021
<i>Acanthocereus rosei</i>	ACTRO	Plantae	2021
<i>Acanthocereus tepalcatepecanus</i>	ACTTE	Plantae	2021
<i>Acanthocinus spectabilis</i>	ACAHST	Insecta	2019
<i>Acantholimon bracteatum</i>	ACLBR	Plantae	2021
<i>Acanthonevra</i>	1ACNVG	Insecta	2021
<i>Acanthonevra dunlopi</i>	ACNVDU	Insecta	2021
<i>Acanthonevra sp.</i>	ACNVSP	Insecta	2021
<i>Acanthophippium</i>	1BHPG	Plantae	2020
<i>Acanthophippium bicolor</i>	BHPBI	Plantae	2020
<i>Acanthophippium sp.</i>	BHPSS	Plantae	2020
<i>Acanthophippium splendidum</i>	BHPSP	Plantae	2020
<i>Acanthophyllum cerastioides</i>	BHUCE	Plantae	2020
<i>Acanthorrhinum</i>	1BZQG	Plantae	2019
<i>Acanthorrhinum ramosissimum</i>	BZQRA	Plantae	2019
<i>Acanthorrhinum sp.</i>	BZQSS	Plantae	2019
<i>Acanthostyles</i>	1AOVG	Plantae	2020
<i>Acanthostyles sp.</i>	AOVSS	Plantae	2020
<i>Acanthotomicus suncei</i>	ACTTSU	Insecta	2020
<i>Acanthus leucostachyus</i>	ACULE	Plantae	2020
<i>Acanthus sennii</i>	ACUSE	Plantae	2020
<i>Acarocybella</i>	1ACYBG	Fungi	2021
<i>Acarocybella sp.</i>	ACYBSP	Fungi	2021
<i>Acaropsellina sollers</i>	ACLSO	Acari	2020
<i>Acaropsellina sp.</i>	ACSLSP	Acari	2020
<i>Acatapaustus</i>	1ACTAG	Insecta	2019
<i>Acatapaustus sp.</i>	ACTASP	Insecta	2019
<i>Accipiter gentilis</i>	ACCIGE	Animalia	2021
<i>Acer calcaratum</i>	ACRKA	Plantae	2020
<i>Acer erythranthum</i>	ACRET	Plantae	2021
<i>Acer fenzelianum</i>	ACRFZ	Plantae	2020
<i>Acer pictum</i>	ACRPU	Plantae	2020
<i>Acer saccharum var. sinuosum</i>	ACRZI	Plantae	2019
<i>Aceria annonae</i>	ACEIAN	Acari	2020
<i>Aceria diospyri</i>	ACEIDI	Acari	2020
<i>Aceria zelvoviana</i>	ACEIZE	Acari	2020
<i>Achillea acuminata</i>	ACHAC	Plantae	2019
<i>Achillea biserrata</i>	ACHBI	Plantae	2021
<i>Achimenes erecta</i>	AHMER	Plantae	2021

Scientific name	EPPO Code	Main category	Year
<i>Achlys japonica</i>	BCYJA	Plantae	2019
<i>Achyranthes aspera</i> var. <i>indica</i>	ACYIN	Plantae	2020
<i>Achyranthes aspera</i> var. <i>pubescens</i>	ACYAU	Plantae	2019
<i>Achyranthes aspera</i> var. <i>rubrofusca</i>	ACYRU	Plantae	2020
<i>Achyranthes diandra</i>	ACYDI	Plantae	2019
<i>Achyrospermum</i>	1ZCWG	Plantae	2020
<i>Achyrospermum</i> sp.	ZCWSS	Plantae	2020
<i>Achyrospermum wallichianum</i>	ZCWWA	Plantae	2020
<i>Acidiella</i>	1ACIEG	Insecta	2021
<i>Acidiella kagoshimensis</i>	ACIEKA	Insecta	2021
<i>Acidiella</i> sp.	ACIESP	Insecta	2021
<i>Acidosasa chinensis</i>	BCSCH	Plantae	2020
<i>Acidovorax facilis</i>	ACVRFA	Bacteria	2021
<i>Acidoxantha</i>	1ACIXG	Insecta	2021
