Data Article

Dataset, including a photo-guide, of alien plants sold in traditional medicine markets and healthcare outlets in three South African cities, specifically by traders of Indian, West African, East African, and Chinese origin

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\textbf{A B S T R A C T}

This dataset is an inventory of 475 alien plant taxa (447 identified to species), including a photo-guide to 96 plants, mostly sold as traditional medicines in three South African cities by traders of South African, West African, East African, Indian and Chinese origin (Williams et al., 2021). The dataset also incorporates species documented in a literature survey of alien plants used for traditional medicines in South Africa. The species inventory is a consolidation of the data from two separate investigations of 106 medicinal plant traders: firstly, a study conducted in 2010/2011 of 77 traders in markets and shops in Johannesburg, Pretoria and Durban (Williams et al., 2021); and secondly, a study conducted in 2017/2018 of plants sold by 29 (im)migrant traders of West African, East African, and Indian origin in Johannesburg, and of alien species listed in a TCM (Traditional Chinese Medicine) catalogue (Burness, 2019). Accompanying each plant photograph

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in the guide is the following information: species name; common name(s) provided by the survey respondents; invasive alien plant category; introduction status; voucher specimen number(s); nationality of the medicine traders; and, notes on source localities (e.g. imported or collected in southern Africa). Overall, most of the taxa were from the Asteraceae (12%), Fabaceae (9%) and Poaceae (5%). The species are mostly unlisted (76%) with respect to their legal status in South Africa in terms of the National Environmental Management: Biodiversity Act (NEM:BA), 2004 Alien & Invasive Species (A&IS) regulations. The most frequently recorded species in the various surveys were *Glycyrrhiza glabra*, *Acorus calamus*, *Angelica sinensis* and *Zingiber officinale*.

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### Specifications Table

| Subject          | Ethnobotany, Ethnomedicine |
|------------------|-----------------------------|
| Specific subject area | Medicinal plants; alien species |
| Type of data     | Table, Image, Graph |
| How data were acquired | Fieldwork investigations of traditional medicine markets, healthcare outlets and shops; herbarium data; bibliographic research; literature survey |
| Data format      | Raw, Analyzed |
| Parameters for data collection | Alien plants identified in traditional healthcare outlets and markets, as well as imported species sold by traders of Indian, West African, East African, and Chinese origin. |
| Description of data collection | Fieldwork through visits to traditional medicine markets, healthcare outlets and shops where plants were inventoried, identified and classified. Also, bibliographic research and a literature survey. Photographs were taken of purchased specimens to create a reference library. |
| Data source location | Cities: Johannesburg, Pretoria, Durban |
|                   | Country: South Africa |
| Data accessibility | With the article |
| Related research article | V.L. Williams, E.M. Wojtasik, M.J. Byrne, 2021, A chronicle of alien medicinal plants used as traditional medicine in South Africa, with their status as invasive weeds, S. Afr. J. Bot. 142, 63–72. | https://doi.org/10.1016/j.sajb.2021.05.027 |

### Value of the Data

- The dataset records a consolidated list of 475 identified alien plant taxa (including photographs for 96) used as traditional medicines in South Africa (some of which are imported), and sold in a range of traditional medicine outlets.
- The photographs and common names serve as a guide/reference library to assist researchers with identifying alien plants recorded in surveys of traditional medicine markets.
- The data are relevant to researchers investigating traditional medicine use, urban migrant ethnobotany, and invasion biology.
- This inventory will provide a basis for future legislation in relation to regulation of alien plant species control.
1. Data Description

The data are presented as: (i) photographs taken of alien plants sold in Johannesburg, Pretoria and Durban in 2010/2011, as well as of plants sold by West and East African and Indian immigrants in Johannesburg 2017/2018 (Tables 1 and 2, for identified and unidentified plants.

Table 1
Photographic guide to identified alien plants sold for traditional medicine by traders in three South Africa cities. The key to the data in the tables underneath the photographs is in Fig. 1. The same scale bar is used in each image.

| Alien Plant                        | Identification | Country | CITES Code | Country | Scale | CITES Code |
|-----------------------------------|----------------|---------|------------|---------|-------|------------|
| *Abelmoschus esculentus* (L.) Moench | *Okra*; *Bhinda*; *Ladies fingers* | ZA; IN; NG |
| *Acmella caulirhiza* Delile        | *Sinini*      | ZA; I   | CD; ET; NG; IN |
| *Acrocalamus* L.                  | *Kalamusi; Ukalamu; Kalmoos* | ZA; B; ZA; I; 31 |
| *Acridocarpus* sp.                | *Mungombooro* | ZA; B; ZA; I; 4 |
| *Aframomum corrorima* (A.Braun) P.C.M.Jansen | *Korarima; Ethiopian cardamom; False cardamom* | ZA; B; ZA; I; 4 |
| *Aframomum melegueta* K.Schum.    | *Mondongo; Grains of paradise* | ZA; B; ZA; I; 3 |

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respectively); and (ii) a consolidated inventory of the alien plants used for traditional medicine (TM, or muthi) in South Africa, some of which are imported from the home countries of the TM traders of West and East African, Indian and Chinese origin (Table 3).

Regarding the photographic guide for 96 alien plants (Tables 1 and 2): accompanying each photograph of the specimens is the following information: species name; common name(s) provided by the survey respondents; language of common name; voucher specimen numbers in the Moss Herbarium (J) of the University of the Witwatersrand; invasive alien plant category.
Table 1 (continued)

| **Anredera cordifolia** (Ten.) Steenis | 1b |
|----------------------------------------|----|
| ndaba nghele;                         | ZA – B |
| Indaba-inghelhele;                     | ZA – I |
| umdabu                                 | ER    |
| Wojtasik 33                            | IN    |

| **Araucaria heterophylla** (Sallsb.) Franco | - |
|---------------------------------------------|---|
| Abangqongozi                               | ZA – I |
| Wojtasik 41                                | ER    |
|                                             | IN    |

| **Boswellia sp.**                         | - |
|-------------------------------------------|---|
| Frankincense;                             | ZA – B |
| Luban bakhoor;                            | ZA – I |
| Mamool, Al badar                          | ER    |
| Burness 34                                | IN    |
|                                             | AE    |

| **Brassica sp.**                          | - |
|-------------------------------------------|---|
| Mustard seed; Pogo                       | ZA – B |
| Wojtasik 42                               | ER    |
|                                             | IN    |

| **Bryophyllum sp.**                       | - |
|-------------------------------------------|---|
| Umvuthaza;                                | ZA – B |
| mwuthuza                                  | ZA – I |
| Wojtasik 21, 24                           | ER    |
|                                             | IN    |

| **Bunium bulbocastanum** L.              | - |
|------------------------------------------|---|
| Black jerra; Black caraway               | ZA – B |
| Wojtasik 54                               | ER    |
|                                             | IN    |

(continued on next page)

(according to NEM:BA A&IS regulations [4,5]); nationality of the medicine traders; and, notes on source localities (e.g. imported or collected in southern Africa). A key explaining the photographic guide is given in Fig. 1.

Regarding the species inventory for 475 alien plants (Table 3): the species were documented in two separate studies (designated by A and B, and conducted in 2010/2011 and 2017/2018...
respectively in Table 3). In study A, the information originated from (i) a survey of traders in healthcare outlets/markets in Johannesburg, Pretoria and Durban in 2010/2011 (2011 market); and (ii) a literature survey, where species are classified according to whether they were recorded as being sold in a market or not (respectively, market & in lit. and in lit.) [1]. In study B, the information originated from (i) a survey of Indian, and West and East African traders in markets in Johannesburg in (2017 market); and (ii) from a catalogue of remedies sold in at least four TCM franchises in Johannesburg (2017 TCM-C.) [3]. The numbers of alien taxa per family for the

### Table 1 (continued)

| **Cinnamomum camphora** (L.) J. Presl | **Cinnamomum sp.** | **Cinnamomum verum** J. Presl | **Coffeea sp.** | **Cola acuminata** (P. Beauv.) Schott & Endl. |
|--------------------------------------|--------------------|--------------------------------|----------------|----------------------------------|
| Roslina, Uroslina Uloslina            | ZA – B             | -                              | -              | -                               |
| Wojtasik 44                          | ZA – I             | -                              | -              | -                               |
|                                     | 7                  | -                              | -              | -                               |
| **Iljantambo**                       | ZA – B             | -                              | -              | -                               |
| Wojtasik 45                          | ZA – I             | -                              | -              | -                               |
|                                     | 3                  | -                              | -              | -                               |
| **Burness 61**                       | IN; ET; SO         | -                              | -              | -                               |
| **Burness 65**                       |                     | -                              | -              | -                               |
| **Buse 12**                          |                     | -                              | -              | -                               |
| **Burness 12**                       |                     | -                              | -              | -                               |

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combined data sets are shown in Fig. 2. The number of taxa that were identified in each study and information type (e.g. A (2011 market) or B (2017 TCM-C)) are in Table 4. Furthermore, the species that were documented in more than one study are listed next to the information source. Information on the species includes their legal and introduction status in South Africa (as per [4,8]), and the number of taxa in these categories is summarised in Tables 5 and 6.
Table 1 (continued)

| Table 1 continued | Table 1 continued |
|-------------------|-------------------|
| **Echinochloa frumentacea Link** | **Elettaria cardamomum (L.) Maton** |
| Morio ZA-B | Green Cardimum; ZA-B |
| ZA-I | Green Elachi; ZA-I |
| CD | ER |
| ET | GH |
| NG | SO |
| IN | IN |
| Burness 60 | 2 |
| IN | |

| **Eleutherine bulbosa (Mill.) Urb.** | **Euphorbia tithymaloides L.** |
|--------------------------------------|----------------------------------|
| Abangqongqoxi ZA-B | ibunga labesu ZA-B |
| ZA-I | ZA-I |
| 4 | 5 |
| CD | ER |
| ET | GH |
| NG | SO |
| IN | IN |
| Wołtasik 49 | Wołtasik 35 |
| ZA | ZA |

| **Foeniculum vulgare Mill.** | **Gladiolus sp.** |
|-----------------------------|------------------|
| Fennel; Imboziso; Green Somph | Matungulopoli |
| ZA-B | ZA-B |
| ZA-I | ZA-I |
| 12 | 3 |
| CD | ER |
| ET | GH |
| NG | SO |
| IN | IN |
| Burness 52; Wołtasik 36 | Burness 17 |
| IN; ZA | CD |

(continued on next page)
### Table 1 (continued)

#### Gernicia kola Heckel

|                  | ZA – B | CD | ET | NG | IN |
|------------------|--------|----|----|----|----|
| Ngadiadja; Bitter kola | ZA – I | ER | GH | SO | 3  |
| Burness 16       | CD; NG |    |    |    |    |

#### Glycyrrhiza glabra L.

|                  | ZA – B | CD | ET | NG | IN |
|------------------|--------|----|----|----|----|
| Umlolumnandi; Mlomonandi; sweet roots | ZA – I | ER | GH | SO | 20 |
| Wojtasik 50      | IN     |    |    |    |    |

#### Hedychium gardnerianum Ker Gawl.

|                  | ZA – B | CD | ET | NG | IN |
|------------------|--------|----|----|----|----|
| Impande yen      | ZA – I | ER | GH | SO | 11 |
| Wojtasik 37      | ZA     |    |    |    |    |

#### Heinsia crinita (Wennberg) G.Taylor

|                  | ZA – B | CD | ET | NG | IN |
|------------------|--------|----|----|----|----|
| Kita mata        | ZA – I | ER | GH | SO | 5  |
| Burness 14       | CD     |    |    |    |    |

#### Helicteres isora L.

|                  | ZA – B | CD | ET | NG | IN |
|------------------|--------|----|----|----|----|
| Jikantambo; Jigantambu | ZA – I | ER | GH | SO | 21 |
| Wojtasik 51      | IN     |    |    |    |    |

(continued on next page)
Table 1 (continued)

| Lepidium sativum L. |  |
|---------------------|--|
| Cress; Shinfal; Feto; Asario | ZA – B |
| Burness 22 | IN; ET |
| CD | ET | NG | IN |
| ER | GH | SO | 4 | 2 |

| Linum usitatissimum L. |  |
|------------------------|--|
| Lin seed; Telba | ZA – B |
| Burness 24 | IN; ET |
| CD | ET | NG | IN |
| ER | GH | SO | 4 | 3 |

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Table 1 (continued)

| Lippia abyssinica (Otto & A.Dietr.) Cufo. | Macadamia sp. |
|-----------------------------------------|---------------|
| Koseret                                 | Macadamia nut |
| ZA – B                                  | ZA – I        |
| ZA – I                                  | ER            |
| CD                                      | GH            |
| ET                                      | NG            |
| IN                                      | ZA – I        |
| IN; ZA                                  |               |

| Burness 40 | ET |
|------------|----|

| Melaleuca leucadendron (L.) L. | Microgramma lycopodioides (L.) Copel. |
|-------------------------------|--------------------------------------|
| Long-leaved paperbark         |                                      |
| ZA – B                        |                                      |
| ZA – I                        |                                      |
| CD                            |                                      |
| ET                            |                                      |
| NG                            |                                      |
| IN                            |                                      |
| 12                            |                                      |

| Wojtasik 31 | ZA |
|-------------|----|

| Microgramma lycopodioides (L.) Copel. | Momordica charantia L. |
|--------------------------------------|------------------------|
| Ikhambi lentwala                     | Bitter melon; Karela;  |
| ZA – B                               | Bitter gourd           |
| ZA – I                               | IN                     |
| CD                                    | ER                     |
| ET                                    | GH                     |
| NG                                    | SO                     |
| IN                                    |                        |
| 2                                     |                        |

| Wojtasik 16; 17 | ZA |
|-----------------|----|

| Mimosa pudica var. hispida Brenan | Momordica charantia L. |
|----------------------------------|------------------------|
| Imbune                           | Bitter melon; Karela;  |
| ZA – B                           | Bitter gourd           |
| ZA – I                           | IN                     |
| CD                               | ER                     |
| ET                               | GH                     |
| NG                               | SO                     |
| IN                               |                        |
| 1                                |                        |

| Wojtasik 34 | IN |
|-------------|----|

(continued on next page)
Table 1 (continued)

| Monodora myristica (Gaertn.) Dunal |  |
|-----------------------------------|--|
| Mpeve                            | CD | ET | NG | IN |
| Burness 18                       | CD | NG |

| Moringa oleifera Lam. |  |
|-----------------------|--|
| Moringa; Indian drumstick | CD | ET | NG | IN |
| Burness 3, 63         | ZA | CD | NG | IN |

| Myristica fragrans Houtt. |  |
|--------------------------|--|
| Nutmeg; Jwancy; Mace     | CD | ET | NG | IN |
| Burness 19               | IN | CD | NG | ET |

| Nigella sativa L. |  |
|------------------|--|
| Black seed; Tikur azmud; Kalonji; Black cumin | CD | ET | NG | IN |
| Burness 8        | IN | ET | SO | NG |

(continued on next page)
Table 1 (continued)

| Ocimum basilicum L. | - |
|---------------------|--|
| Tukmoría; Seseg; Beso bela | ZA - B CD ET NG IN |
| Burness 36; 58 | IN; ET |

| Opuntia ficus-indica (L.) Mill. | 1b |
|---------------------------------|--|
| Dolifiya | ZA - E CD ET NG IN |
| Wojtasik 27 | ZA - I ER GH SO |

| Opuntia robusta H.L. Wendl. ex Pfeiff. | 1a |
|----------------------------------------|--|
| Dolifiya; umhloholo | ZA - E CD ET NG IN |
| Wojtasik 29; 28 | ZA; IN |

| Piper longum L. | - |
|-----------------|--|
| Lindy pepper; long pepper; Timiz | ZA - B CD ET NG IN |
| Burness 55 | IN; ER |

| Piper nigrum L. | - |
|-----------------|--|
| Black pepper; Kundo berbere; Kechu | ZA - B CD ET NG IN |
| Burness 64 | IN; CD; ZA; ET; NG; VN; KH |