<i>Acidoxantha bombacis</i>	ACIXBO	Insecta	2021
<i>Acidoxantha</i> sp.	ACIXSP	Insecta	2021

## APPENDIX 2

### New EPPO Codes created during the project for TRACES (by year and alphabetical order of names)

Organism name	EPPO Code	Year	Type of organism
<i>Amesiella</i>	1XMEG	2019	Plantae
<i>Arachnnis labrosa</i>	AHILA	2019	Plantae
<i>Citrus sudachi</i>	CIDSD	2019	Plantae
<i>Diplostropis racemosa</i>	SDHRA	2019	Plantae
<i>Dipteryx polyphylla</i>	DPXPO	2019	Plantae
<i>Gastrochilus</i>	1GAKG	2019	Plantae
<i>Manilkara huberi</i>	MNKHU	2019	Plantae
<i>Tabebuia capitata</i>	HDSCA	2019	Plantae
<i>Tetrapleura tetraptera</i>	TLTTE	2019	Plantae
<i>Trichoglottis biglandulosa</i>	TGLBI	2019	Plantae
<i>Adenia spinosa</i>	ADJSP	2020	Plantae
<i>Adina pilulifera</i>	AFNPI	2020	Plantae
<i>Aloe ampefyana</i>	ALFAP	2020	Plantae
<i>Artocarpus camansi</i>	ABFCA	2020	Plantae
<i>Aulax</i>	1OAXG	2020	Plantae
<i>Boesenbergia rotunda</i>	BSERO	2020	Plantae
<i>Camellia hiemalis</i>	CAHHI	2020	Plantae
<i>Carpobrotus mellei</i>	CBSME	2020	Plantae
<i>Cephalopentandra</i>	1QFPG	2020	Plantae
<i>Cercestis</i>	1JERG	2020	Plantae
<i>Cercestis sp.</i>	JERSS	2020	Plantae
<i>Chimarrhis turbinata</i>	KIMTU	2020	Plantae
<i>Cibirhiza</i>	1QIBG	2020	Plantae
<i>Cirrhaea dependens</i>	ZIRDE	2020	Plantae
<i>Coleocephalocereus</i>	1KCCG	2020	Plantae
<i>Commiphora stocksiana</i>	COQST	2020	Plantae
<i>Cremnophila linguifolia</i>	CRNLI	2020	Plantae
<i>Echeveria violescens</i>	ECVVI	2020	Plantae
edible flowers	NNNEF	2020	non-taxonomic code
<i>Euphorbia sieboldiana</i>	EPHSB	2020	Plantae
<i>Euphorbia x inconstantia</i>	EPHXI	2020	Plantae
<i>Gelidium corneum</i>	GDMCO	2020	Plantae
<i>Haworthia comptoniana</i>	HAWEC	2020	Plantae
<i>Inga alba</i>	INGAL	2020	Plantae
<i>Jordaniella</i>	1JORG	2020	Plantae
<i>Jumellea confusa</i>	JUMCO	2020	Plantae
manure	YXMAN	2020	non-taxonomic code
<i>Matucana aureiflora</i>	MTUAU	2020	Plantae
peat	YXPEA	2020	non-taxonomic code
<i>Philodendron mexicanum</i>	PIOMX	2020	Plantae

Organism name	EPPO Code	Year	Type of organism
<i>Piptospatha</i>	1QIPG	2020	Plantae
potting soil	YXPOS	2020	non-taxonomic code
<i>Salvia dolomitica</i>	SALDL	2020	Plantae
<i>Schismatoglottis wallichii</i>	SMGWA	2020	Plantae
<i>Thamnochortus insignis</i>	TMHIN	2020	Plantae
<i>x Monnierara</i>	1WNNG	2020	Plantae
<i>Zygia racemosa</i>	ZYIRA	2020	Plantae
<i>Acanthocalycium leucanthum</i>	AKCLE	2021	Plantae
<i>Acineta</i>	1VCIG	2021	Plantae