(continued on next page)
Table 1 (continued)

| Plant Species            | Code | CD | ET | NG | IN |
|--------------------------|------|----|----|----|----|
| *Platycarpa sp.*         | ZA   |    |    |    |    |
| Imbune; Mbuza            | B    |    |    |    |    |
| Wójtasik 22; 23          |      |    |    |    |    |
| *Quassia africana* (Baill.) Baill. | ZA   |    |    |    |    |
| Mupeshioshi              | B    |    |    |    |    |
| Burren 21                |      |    |    |    |    |
| *Quercus infectoria* G.Olivier | ZA   |    |    |    |    |
| Manjupal                 | B    |    |    |    |    |
| Wójtasik S3              |      |    |    |    |    |
| *Ricinus communis* L.    | ZA   |    |    |    |    |
| Umhlakuva                | B    |    |    |    |    |
| Wójtasik S4              |      |    |    |    |    |
| *Ruta chalepensis* Mill. | ZA   |    |    |    |    |
| Chena- adam; Tena- adam; Rue | B    |    |    |    |    |
| Burness 39               |      |    |    |    |    |
| *Salvadora persica* L.   | ZA   |    |    |    |    |
| Miswak; Siwak            | B    |    |    |    |    |
| Burness 5                |      |    |    |    |    |

(continued on next page)
Table 1 (continued)

|            | ZA – B | CD | ET | NG | IN |
|------------|--------|----|----|----|----|
| **Salvia hispanica L.** |         |    |    |    |    |
| Chia seed  | ZA – I  |    |    |    |    |
| Burness 59 | IN      |    |    |    |    |

|            | ZA – B | CD | ET | NG | IN |
|------------|--------|----|----|----|----|
| **Senna alexandrina Mill.** |         |    |    |    |    |
| Senns pods; | ZA – B  | CD | ET | NG | IN |
| Senna leaves | ZA – I  |    |    |    |    |
| Wojtasik 43 | IN      |    |    |    |    |

|            | ZA – B | CD | ET | NG | IN |
|------------|--------|----|----|----|----|
| **Syzygium aromaticum (L.) Merr. & L.M.Perry** |         |    |    |    |    |
| Cloves; Krenfud; | ZA – B  | CD | ET | NG | IN |
| Kadesheraf   | ZA – I  |    |    |    |    |
| Burness 66  | IN; CD; NG; ET; VN |    |    |    |    |

|            | ZA – B | CD | ET | NG | IN |
|------------|--------|----|----|----|----|
| **Terminalia chebula Retz.** |         |    |    |    |    |
| Hurle (large & small) | ZA – I  | CD | ET | NG | IN |
| Wojtasik 55; 56 | IN      |    |    |    |    |

|            | ZA – B | CD | ET | NG | IN |
|------------|--------|----|----|----|----|
| **Thymus schimperi Ronniger** |         |    |    |    |    |
| Tosegn; Tosign; | ZA – B  | CD | ET | NG | IN |
| Ethiopian thyme | ZA – I  |    |    |    |    |
| Burness 37  | ET      |    |    |    |    |

(continued on next page)
### Table 1 (continued)

#### Trachyspermum ammi (L.) Sprague

|          | ZA-B | CD | ET | NG | IN |
|----------|------|----|----|----|----|
| Neche- asmud; Ethiopiann caraway; Ajmo | ZA-I | ER | GH | SO | 3  |
| Burness 38 |      | ET | IN |    |    |

#### Trigonella foenum-graecum L.

|          | ZA-B | CD | ET | NG | IN |
|----------|------|----|----|----|----|
| Abish; Ethiopan fenugreek; Methi | ZA-I | ER | GH | SO | 3  |
| Burness 25 |      | ET | IN |    |    |

#### Withania somnifera (L.) Dunal

|          | ZA-B | CD | ET | NG | IN |
|----------|------|----|----|----|----|
| Μυγνη; υπομηγνη; μυγυ | ZA-I | ER | GH | SO | 14 |
| Wojtasik 57 |      |    |    |    | IN |

#### Xylopia aethiopica (Dunal) A.Rich.

|          | ZA-B | CD | ET | NG | IN |
|----------|------|----|----|----|----|
| Kuyakuya | ZA-I | ER | GH | SO | 1  |
| Burness 15 |      | CD |    |    |    |

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Table 1 (continued)

| Zingiber officinale Roscoe | - |  |
|----------------------------|---|---|
| Ginger; Zinjibel;          | ZA-B | CD | ET | NG | IN |
| Nginga; Targawisi          | ZA-I | ER | GH | SO | 13 |
| Burness                    | ZA; IN; ET; CD | 3 | 3 |

| Ziziphus jujuba Mill.      | - |  |
|----------------------------|---|---|
| Quasil                     | ZA-B | CD | ET | NG | IN |
| Burness 6                  | ZA-I | ER | GH | SO | 3 |

Table 2
Photographic guide to the unidentified alien plants sold for traditional medicine by traders in three South Africa cities. The key to the data in the tables underneath the photographs is in Fig. 1.

| Unidentified: Leguminosae  | - |  |
|----------------------------|---|---|
| Tiny bean                  | ZA-B | CD | ET | NG | IN |
|                           | ZA-I | ER | GH | SO | 3 |
| Burness 2                  | IN  | 3 | 3 |

| Unidentified               | - |  |
|----------------------------|---|---|
| Diliisi                    | ZA-B | CD | ET | NG | IN |
|                           | ZA-I | ER | GH | SO | 4 |
| Burness 7                  | SO; KE | 4 |

| Unidentified, may be Pterocarpus santalinus L.f. | - |  |
|--------------------------------------------------|---|---|
| Shumburo                                         | ZA-B | CD | ET | NG | IN |
|                                                 | ZA-I | ER | GH | SO | 3 |
| Burness 11                                       | SO; KE | 3 |

| Unidentified               | - |  |
|----------------------------|---|---|
| Jedjedi                     | ZA-B | CD | ET | NG | IN |
|                           | ZA-I | ER | GH | SO | 2 |
| Burness 26                  | NG  | 2 | 2 |

(continued on next page)
Table 2 (continued)

| Unidentified, may be *Symphonia globulifera* L.f. | - |
|--------------------------------------------------|---|
| Afato; Ale                                       |  |
| Burness 29                                       | NG |

| Unidentified | - |
|--------------|---|
| Opa eyn      |  |
| Burness 30   | NG |

| Unidentified | - |
|--------------|---|
| Indian peanuts; Indian beans; Indian pearls     |  |
| Wojtasik 58  | IN |

| Unidentified tuber | - |
|--------------------|---|
| Kapoor kachi       |  |
| Wojtasik 59        | IN |

(continued on next page)
Table 2 (continued)

| Unidentified                  | ZA | CD | ET | NG | IN |
|-------------------------------|----|----|----|----|----|
| Kamal kadi; Kamal kachie; Impitie | ZA-1 |    |    |    |    |
| Wojtasik 60                   | IN  |    |    |    |    |
| Unidentified                  | ZA | CD | ET | NG | IN |
| Dumapansi; dumaphanzi         | ZA-1 |    |    |    |    |
| Wojtasik 61                   | IN  |    |    |    |    |
| Unidentified                  | ZA | CD | ET | NG | IN |
| Girmaising                    | ZA-1 |    |    |    |    |
| Wojtasik 62                   | IN  |    |    |    |    |
| Unidentified                  | ZA | CD | ET | NG | IN |
| Inhlanhla emhlophe             | ZA-1 |    |    |    |    |
| Wojtasik 63                   | IN  |    |    |    |    |
| Unidentified                  | ZA | CD | ET | NG | IN |
| Inderjow                      | ZA-1 |    |    |    |    |
| Wojtasik 64                   | IN  |    |    |    |    |
| Unidentified                  | ZA | CD | ET | NG | IN |
| Iphengula                     | ZA-1 |    |    |    |    |
| Wojtasik 65                   | IN  |    |    |    |    |