<i>Adansonia perrieri</i>	AADPE	2021	Plantae
<i>Agastache hybrids</i>	AJTHY	2021	Plantae
<i>Agave colorata</i>	AGVCO	2021	Plantae
<i>Agave guadalajarana</i>	AGVGJ	2021	Plantae
<i>Agave kavandivi</i>	AGVKA	2021	Plantae
<i>Agave macroacantha</i>	AGVMT	2021	Plantae
<i>Agave mitis</i>	AGVMS	2021	Plantae
<i>Agave multifilifera</i>	AGVML	2021	Plantae
<i>Agave parrasana</i>	AGVPS	2021	Plantae
<i>Agave sebastiana</i>	AGVSB	2021	Plantae
<i>Agave x nigra</i>	AGVNI	2021	Plantae
<i>Alantsilodendron humbertii</i>	VLDHU	2021	Plantae
<i>Albuca concordiana</i>	ABWCO	2021	Plantae
<i>Aloe rupestris</i>	ALFRP	2021	Plantae
<i>Aloidendron barberae</i>	AYQBA	2021	Plantae
<i>Aloina bifrons</i>	AWLBI	2021	Plantae
<i>Alternanthera lanceolata</i>	ALRLA	2021	Plantae
<i>Amorphophallus atroviridis</i>	AMUAT	2021	Plantae
<i>Anacampseros recurvata</i>	BNARE	2021	Plantae
<i>Anisodonteia scabrosa</i>	AODSC	2021	Plantae
<i>Annona cornifolia</i>	ANUCF	2021	Plantae
<i>Annona crassiflora</i>	ANUCS	2021	Plantae
<i>Annona dioica</i>	ANUDC	2021	Plantae
<i>Annona malmeana</i>	ANUMA	2021	Plantae
<i>Annona salzmännii</i>	ANUSZ	2021	Plantae
<i>Annona tomentosa</i>	ANUTO	2021	Plantae
<i>Annona vepretorum</i>	ANUVE	2021	Plantae
<i>Anthurium clavigerum</i>	AURCV	2021	Plantae
<i>Anthurium gracile</i>	AURGR	2021	Plantae
<i>Aristea spiralis</i>	AQJSP	2021	Plantae
<i>Arthropodium cirratum</i>	AYPCI	2021	Plantae
<i>Asparagus macowanii</i>	ASPMW	2021	Plantae
<i>Asparagus macrorrhizus</i>	ASPMC	2021	Plantae
<i>Astridia</i>	1VSRG	2021	Plantae
<i>Banksia leptophylla</i>	BANLE	2021	Plantae
<i>Banksia occidentalis</i>	BANOC	2021	Plantae

Organism name	EPPO Code	Year	Type of organism
<i>Banksia praemorsa</i>	BANMA	2021	Plantae
<i>Banksia pulchella</i>	BANPU	2021	Plantae
<i>Bauhinia guianensis</i>	SLWGU	2021	Plantae
<i>Bijlia cana</i>	PJICC	2021	Plantae
<i>Brachyscome graminea</i>	BCHGR	2021	Plantae
<i>Brassica juncea var. japonica</i>	BRSJJ	2021	Plantae
<i>Brassica juncea var. rugosa</i>	BRSJR	2021	Plantae
<i>Brassica oleracea var. palmifolia</i>	BRSOI	2021	Plantae
<i>Brassica perviridis</i>	BRSPE	2021	Plantae
<i>Bulbine bruynsii</i>	BLBBR	2021	Plantae
<i>Bulbine fallax</i>	BLBFA	2021	Plantae
<i>Bulbine frutescens</i>	BLBFR	2021	Plantae
<i>Bulbine frutescens</i>	BLBFR	2021	Plantae
<i>Bulbine haworthioides</i>	BLBHA	2021	Plantae
<i>Bulbine mesembryanthemoides</i>	BLBME	2021	Plantae
<i>Bulbine narcissifolia</i>	BLBNA	2021	Plantae
<i>Bulbinella cauda-felis</i>	BUBCF	2021	Plantae