(continued on next page)
### Table 2 (continued)

| Unidentified                  | -       |
|-------------------------------|---------|
| Unukani; Oyikambi            |         |
| Wojtasik 66                  | IN      |
| Mango tree bark              |         |
| Burness 20                   | CD      |

| ZA – B | CD | ET | NG | IN |
|--------|----|----|----|----|
| ZA – I |    |    |    |    |
| 9      |    |    |    |    |
|        |    |    |    |    |
| ZA – B | CD | ET | NG | IN |
| ZA – I |    |    |    |    |
|        |    |    |    |    |
|        |    |    |    |    |
|        |    |    |    |    |
|        |    |    |    |    |
|        |    |    |    |    |

| Unidentified                  | -       |
|-------------------------------|---------|
| Unukani; Oyikambi            |         |
| Wojtasik 66                  | IN      |
| Mango tree bark              |         |
| Burness 20                   | CD      |

| ZA – B | CD | ET | NG | IN |
|--------|----|----|----|----|
| ZA – I |    |    |    |    |
| 9      |    |    |    |    |
|        |    |    |    |    |
| ZA – B | CD | ET | NG | IN |
| ZA – I |    |    |    |    |
|        |    |    |    |    |
|        |    |    |    |    |
|        |    |    |    |    |
|        |    |    |    |    |
|        |    |    |    |    |
Table 3
Inventory of plant, fungi and algae inventoried in traditional medicine outlets and markets in three South African cities, a TCM catalogue, and from the literature. The data are a consolidation of two studies conducted in 2010/2011 [1] and 2017/2018 [3].
Information source refers to the year of the study and the origin of the information, where: A = 2010/2011; B = 2017/2018; market = obtained from a survey of traders selling alien medicinal plants in markets or outlets such as shops in Johannesburg, Pretoria and/or Durban; in lit. = obtained from a literature survey of alien plants used in South Africa; market & in lit. = recorded in the literature as being sold in a market/outlet in South Africa; TCM-C = obtained from a catalogue of Traditional Chinese Medicine remedies sold in at least four franchises in Johannesburg.
The legal invasive status (the species’ status in terms of NEM:BA A&Is regulations, from [4–6]), where: category 1a = invasive species that must be combatted or nationally eradicated; 1b = invasive species that must be controlled in accordance with a national management programme, and cannot be traded or otherwise allowed to spread; 2 = invasive species that are the same as category 1b species except that permits are required to carry out restricted activities (cultivation, ownership and trade), and they must be controlled in the absence of a permit. Persons in control of these species, or persons in possession of permits, must ensure that specimens of the species do not spread outside the areas specified on the permits; 3 = invasive species that are subject to exemptions and can be kept without permits, but they cannot be further traded or propagated and must be controlled. Species occurring in riparian zones must be treated as category 1b species and managed accordingly; unlisted = alien species that are not listed in the regulations, but that have been reported as present outside of captivity or cultivation in South Africa or on offshore islands.
Introduction status in South Africa (from [7,8]), where: A0 = never introduced beyond limits of indigenous range to South Africa; C0 = individuals released outside of captivity or cultivation in location where introduced, but incapable of surviving for a significant period; C2 = individuals surviving outside of captivity or cultivation in location where introduced, but population not self-sustaining; D1 = self-sustaining population outside of captivity or cultivation, with individuals surviving a significant distance from the original point of introduction; E = fully invasive species, with individuals dispersing, surviving and reproducing at multiple sites across a greater or less spectrum of habitats and extent of occurrence; introduced = introduced, but no other data available.
Outlet and/or TCM catalogue frequency indicates the numbers of records for species that were sold in different traditional medicine outlets, and/or recorded in the TCM catalogue. Research conducted in 2011 (A) was with South African traders selling alien plants (including traders of Indian descent). Research conducted in 2017/2018 (B) was with post-1994 (im)migrant traders of West African, East African, Indian and Chinese origin. Blank cells indicate species that were not recorded during our market surveys.
CITES listing: Eight CITES listed species are indicated as bold superscripts next to the species, with CAI = CITES Appendix I, and CAII = CITES Appendix II; the CITES listing for Panax ginseng applies only to the population of the Russian Federation.

| Species                          | Family           | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|---------------------------------|------------------|--------------------|--------------------------------|---------------------|--------------------------------------|
| Abietmoschus esculentus (L.) Moench. | Malvaceae        | B (2017 market)    | Unlisted                       | E                   | 4                                    |
| Acacia decurrens (J.C.Wendl.) Wild. | Fabaceae         | A (in lit.)        | 2                               | E                   |                                      |
| Acacia farnesiana (L.) Willd.    | Fabaceae         | A (in lit.)        | Unlisted                       |                    |                                      |
| Acacia melanoxylon R.Br.         | Fabaceae         | A (in lit.)        | 2                               | E                   |                                      |
| Acacia pycnanthu Benth.          | Fabaceae         | A (in lit.)        | 1b                              | E                   |                                      |
| Acanthospermum australe (L.) Kunz | Asteraceae       | A (in lit.)        | Unlisted                       | C2                  |                                      |
| Acanthospermum glabratum (DC.) Wild | Asteraceae       | A (in lit.)        | Unlisted                       |                    |                                      |
| Acanthospermum hispidum DC.      | Asteraceae       | A (market & in lit.) | Unlisted                       | E                   |                                      |
| Acanthus polyacanthus Delile     | Acanthaceae      | A (in lit.)        | Unlisted                       |                    |                                      |
| Achillea millefolium L.          | Acanthaceae      | A (in lit.)        | Unlisted                       | E                   |                                      |
| Achyranthes aspera L. var. aspera| Acanthaceae      | A (in lit.)        | Unlisted                       | E                   |                                      |
| Achyranthes bidentata Blume      | Acanthaceae      | A (in lit.)        | Unlisted                       |                    |                                      |
| Acemia calthyca Delile           | Acanthaceae      | A (2011 market)    | Unlisted                       | E                   | 5                                    |
| Aconitum fischeri Reich.         | Ranunculaceae    | A (2017 TCM-C)     | Unlisted                       | 3                   | 1                                    |
| Acorus calamus L.                | Acoraceae        | A (2011 market); B (2017 TCM-C) | Unlisted                       | E                   | 31                                   |
Table 3 (continued)