<i>Calamus platyacanthoides</i>	CLUIE	2021	Plantae
<i>Calathea micans</i>	GPEMI	2021	Plantae
<i>Caputia medley-woodii</i>	KPUMW	2021	Plantae
<i>Caralluma flava</i>	DMOFL	2021	Plantae
<i>Cariniana ianeirensis</i>	KNXIA	2021	Plantae
<i>Caustis blakei</i>	KUJBL	2021	Plantae
<i>Caustis flexuosa</i>	KUJFL	2021	Plantae
<i>Cenchrus massaicus</i>	CCHMA	2021	Plantae
<i>Ceratocentron</i>	1ZCTG	2021	Plantae
<i>Ceropegia barberae</i>	CGJBA	2021	Plantae
<i>Chaetoceros</i>	1CHETG	2021	Chromista
<i>Chasmanthe floribunda</i>	CSHFL	2021	Plantae
<i>Chelone glabra</i>	CHVGL	2021	Plantae
<i>Chelonistele</i>	1QELG	2021	Plantae
<i>Chionochloa flavicans</i>	CJOFC	2021	Plantae
<i>Cineraria saxifraga</i>	CNFSA	2021	Plantae
<i>Cistanthe grandiflora</i>	XISLO	2021	Plantae
<i>Cistanthe longiscapa</i>	XISGR	2021	Plantae
<i>Cistus hybrids</i>	CSTHY	2021	Plantae
<i>Citrus aurantiifolia</i>	CIDAF	2021	Plantae
<i>Citrus junos</i>	CIDJU	2021	Plantae
<i>Coelogyne multiflora</i>	CGYMU	2021	Plantae
<i>Coffea anthonyi</i>	COFAN	2021	Plantae
<i>Coffea brevipes</i>	COFBR	2021	Plantae
<i>Coffea ebracteolata</i>	COFEB	2021	Plantae
<i>Coffea eugenoides</i>	COFEU	2021	Plantae
<i>Coffea heterocalyx</i>	COFHE	2021	Plantae
<i>Coffea humblotiana</i>	COFHU	2021	Plantae

Organism name	EPPO Code	Year	Type of organism
<i>Coffea kapakata</i>	COFKA	2021	Plantae
<i>Coffea myrtifolia</i>	COFMY	2021	Plantae
<i>Coffea pseudozanguebariae</i>	COFPZ	2021	Plantae
<i>Coffea sessiliflora</i>	COFSE	2021	Plantae
<i>Coleocephalocereus purpureus</i>	KCCPU	2021	Plantae
<i>Commiphora rostrata</i>	COQRO	2021	Plantae
<i>Consolea rubescens</i>	KSLRU	2021	Plantae
<i>Cornus hongkongensis</i>	CRWHO	2021	Plantae
<i>Cornus x rutgersensis</i>	CRWRT	2021	Plantae
<i>Costus villosissimus</i>	CQTVI	2021	Plantae
<i>Crassula barbata</i>	CSBBB	2021	Plantae
<i>Crassula nemorosa</i>	CSBNE	2021	Plantae
<i>Crassula tomentosa</i>	CSBTO	2021	Plantae
<i>Crassula umbella</i>	CSBUM	2021	Plantae
<i>Cynorkis</i>	1ZYKG	2021	Plantae
<i>Cyphostemma mappia</i>	CWMMP	2021	Plantae
<i>Darwinara</i>	1VAOG	2021	Plantae
<i>Delonix pumila</i>	DEXPU	2021	Plantae
<i>Dicliptera suberecta</i>	DIBSQ	2021	Plantae
<i>Dierama robustum</i>	DRMRO	2021	Plantae
<i>Dietes flavida</i>	DTEFL	2021	Plantae
<i>Diosma oppositifolia</i>	DZAOP	2021	Plantae
<i>Dipteryx alata</i>	DPXAL	2021	Plantae
<i>Dipteryx punctata</i>	DPXPU	2021	Plantae
<i>Dracontium spruceanum</i>	DKMSP	2021	Plantae
<i>Dracuvallia</i>	1DRVG	2021	Plantae