| Species | Family | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|---------|--------|---------------------|---------------------------------|---------------------|---------------------------------------|
| Actaea dahurica (Turcz. ex Fisch. & C.A.Mey.) Franch. | Ranunculaceae | B (2017 TCM-C) | Unlisted | | 1 |
| Aframomum cf. corrorina (A.Braun) P.C.M.Jansen | Zingiberaceae | B (2017 market) | Unlisted | | 4 |
| Aframomum melegueta K.Schum. | Zingiberaceae | B (2017 market) | Unlisted | | 3 |
| Abrilyanthus enneaspermus (L.) Flicker | Violaceae | A (in lit.) | Unlisted | | |
| Agave americana L. subsp. americana var. americana | Agavaceae | A (in lit.) | Unlisted | | E |
| Agave sisalana Perrine | Agavaceae | A (market & in lit.) | 2 | E |
| Agave sp. | Agavaceae | A (in lit.) | | | |
| Ageratum conyzoides L. | Asphodelaceae | A (in lit.) | 1b | E |
| Alisma plantago-aquatica L. | Alismataceae | B (2017 TCM-C) | Unlisted | | 1 |
| Alnus glutinosa Durazz. | Fabaceae | A (in lit.) | 1b | E |
| Alternanthera sessilis (L.) R.Br. | Acanthaceae | B (2017 market) | Unlisted | | |
| Allium tuberosum Rottel ex Spreng. | Amaryllidaceae | B (2017 TCM-C) | Unlisted | | 3 |
| Alpinia officinarum Hance | Zingiberaceae | B (2017 TCM-C) | Unlisted | | 1 |
| Alternanthera sessilis (L.) R.Br. ex DC. | Acanthaceae | B (2017 market) | Unlisted | | |
| Anethum graveolens L. | Apiaceae | A (in lit.) | 3 | E |
| Anacardium occidentale L. | Anacardiaceae | A (2011 market) | Unlisted | | 2 |
| Angelica dahurica (Hoffm.) Benth. & Hook. f. | Apiaceae | B (2017 TCM-C) | Unlisted | | 5 |
| Annona cherimola Mill. | Annonaceae | B (2017 market) | Unlisted | | 1 |
| Annona squamosa L. | Annonaceae | B (2017 market) | Unlisted | | 30 |
| Ardisia chirayta (Oliv.) Nielsens. | Rubiaceae | B (2017 market) | Unlisted | | 7 |
| (continued on next page)
| Species | Family | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|---------|--------|---------------------|-------------------------------|---------------------|-------------------------------------|
| *Annona reticulata* L. | Annonaceae | A (market & in lit.); B (2017 market) | Unlisted | 1 | |
| *Anredera cordifolia* (Ten.) Steenis | Basellaceae | A (2011 market) | 1b E | 8 | |
| *Anthemis cotula* L. | Asteraceae | A (in lit.) | Unlisted | C2 | |
| *Anthoxanthum odoratum* L. var. *odoratum* | Poaceae | A (in lit.) | Unlisted | | |
| *Anthriscus sylvestris* var. *sylvestris* (L.) Hoffm. | Apiaceae | A (in lit.) | Unlisted | | |
| Apium graveolens L. | Apiaceae | A (in lit.) | Unlisted | | |
| *Arachis hypogaea* L. | Fabaceae | A (in lit.) | Unlisted | | |
| *Aralia bidwillii* Hook. | Araliaceae | A (in lit.) | Unlisted | | |
| *Aralia heterophylla* (Salisb.) Franco | Araliaceae | A (2011 market) | Unlisted | | |
| *Araujia sericifera* Brot. | Apocynaceae | A (in lit.) | Unlisted | | |
| *Argemone mexicana* L. | Papaveraceae | A (in lit.) | 1b E | | |
| *Argemone ochroleuca* Sweet | Papaveraceae | A (in lit.) | Unlisted | | |
| *Artemisia absinthium* L. | Asteraceae | A (in lit.) | Unlisted | | |
| *Artemisia anua* L. | Asteraceae | B (2017 market) | Unlisted | | |
| *Artemisia scoparia* Waldst. & Kitam. | Asteraceae | B (2017 TCM-C) | Unlisted | 1 | |
| *Arundo donax* L. | Poaceae | A (in lit.) | 1b E | 1 | |
| *Asarum heterotropoides* F.Schmidt | Aristolochiaceae | B (2017 TCM-C) | Unlisted | 1 | |
| *Asimina sp.* | Annonaceae | B (2017 market) | Unlisted | 4 | |
| *Asparagus cochinchinensis* (Lour.) Merr. | Asparagaceae | B (2017 TCM-C) | Unlisted | 14 | |
| *Astragalus mongholicus* Bunge | Fabaceae | B (2017 TCM-C) | Unlisted | 14 | |
| *Atractylodes lancea* (Thunb.) DC. | Asteraceae | B (2017 TCM-C) | Unlisted | 2 | |
| *Atractylodes macrocephala* Koidz. | Asteraceae | B (2017 TCM-C) | Unlisted | 14 | |
| *Atriplex nummularia* Lindl. | Chenopodiaceae | A (in lit.) | 2 E | | |
| *Aucklandia costus* Falc. | Chenopodiaceae | A (2017 TCM-C) | Unlisted | 1 | |
| *Avena fatua* L. | Poaceae | A (in lit.) | Unlisted | E | |
| *Avena sativa* L. | Poaceae | A (in lit.) | Unlisted | C0 | |
| *Azadirachta indica* A.Juss. | Meliaceae | B (2017 market) | Unlisted | 3 | |
| *Bauhinia variegata* L. | Fabaceae | A (in lit.) | 1b EC, KZN, LP, MP; 3 elsewhere | E | |
| *Beta vulgaris* L. subsp. *vulgaris* | Chenopodiaceae | A (in lit.) | Unlisted | | |

(continued on next page)
Table 3 (continued)

| Species                        | Family          | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|--------------------------------|-----------------|--------------------|--------------------------------|----------------------|---------------------------------------|
| *Bidens bipinnata* L.          | Asteraceae      | A (in lit.)        | Unlisted                       | E                    |                                       |
| *Bidens pilosa* L.             | Asteraceae      | A (in lit.)        | Unlisted                       | E                    |                                       |
| *Bletilla striata* (Thunb.) Rchb.f. CATI | Orchidaceae  | B (2017 TCM-C)    | Unlisted                       | 3                    |                                       |
| *Boswellia sp.*                | Burseraceae     | B (2017 market)   | Unlisted                       | 3                    |                                       |
| *Brassica juncea* (L.) Czern.  | Brassicaceae    | A (in lit.)        | Unlisted                       | E                    |                                       |
| *Brassica nigra* (L.) W.D.J.Koch | Brassicaceae   | A (in lit.)        | Unlisted                       | E                    |                                       |
| *Brassica rapa* L.             | Brassicaceae    | A (in lit.)        | Unlisted                       | E                    |                                       |
| *Brassica sp.*                 | Brassicaceae    | A (2011 market); B (2017 market) | Unlisted                       | E                    |                                       |
| *Bromus catharticus* Vahl.     | Poaceae         | A (in lit.)        | Unlisted                       | E                    |                                       |
| *Bryophyllum sp.*              | Crassulaceae    | A (2011 market)   | Unlisted                       | 4                    |                                       |
| *Buglossoides arvensis* (L.) I.M.Johnst. | Boraginaceae | A (in lit.)         | Unlisted                       | 1                    |                                       |
| *Bunium bulbocastanum* L.      | Apiaceae        | B (2017 market)   | Unlisted                       | 16                   |                                       |
| *Bupleurum chinense* DC.       | Apiaceae        | B (2017 TCM-C)    | Unlisted                       | 1                    |                                       |
| *Caesalpinia pulcherrima* (L.) Sw. | Fabaceae      | A (in lit.)        | Unlisted                       | C2                   |                                       |
| *Cannabis sativa* L.           | Cannabaceae     | A (in lit.)        | Unlisted                       | C2                   |                                       |
| *Capsella bursa-pastoris* (L.) Medik. | Brassicaceae | A (in lit.)         | Unlisted                       | E                    |                                       |
| *Cardiospermum halicacabum* L. | Sapindaceae     | A (in lit.)        | 3                               | E                    |                                       |
| *Carduus tenuiflorus* Curtis   | Asteraceae      | A (market & in lit.) | Unlisted                       | E                    |                                       |
| *Cassia papaya* L.             | Caricaceae      | A (in lit.)        | Unlisted                       | E                    |                                       |
| *Carpinus lanatus* L.          | Asteraceae      | A (in lit.)        | Unlisted                       | E                    |                                       |
| *Carthamus tinctorius* L.      | Asteraceae      | B (2017 TCM-C)    | Unlisted                       | 6                    |                                       |
| *Cassia fistula* L.            | Fabaceae        | A (2011 market)   | Unlisted                       | 3                    |                                       |
| *Cassytha filiformis* L.       | Lauraceae       | A (market & in lit.) | Unlisted                       | E                    |                                       |
| *Cassia auriculata* (L.) D.Don | Apocynaceae     | A (in lit.)        | 1b excluding sterile cultivars | E                    |                                       |
| *Centaurea americana* (L.) Morrone | Poaceae      | A (in lit.)         | Unlisted                       | 1b (see NEM:BA) | E                                       |
| *Centaurea caucasica* (Hochst. ex Chiov.) | Poaceae       | A (in lit.)        | Unlisted                       | 2                    | E                                       |
| *Centaurea solstitialis* L.    | Asteraceae      | A (in lit.)        | Unlisted                       | 2                    | E                                       |
| *Centaurea sylvestris* L.      | Asteraceae      | A (in lit.)        | Unlisted                       | C2                   |                                       |
| *Centaurea melitensis* L.      | Asteraceae      | A (in lit.)        | Unlisted                       | C2                   |                                       |

(continued on next page)
| Species | Family | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|---------|--------|---------------------|-------------------------------|---------------------|-------------------------------------|
| *Centella asiatica* (L) Urb. | Apiaceae | A (in lit.) | Unlisted | | |
| *Ceratonia silqua* L. | Fabaceae | A (in lit.) | Unlisted | | |
| *Cereus jamacaru* DC. | Cactaceae | A (market & in lit.) | 1b | E | |
| *Centaurium leucobodium* Schultd. | Solanaceae | A (in lit.) | 1b | E | |
| *Chenopodium album* L. | Chenopodiaceae | A (in lit.) | Unlisted | | |
| *Chenopodium opulifolium* Schltdl. | Chenopodiaceae | A (in lit.) | Unlisted | | |
| *Chrysanthemum indicum* L. | Asteraceae | A (2017 TCM-C) | Unlisted | | |
| *Chrysanthemum morifolium* Ramat. | Asteraceae | B (2017 TCM-C) | Unlisted | | |
| *Cichorium intybus* L. subsp. intybus | Asteraceae | A (in lit.) | Unlisted | | |
| *Cinnamomum camphora* (L.) J. Presl. | Lauraceae | A (market & in lit.); B (2017 market) | 1b EC, KZN, LP, MP and 3 WC | E | |
| *Cinnamomum sp.* | Lauraceae | A (2011 market) | 3 | | |
| *Clematis armandii* Franch. | Ranunculaceae | A (2017 TCM-C) | Unlisted | | |
| *Clematis sp.* | Ranunculaceae | A (market & in lit.) | 1b | E | |
| *Cnidium monnieri* (L.) Cusson | Apocynaceae | A (2017 TCM-C) | Unlisted | | |
| *Coix lacryma-jobi* L. | Poaceae | A (2011 market); B (2017 market) | Unlisted | 7 | |
| *Corydalis yanhusuo* (Y.H.Chou & Chun C.Hsu) W.T.Wang ex Z.Y.Su & C.Y.Wu | Papaveraceae | A (2017 TCM-C) | Unlisted | 7 | |
| *Corymbia ficifolia* (F.Muell.) K.D.Hill & L.A.S.Johnson | Myrtaceae | A (in lit.) | Unlisted | | |

(continued on next page)
| Species                      | Family      | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|------------------------------|-------------|--------------------|--------------------------------|---------------------|--------------------------------------|
| *Cosmos bipinnatus* Cav.     | Asteraceae  | A (in lit.)        | Unlisted                       | E                   | 7                                    |
| *Craetaegus laevigata* (Poir.) DC. | Rosaceae   | B (2017 TCM-C)     | Unlisted                       | 1                   |                                      |
| *Craetaegus pinatifida* Bunge | Rosaceae   | B (2017 TCM-C)     | Unlisted                       | 2                   |                                      |
| *Crinitaria tatarica* (Less.) Sojak | Asteraceae | B (2017 TCM-C)     | Unlisted                       | 2                   |                                      |
| *Crotalaria brevidens* var. *intermedia* (Kotschy) Polhill | Fabaceae   | A (in lit.)        | Unlisted                       |                    |                                      |
| *Crotalaria juncea* L.       | Fabaceae    | A (in lit.)        | Unlisted                       |                    |                                      |
| *Cucumis melo* L.            | Cucurbitaceae | B (2017 market)  | Unlisted                       | 1                   |                                      |
| *Cuminum cyminum* L.         | Apiaceae    | B (2017 market)    | Unlisted                       | 4                   |                                      |
| *Curculigo orchioides* Gaertn. | Hypoxidaceae | B (2017 TCM-C)  | Unlisted                       | 1                   |                                      |
| *Curcuma longa* L.           | Zingiberaceae | A (2011 market); B (2017 market) | Unlisted                       | 5                   | 7                                    |
| *Cynodon aethiopicus* Clayton & J.R.Harlan | Poaceae | A (in lit.) | Unlisted                       |                    |                                      |
| *Cynodon sp.*                | Poaceae     | A (in lit.)        | Unlisted                       |                    |                                      |
| *Cynodon variegata* Clayton & J.R.Harlan | Poaceae | A (in lit.) | Unlisted                       |                    |                                      |
| *Cynomorium coccineum* L.    | Rosaceae    | A (in lit.)        | Unlisted                       |                    |                                      |
| *Cynopsis scapanus* L.       | Cyperaceae  | B (2017 TCM-C)     | Unlisted                       | 1                   |                                      |
| *Dactylis glomerata* L.      | Poaceae     | A (in lit.)        | Unlisted                       |                    |                                      |
| *Datura ferox* L.            | Solanaceae  | A (in lit.)        | Unlisted                       |                    |                                      |
| *Datura metel* L.            | Solanaceae  | A (market & in lit.) | Unlisted                       |                    |                                      |
| *Datura sp.*                 | Solanaceae  | A (in lit.)        | Unlisted                       |                    |                                      |
| *Datura stramonium* L.       | Solanaceae  | A (market & in lit.) | Unlisted                       |                    |                                      |
| *Datura wrightii* Regel      | Solanaceae  | A (in lit.)        | Unlisted                       |                    |                                      |
| *Daucus carota* L.           | Apioideae   | A (in lit.)        | Unlisted                       |                    |                                      |
| *Dianthus*   Caryophylus L.   | Caryophylaceae | B (2017 TCM-C)  | Unlisted                       | 1                   |                                      |
| *Dianthus*   chinensis L.     | Caryophylaceae | B (2017 TCM-C)  | Unlisted                       | 1                   |                                      |
| *Digitaria sanguinalis* (L.) Scop. | Poaceae | A (in lit.) | Unlisted                       |                    |                                      |
| *Dinocarpos*   longan* Lour.  | Sapindaceae | B (2017 TCM-C)  | Unlisted                       |                    |                                      |
| *Dioscorea oppositifolia* L. | Dioscoreaceae | B (2017 TCM-C)  | Unlisted                       |                    |                                      |
| *Dracaena angolensis* (Welw. ex Carrière) Byng & Christenh. | Dracaenaceae | A (2011 market) | Unlisted                       |                    |                                      |
| *Dracaena fasciata* (Cornu ex Gérôme & Labroy) Byng & Christenh | Dracaenaceae | A (2011 market) | Unlisted                       |                    |                                      |
| *Duchesnea indica* (Jacks.) Focke | Rosaceae   | A (in lit.)        | 1b                             | E                   |                                      |
| *Duranta erecta* L.          | Verbenaceae | A (in lit.)        | 3 GP, KZN, LP, MP, NW          | E                   |                                      |

(continued on next page)
| Species                          | Family               | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|---------------------------------|----------------------|--------------------|-------------------------------|---------------------|--------------------------------------|
| *Dysphania ambrosioides* (L.) Mosyakin & Clements | Chenopodiaceae       | A (market & in lit.) | Unlisted                      |                     |                                      |
| *Echinochloa frumentacea* Link | Poaceae              | B (2017 market)    | Unlisted                      | 2                   |                                      |
| *Eclipta prostrata* (L.) L.    | Asteraceae           | A (market & in lit.); B (2017 TCM-C) | Unlisted | 1                   |                                      |
| *Eleteraria cardamomum* (L.) Maton | Zingiberaceae       | B (2017 market)    | Unlisted                      | 5                   |                                      |
| *Eleutherine bulbosa* (Mill.) Urb. | Iridaceae           | A (2011 market)    | Unlisted                      | 4                   |                                      |
| *Elytrigia repens* (L.) Gould  | Poaceae              | A (in lit.)        | Unlisted                      |                     |                                      |
| *Ephedra sp.*                  | Ephedraceae          | B (2017 TCM-C)     | Unlisted                      | 4                   |                                      |
| *Epimedium sp.*                | Berberidaceae        | B (2017 TCM-C)     | Unlisted                      | 1                   |                                      |
| *Eriobotrya japonica* (Thunb.) Lindl. | Rosaceae           | A (market & in lit.); B (2017 TCM-C) | 1b WC and forest biome |                     |                                      |
| *Erodium cicutarium* (L.) L'Hér. | Geraniaceae         | A (in lit.)        | Unlisted                      |                     |                                      |
| *Erythrostemon gilliesii* (Hook.) Klotzch | Fabaceae         | 1b                  | E                             |                     |                                      |
| *Eschscholzia californica* subsp. californica | Papaveraceae      | A (in lit.)        | Unlisted                      | C2                  |                                      |
| *Ethulia conyoides* L.f.        | Asteraceae           | A (in lit.)        | Unlisted                      |                     |                                      |
| *Eucalyptus camaldulensis* Dehnh. | Myrtaceae           | A (in lit.)        | Unlisted                      |                     |                                      |
| *Eucalyptus globulus* Labill.   | Myrtaceae            | A (in lit.)        | Unlisted                      |                     |                                      |
| *Eucalyptus grandis* W.Hill ex Maiden | Myrtaceae          | A (in lit.)        | 1b and 2                      | E                   |                                      |
| *Eucalyptus sp.*               | Myrtaceae            | A (market & in lit.) | Unlisted                      |                     |                                      |
| *Eucommia ulmoides* Oliv.      | Eucommiaceae         | B (2017 TCM-C)     | Unlisted                      | 2                   |                                      |
| *Euphorbia helioscopia* L.      | Euphorbiaceae        | A (in lit.)        | Unlisted                      |                     |                                      |
| *Euphorbia heterophylla* L.     | Euphorbiaceae        | A (in lit.)        | Unlisted                      |                     |                                      |
| *Euphorbia indica* Lam.         | Euphorbiaceae        | A (in lit.)        | E                             |                     |                                      |
| *Euphorbia lathyris* L.         | Euphorbiaceae        | A (in lit.)        | Unlisted                      |                     |                                      |
| *Euphorbia peplus* L.           | Euphorbiaceae        | A (in lit.)        | E                             |                     |                                      |
| *Euphorbia prostrata* Aiton CAII | Euphorbiaceae       | A (in lit.)        | Unlisted                      |                     |                                      |
| *Euphorbia tithymaloides* L.    | Euphorbiaceae        | A (2011 market)    | Unlisted                      | 5                   |                                      |
| *Fagopyrum esculentum* Moench   | Polygonaceae         | A (in lit.)        | Unlisted                      |                     |                                      |
| *Foeniculum vulgare* Mill.     | Apiaceae             | A (2011 market); B (2017 TCM-C) | Unlisted | E                   | 12 3 2                                |
| *Forsythia suspensa* (Thunb.) Vahl | Oleaceae            | B (2017 TCM-C)     | Unlisted                      | 3                   |                                      |
| *Fragaria vesca* L.            | Rosaceae             | A (in lit.)        | Unlisted                      |                     |                                      |
| *Fritillaria cirrhosa* D.Don    | Liliaceae            | B (2017 TCM-C)     | Unlisted                      | 2                   |                                      |
| *Fumaria muralis* Sond. ex W.D.J.Koch | Fumariaceae    | A (in lit.)        | Unlisted                      | C2                  |                                      |
| *Galinsoga parviflora* Cav.     | Asteraceae           | A (in lit.)        | E                             |                     |                                      |
| *Ganoderma lucidum* (Curtis) P. Karst | Ganodermataceae   | B (2017 TCM-C)     | Unlisted                      | 2                   |                                      |
| *Garcinia kola* Heckel           | Clusiaceae           | B (2017 market)    | Unlisted                      | 3                   |                                      |
| *Gardenia jasminoides* J.Ellis   | Rubiaceae            | B (2017 TCM-C)     | Unlisted                      | 5                   |                                      |