<i>Dregea volubilis</i>	DREVO	2021	Plantae
<i>Drimia ciliata</i>	DRJCI	2021	Plantae
<i>Drimia nana</i>	DRJNA	2021	Plantae
<i>Ebracteola wilmaniae</i>	EBRWI	2021	Plantae
<i>Ecclinusa ramiflora</i>	EKLRA	2021	Plantae
<i>Echeveria shaviana</i>	ECVSH	2021	Plantae
<i>Echinopsis bridgesii</i>	EHSBR	2021	Plantae
<i>Edithcolea</i>	EDIG	2021	Plantae
<i>Elegia elephantina</i>	EEGEL	2021	Plantae
<i>Erica coccinea</i>	EIACC	2021	Plantae
<i>Erica pinea</i>	EIAPN	2021	Plantae
<i>Erigeron leiomerus</i>	ERILE	2021	Plantae
<i>Eriospermum paradoxum</i>	EOMPA	2021	Plantae
<i>Eriospermum titanopsoides</i>	EOMTI	2021	Plantae
<i>Erythrina zeyheri</i>	ERZZE	2021	Plantae
<i>Erythrophysa alata</i>	ETRAL	2021	Plantae
<i>Eucalyptus erythronema</i>	EUCEY	2021	Plantae
<i>Eucalyptus macrocarpa</i>	EUCMP	2021	Plantae
<i>Eugenia bahiensis</i>	EUEBA	2021	Plantae

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<i>Eugenia disperma</i>	EUEDI	2021	Plantae
<i>Eugenia itapemirimensis</i>	EUEIT	2021	Plantae
<i>Eugenia trichogyna</i>	EUETR	2021	Plantae
<i>Euphorbia pachypodioides</i>	EPHQC	2021	Plantae
<i>Euphorbia pseudoburuana</i>	EPHQD	2021	Plantae
<i>Euphorbia razafindratsirae</i>	EPHFD	2021	Plantae
<i>Fargesia scabrida</i>	FRZSC	2021	Plantae
<i>Frithia pulchra</i>	FRHPU	2021	Plantae
<i>Fuchsia hatschbachii</i>	FUCHA	2021	Plantae
<i>Garcinia gardneriana</i>	GANGA	2021	Plantae
<i>Gasteria glomerata</i>	GSRGL	2021	Plantae
<i>Gazania pectinata</i>	GAZPE	2021	Plantae
<i>Geranium incanum</i>	GERIN	2021	Plantae
<i>Gethyllis villosa</i>	GTHVI	2021	Plantae
<i>Gnetum africanum</i>	GNEAF	2021	Plantae
<i>Haploesthes greggii</i>	HSHGR	2021	Plantae
<i>Helichrysum aureum</i>	HECVU	2021	Plantae
<i>Helichrysum crispum</i>	HECCS	2021	Plantae
<i>Helichrysum pandurifolium</i>	HECAU	2021	Plantae
<i>Heliconia longiflora</i>	HEBLO	2021	Plantae
<i>Hibiscus cannabinus</i>	HIBCA	2021	Plantae
<i>Hoodia currorii</i>	HWDCU	2021	Plantae
<i>Hyalosepalum oblongifolium</i>	HSUOB	2021	Plantae
<i>Hydrangea seemannii</i>	HYESE	2021	Plantae
<i>Hypericum x hidcoteense</i>	HYPHD	2021	Plantae
<i>Hypnum curvifolium</i>	HPNCV	2021	Plantae
<i>Hypocalyptus sophoroides</i>	HKTSO	2021	Plantae
<i>Ilex mutchagara</i>	ILEMX	2021	Plantae
<i>Impatiens kerriae</i>	IPAKE	2021	Plantae
<i>Impatiens tuberosa</i>	IPATB	2021	Plantae
<i>Indigofera howellii</i>	INDHW	2021	Plantae
<i>Inga cylindrica</i>	INGCY	2021	Plantae
<i>Iris unguicularis subsp. cretensis</i>	IRIUK	2021	Plantae
<i>Ixodia achilleoides</i>	IXDAC	2021	Plantae
<i>Kaempferia parviflora</i>	KAEPA	2021	Plantae
<i>Kleinia fulgens</i>	KIAFU	2021	Plantae
<i>Kniphofia bruceae</i>	KNIBC	2021	Plantae
<i>Kniphofia rooperi</i>	KNIRO	2021	Plantae
<i>Larryleachia marlothii</i>	TCAMA	2021	Plantae
<i>Lasthenia glabrata</i>	LTEGL	2021	Plantae
<i>Lechea intermedia</i>	LCEIN	2021	Plantae
<i>Leiothrix flavescens</i>	LHXFL	2021	Plantae
<i>Lewisia longipetala</i>	LWSLO	2021	Plantae
<i>Libertia ixioides</i>	LBEIX	2021	Plantae
<i>Limonium hybrids</i>	LIHIB	2021	Plantae

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<i>Lomandra fluviatilis</i>	LQMFL	2021	Plantae
<i>Lomariopsis lineata</i>	LOQLI	2021	Plantae
<i>Macoubea guianensis</i>	MBVGU	2021	Plantae
<i>Macrocystis pyrifera</i>	MROCPY	2021	Chromista
<i>Mahonia confusa</i>	BEBEU	2021	Plantae
<i>Malpighia yucatanaea</i>	MLPYU	2021	Plantae
<i>Malus hybrids</i>	MABHY	2021	Plantae
<i>Marlothistella</i>	1MHJG	2021	Plantae
<i>Megaphrynium macrostachyum</i>	SRFMA	2021	Plantae
<i>Melaleuca pentagona</i>	MLAPE	2021	Plantae
<i>Melaleuca spathulata</i>	MLASP	2021	Plantae
<i>Melaleuca squarrosa</i>	MLASQ	2021	Plantae
<i>Melianthus comosus</i>	MEHCO	2021	Plantae
<i>Metroxylon salomonense</i>	MTRSL	2021	Plantae
<i>Microcoelia</i>	1MJRG	2021	Plantae
<i>Brassica rapa subsp. nipposinica</i>	BRSNO	2021	Plantae
<i>Monsonia vanderietiae</i>	MSNVE	2021	Plantae
<i>Moquilea salzmännii</i>	MQUSZ	2021	Plantae
<i>Morus rotundiloba</i>	MORAC	2021	Plantae
<i>Mystacidium</i>	1MDIG	2021	Plantae
<i>Nananthus</i>	1NAHG	2021	Plantae
<i>Nannochloropsis</i>	1NANCG	2021	Chromista
<i>Neobenthamia</i>	1PQYG	2021	Plantae
<i>Neomoorea wallisii</i>	NMOWA	2021	Plantae
<i>Neoveitchia storckii</i>	NVTST	2021	Plantae
<i>Ocimum gratissimum</i>	OCIGR	2021	Plantae
<i>Oerstedella</i>	1EPDG	2021	Plantae
<i>Operculicarya borealis</i>	OPKBO	2021	Plantae
<i>Opuntia quitensis</i>	OPUQI	2021	Plantae
<i>Origanum majorana</i>	MAJHO	2021	Plantae
<i>Origanum onites</i>	ORION	2021	Plantae
<i>Origanum rotundifolium</i>	ORIRO	2021	Plantae
<i>Othonna cacalioides</i>	OTACC	2021	Plantae
<i>Othonna carnosa</i>	OTACN	2021	Plantae
<i>Othonna cremnophila</i>	OTACR	2021	Plantae
<i>Othonna hallii</i>	OTAHA	2021	Plantae
<i>Othonna herrei</i>	OTAHE	2021	Plantae
<i>Othonna lepidocaulis</i>	OTALE	2021	Plantae
<i>Othonna retrofracta</i>	OTART	2021	Plantae
<i>Othonna retrorsa</i>	OTARE	2021	Plantae
<i>Packeria wernerifolia</i>	PKRWE	2021	Plantae