(continued on next page)
| Species                                      | Family            | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|----------------------------------------------|-------------------|--------------------|--------------------------------|---------------------|--------------------------------------|
| *Gastrodia elata* Blume **CAl**             | Orchidaceae       | B (2017 TCM-C)     | Unlisted                       |                      |                                      |
| *Gentiana crassicaulis* Dutchie ex Burbill   | Gentianaceae      | B (2017 TCM-C)     | Unlisted                       |                      |                                      |
| *Gentiana manshurica* Kitag                  | Gentianaceae      | B (2017 TCM-C)     | Unlisted                       |                      |                                      |
| *Ginkgo biloba* L.                          | Ginkgoaceae       | B (2017 TCM-C)     | Unlisted                       |                      |                                      |
| *Gladiolus sp.*                             | Iridaceae         | B (2017 market)    | 3                              |                      |                                      |
| *Glebionis segetum* (L.) Fourn.             | Asteraceae        | A (in lit.)        | Unlisted                       |                      |                                      |
| *Gleditsia triacanthos* L.*                 | Fabaceae          | A (in lit.)        | 1b excluding sterile cultivars | E                   |                                      |
| *Glycyrrhiza glabra* L.*                    | Fabaceae          | A (2011 market); B (2017 market); B (2017 TCM-C) | Unlisted                       |                      |                                      |
| *Glyphaea brevis* (Spreng.) Monach           | Malvaceae         | B (2017 market)    | Unlisted                       |                      | 20                                   |
| *Gnetum africanum* Welw.                    | Gnetaceae         | B (2017 market)    | 1                              |                      |                                      |
| *Gomphrena celosioides* Mart.               | Amaranthaceae     | A (in lit.)        | Unlisted                       | E                   |                                      |
| *Gomphrena globosa* L.                      | Amaranthaceae     | A (in lit.)        | Unlisted                       |                      |                                      |
| *Gymnanthemum anygdalinum* (Delile) Sch.Bip. | Asteraceae        | B (2017 market)    | 3                              |                      |                                      |
| *Hedychium gardnerianum* Sheppard ex Ker Gawl | Zingiberaceae    | A (2011 market)    | 1b                             | E                   |                                      |
| *Heinsia crinita* (Wennberg) C.Taylor        | Rubiaceae         | B (2017 market)    | Unlisted                       |                      |                                      |
| *Helianthus annuus* L.                      | Asteraceae        | A (in lit.)        | Unlisted                       | E                   | 5                                    |
| *Helicteres isora* L.                       | Malvaceae         | A (2011 market)    | Unlisted                       |                      | 21                                   |
| *Helminthotheca echoides* (L.) Holub         | Asteraceae        | A (in lit.)        | Unlisted                       |                      |                                      |
| *Hibiscus sabdariffa* L.                    | Malvaceae         | B (2017 market)    | Unlisted                       |                      | 1                                    |
| *Hordeum murinum* L.                        | Poaceae           | A (in lit.)        | Unlisted                       | E                   |                                      |
| *Houttuynia cordata* Thunb.                 | Saururaceae       | B (2017 TCM-C)     | 3                              | NA                  | 2                                    |
| *Hypericum perforatum* L.                   | Hypericaceae      | A (in lit.)        | 2                              | E                   |                                      |
| *Ibicella lutea* (Lindl.) Van Eselt.        | Pedaliaceae       | A (market & in lit.) | Unlisted                       |                      |                                      |
| *Illicium verum* Hook.f.                    | Schisandraceae    | B (2017 market)    | Unlisted                       |                      | 3                                    |
| *Impatiens walleriana* Hook.f.              | Balsaminaceae     | A (in lit.)        | Unlisted                       |                      |                                      |
| *Ipomea alba* L.                            | Convolvulaceae    | A (market & in lit.) | 1b                             | E                   |                                      |
| *Ipomoea batatas* (L.) Lam.                 | Convolvulaceae    | A (in lit.)        | 1b                             | E                   |                                      |
| *Ipomoea indica* (Burm.f.) Merr. Var.       | Convolvulaceae    | A (in lit.)        | 1b                             | E                   |                                      |
| *Ipomoea purpurea* (L.) Roth                | Convolvulaceae    | A (in lit.)        | 1b                             | E                   |                                      |

(continued on next page)
### Table 3 (continued)