<i>Paederia lanuginosa</i>	PAELA	2021	Plantae
<i>Paris incompleta</i>	PJRIN	2021	Plantae
<i>Passiflora pinnatistipula</i>	PAQPI	2021	Plantae
<i>Pavonia praemorsa</i>	PVAPR	2021	Plantae

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<i>Pelargonium caroli-henrici</i>	PELCH	2021	Plantae
<i>Phaeodactylum tricornutum</i>	PHDATR	2021	Chromista
<i>Phlomis longifolia</i>	PLMLO	2021	Plantae
<i>Phylica axillaris</i>	PYKAX	2021	Plantae
<i>Phymatidium</i>	1FYDG	2021	Plantae
<i>Phymatolithon calcareum</i>	FTHCA	2021	Plantae
<i>Phytelephas aequatorialis</i>	PJPAE	2021	Plantae
<i>Picramnia glazioviana</i>	PJMGL	2021	Plantae
<i>Pistacia chinensis subsp. integerrima</i>	PIACI	2021	Plantae
<i>Plectranthus ecklonii</i>	PLFEC	2021	Plantae
<i>Plectranthus zuluensis</i>	PLFZU	2021	Plantae
<i>Portulaca eruca</i>	PORER	2021	Plantae
<i>Pouteria butyrocarpa</i>	POJBU	2021	Plantae
<i>Pouteria confusa</i>	POJCO	2021	Plantae
<i>Pouteria nordestinensis</i>	POJNO	2021	Plantae
<i>Pouteria reticulata</i>	POJRE	2021	Plantae
<i>Pradosia lactescens</i>	PFILA	2021	Plantae
<i>Primula alpicola</i>	PRIAC	2021	Plantae
<i>Primula anisodora</i>	PRIAN	2021	Plantae
<i>Primula apoclita</i>	PRICB	2021	Plantae
<i>Primula aurantiaca</i>	PRIAT	2021	Plantae
<i>Primula beesiana</i>	PRIBE	2021	Plantae
<i>Primula bullata var. forestii</i>	PRIBF	2021	Plantae
<i>Primula bulleyana</i>	PRIBL	2021	Plantae
<i>Primula burmanica</i>	PRIBE	2021	Plantae
<i>Primula cernua</i>	PRICE	2021	Plantae
<i>Primula chionantha</i>	PRIKI	2021	Plantae
<i>Primula chungensis</i>	PRICG	2021	Plantae
<i>Primula cockburniana</i>	PRICC	2021	Plantae
<i>Primula concholoba</i>	PRICB	2021	Plantae
<i>Primula flaccida</i>	PRIFC	2021	Plantae
<i>Primula grandis</i>	PRIGN	2021	Plantae
<i>Primula kisoana</i>	PRIKS	2021	Plantae
<i>Primula luteola</i>	PRILU	2021	Plantae
<i>Primula maximowiczii</i>	PRIMX	2021	Plantae
<i>Primula mistassinica</i>	PRIMS	2021	Plantae
<i>Primula mollis</i>	PRIML	2021	Plantae
<i>Primula munroi subsp yargonensis</i>	PRIMY	2021	Plantae
<i>Primula muscaroides</i>	PRIMR	2021	Plantae
<i>Primula poissonii</i>	PRIPS	2021	Plantae
<i>Primula polyneura</i>	PRIPN	2021	Plantae
<i>Primula prolifera</i>	PRIPF	2021	Plantae
<i>Primula pulverulenta</i>	PRIPV	2021	Plantae
<i>Primula secundiflora</i>	PRISF	2021	Plantae
<i>Primula sikkimensis</i>	PRISK	2021	Plantae

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<i>Primula smithiana</i>	PRISM	2021	Plantae
<i>Primula watsonii</i>	PRIWA	2021	Plantae
<i>Primula wilsonii</i>	PRIWI	2021	Plantae
<i>Primula x bulleesiana</i>	PRIBS	2021	Plantae
<i>Primula x digeana</i>	PRIDI	2021	Plantae
<i>Psidium rufum</i>	PSIRU	2021	Plantae
<i>Psoralea aphylla</i>	PSRAP	2021	Plantae
<i>Psoralea verrucosa</i>	PSRVE	2021	Plantae
<i>Pyrenacantha kaurabassana</i>	PXAKA	2021	Plantae
<i>Racinaea</i>	1RAEG	2021	Plantae
<i>Rhagoletis boycei</i>	RHAGBO	2021	Insecta
<i>Rhipidoglossum</i>	RIPG	2021	Plantae
<i>Rubus chingii</i> var. <i>suavissimus</i>	RUBCZ	2021	Plantae
<i>Ruizterania albiflora</i>	RZNAL	2021	Plantae
<i>Salvia africana-caerulea</i>	SALAC	2021	Plantae
<i>Salvia discolor</i>	SALDS	2021	Plantae
<i>Salvia uliginosa</i>	SALUL	2021	Plantae
<i>Scabiosa columbaria</i>	SCBCO	2021	Plantae
<i>Schoenorchis</i>	1ZNKG	2021	Plantae
<i>Searsia discolor</i>	RHUDS	2021	Plantae
<i>Selaginella stellata</i>	SELSL	2021	Plantae
<i>Senecio acetosifolius</i>	SENAC	2021	Plantae
<i>Sincoraea</i>	1ZNCG	2021	Plantae
<i>Sisyrinchium patagonicum</i>	SISPA	2021	Plantae
<i>Smilax glabra</i>	SMIGB	2021	Plantae
<i>Staavia radiata</i>	ZTVRA	2021	Plantae
<i>Stanhopea candida</i>	SNHCA	2021	Plantae
<i>Stanhopea jenischiana</i>	SNHJE	2021	Plantae
<i>Stanhopea shuttleworthii</i>	SNHSH	2021	Plantae
<i>Sudamerlycaste</i>	1ZDLG	2021	Plantae
<i>Summerhayesia</i>	1SUYG	2021	Plantae
<i>Syncolostemon canescens</i>	HZGCA	2021	Plantae
<i>Tephrosia grandiflora</i>	TEPGR	2021	Plantae
<i>Tetraselmis chui</i>	TLJCH	2021	Plantae
<i>Tetraselmis suecica</i>	TLJSU	2021	Plantae
<i>Teucrium ackermannii</i>	TEUAC	2021	Plantae
<i>Teucrium x lucidrys</i>	TEULC	2021	Plantae
<i>Theobroma obovatum</i>	THOOB	2021	Plantae
<i>Thuidium delicatulum</i>	THZDE	2021	Plantae
<i>Thunbergia natalensis</i>	THNNA	2021	Plantae
<i>Thymus mongolicus</i>	THYMG	2021	Plantae
<i>Trachyandra tortilis</i>	TNDTO	2021	Plantae
<i>Trichocereus bridgesii</i>	EHSLA	2021	Plantae
<i>Trichopilia suavis</i>	TJCSU	2021	Plantae
<i>Tylecodon ellaphieae</i>	TYDEL	2021	Plantae

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<i>Tylecodon leucothrix</i>	TYDLE	2021	Plantae
<i>Tylecodon nolteei</i>	TYDNO	2021	Plantae
<i>Tylecodon racemosus</i>	TYDRA	2021	Plantae
<i>Tylecodon rubrovenosus</i>	TYDRU	2021	Plantae
<i>Tylecodon singularis</i>	TYDSI	2021	Plantae
<i>Ungernia sewerzowii</i>	UGNSE	2021	Plantae
<i>Vaccinium meridionale</i>	VACMR	2021	Plantae
<i>Vanheerdea divergens</i>	VHDDI	2021	Plantae
<i>Vernonia natalensis</i>	HRIAR	2021	Plantae