| Species                          | Family      | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|----------------------------------|-------------|--------------------|--------------------------------|----------------------|----------------------------------------|
| Iris domestica (L.) Goldblatt & Mabb. | Iridaceae   | A (in lit.)        | Unlisted                       | 1                    | 1                                      |
| Jasminum sp.                     | Oleaceae    | B (2017 TCM-C)     |                                 |                      |                                        |
| Jatropha curcas L.               | Euphorbiaceae | A (in lit.)       | 2                              | E                    |                                        |
| Jatropha podagrica Hook.         | Euphorbiaceae | A (market & in lit.) | Unlisted                      | D1                   |                                        |
| Juncus effusus L.                | Junceae     | B (2017 TCM-C)     |                                 |                      |                                        |
| Kalanchoe delagoensis Eckl. & Zeyh. | Crassulaceae | A (2011 market) | 1b                             | E                    | 1                                      |
| Kalanchoe pinnata (Lam.) Pers.   | Crassulaceae | A (market & in lit.) | Unlisted                      |                      |                                        |
| Lablab purpureus (L.) Sweet      | Fabaceae    | A (in lit.)        | Unlisted                       | E                    |                                        |
| Lactuca serriola L.              | Asteraceae  | A (in lit.)        | Unlisted                       | E                    |                                        |
| Laminariaceae sp.                | Laminariaceae | B (2017 TCM-C) |                                 |                      |                                        |
| Lentana camara L.                | Fabaceae    | A (in lit.)        | 1b                             | E                    |                                        |
| Lavandula angustifolia Mill.     | Lamiaceae   | B (2017 TCM-C)     |                                 | Unlisted             |                                        |
| Lepidium sativum L.              | Brassicaceae | B (2017 market)  | Unlisted                       |                      |                                        |
| Lepidium vulgare (Vaill.) Lam.   | Asteraceae  | A (in lit.)        | Unlisted                       | E                    |                                        |
| Ligusticum striatum DC.          | Apiaceae    | B (2017 TCM-C)     | Unlisted                       |                      | 19                                     |
| Ligustrum sp.                    | Oleaceae    | B (2017 TCM-C)     |                                 |                      | 1                                      |
| Lilium lancifolium Thunb.        | Liliaceae   | B (2017 TCM-C)     | Unlisted                       |                      |                                        |
| Linum usitatissimum L.           | Linaceae    | B (2017 market)    | Unlisted                       |                      | 7                                      |
| Lippia abyssinica (Otto & A.Dietr.) Cufod. | Verbenaceae | B (2017 market)  | Unlisted                       |                      | 2                                      |
| Lolium perenne L.                | Poaceae     | A (in lit.)        | Unlisted introduced            |                      |                                        |
| Lolium temulentum L.             | Poaceae     | A (in lit.)        | Unlisted                       |                      |                                        |
| Lonicera confusa DC.             | Caprifoliaceae | B (2017 TCM-C) | Unlisted                       | 5                    |                                        |
| Lycium barbarum L.               | Solanaceae  | B (2017 TCM-C)     | Unlisted                       |                      | 1                                      |
| Macadamia sp.                    | Proteaceae  | A (2011 market)    | 1                              |                      |                                        |
| Magnolia biondii Pamp.           | Magnoliaceae | B (2017 TCM-C) | Unlisted                       |                      | 1                                      |
| Magnolia officinalis Rehder & E.H.Wilson | Magnoliaceae | B (2017 TCM-C) | Unlisted                       |                      | 7                                      |
| Malva parviflora L.              | Malvaceae   | A (market & in lit.) | Unlisted                      | E                    |                                        |
| Malva pusilla Sm.                | Malvaceae   | A (in lit.)        | Unlisted                       |                      |                                        |
| Malva verticillata L.            | Malvaceae   | A (market & in lit.) | 1b                             | E                    |                                        |
| Mangifera indica L.              | Anacardiaceae | A (in lit.)  | Unlisted                       | E                    |                                        |
| Manihot esculenta Crantz         | Euphorbiaceae | A (in lit.)          | Unlisted                       | E                    |                                        |
| Marrubium vulgare L.             | Lamiaceae   | A (in lit.)        | Unlisted                       |                      |                                        |
| Melaleuca leucadendra (L.) L.    | Myrtaceae   | A (2011 market)    | Unlisted                       |                      | 12                                     |
| Melia azedarach L.               | Meliaceae   | A (in lit.)        | 1b and 3 in urban areas        | E                    |                                        |
| Melilotus indicus (L.) All.       | Fabaceae    | A (in lit.)        | Unlisted                       | E                    |                                        |
| Melilotus officinalis (L) Lam.    | Fabaceae    | A (in lit.)        | Unlisted                       |                      |                                        |

(continued on next page)
| Species                        | Family         | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|-------------------------------|----------------|-------------------|-------------------------------|---------------------|---------------------------------------|
| Mentha canadensis L.          | Lamiaceae      | B (2017 TCM-C)    | Unlisted                      | E                   | 3                                     |
| Mentha spicata L.             | Lamiaceae      | A (in lit.)       | Unlisted                      | E                   | 2                                     |
| Mercurialis annua L.          | Euphorbiaceae  | A (in lit.)       | Unlisted                      | E                   | 3                                     |
| Mesosphaerum pectinatum (L.) Kuntze | Lamiaceae    | A (in lit.)       | Unlisted                      | E                   | 3                                     |
| Mimosa pudica var. hispida Brenan | Fabaceae     | A (market & in lit.) | 1b                             | E                   | 1                                     |
| Mirabilis jalapa L.           | Nyctaginaceae  | A (in lit.)       | 1b                            | E                   | 2                                     |
| Momordica charantia L.        | Cucurbitaceae  | A (in lit.); B (2017 market) | Unlisted                      | E                   | 2                                     |
| Monodora myristica (Gaertn.) Dunal | Annonaceae   | B (2017 market)   | Unlisted                      | E                   | 3                                     |
| Morinda morindaoides (Baker) Milne-Redh. | Rubiaceae | B (2017 market)   | Unlisted                      | E                   | 1                                     |
| Moringa oleifera Lam.         | Moringaceae    | B (2017 market)   | Unlisted                      | E                   | 6                                     |
| Morus alba L.                 | Moraceae       | B (2017 TCM-C)    | 3                             | E                   | 2                                     |
| Musa × paradisiaca L.         | Musaceae       | A (in lit.)       | Unlisted                      | E                   | 7                                     |
| Myristica fragrans Houtt.     | Myristicaceae  | B (2017 market)   | Unlisted                      | E                   | 4                                     |
| Myrtus communism L.           | Myrtaceae      | A (in lit.)       | Unlisted                      | E                   | 7                                     |
| Nasturtium officinale W.T.Aiton | Brassicaceae  | A (in lit.)       | 2                             | E                   | 7                                     |
| Nelumbo nucifera Gaertn.      | Nelumbonaceae  | B (2017 TCM-C)    | Unlisted                      | E                   | 1                                     |
| Nepeta tenuifolia Benth.      | Lamiaceae      | B (2017 TCM-C)    | Unlisted                      | E                   | 2                                     |
| Nerium oleander L.            | Apocynaceae    | A (market & in lit.) | 1b excluding sterile cultivars | E                   | 5                                     |
| Nicandra physalodes (L.) Gaertn. | Solanaceae    | A (in lit.)       | 1b                            | E                   | 1                                     |
| Nicotiana glauca Graham       | Solanaceae     | A (in lit.)       | 1b                            | E                   | 1                                     |
| Nicotiana tabacum L.          | Solanaceae     | A (in lit.)       | Unlisted                      | E                   | 1                                     |
| Nigella sativa L.             | Ranunculaceae  | B (2017 market)   | Unlisted                      | E                   | 13                                    |
| Ocimum basilicum L.           | Lamiaceae      | B (2017 market)   | Unlisted                      | E                   | 3                                     |
| Ocimum gratissimum L.         | Lamiaceae      | B (2017 market)   | Unlisted                      | E                   | 1                                     |
| Oldenlandia affinis (Roem. & Schult.) DC. | Rubiaceae | B (2017 market)   | Unlisted                      | E                   | 1                                     |
| Ophiopogon japonicus (Thunh.) Ker Gawl. | Asparagaceae | B (2017 TCM-C)    | Unlisted                      | E                   | 13                                    |
| Opuntia ficus-indica (L.) Mill. | Cactaceae    | A (2011 market)   | 1b excluding spineless cultivars | E                   | 8                                     |
| Opuntia monacantha (Wild.) Haw. | Cactaceae    | A (in lit.)       | 1b                            | E                   | 1                                     |
| Opuntia robusta H.L.Wendl. ex Pfeiff. | Cactaceae | A (2011 market)   | 1a excluding spineless cultivars | E                   | 6                                     |
| Opuntia sp.                   | Cactaceae      | A (market & in lit.) | Unlisted                      | E                   | 5                                     |
| Oxalis corniculata L.         | Oxalidaceae    | A (in lit.)       | Unlisted                      | E                   | 3                                     |
| Paeonia anomala L.            | Paoniaceae     | B (2017 TCM-C)    | Unlisted                      | E                   | 20                                    |
| Paeonia lactiflora Pall.      | Paoniaceae     | B (2017 TCM-C)    | Unlisted                      | E                   | 10                                    |
| Paeonia suffruticosa Andrews  | Paoniaceae     | B (2017 TCM-C)    | Unlisted                      | E                   | 23                                    |
| Panax ginseng C.A.Mey. CAII   | Araliaceae     | B (2017 TCM-C)    | Unlisted                      | E                   | 3                                     |
| Panax notoginseng (Burkill) F.H.Chen | Araliaceae | B (2017 TCM-C)    | Unlisted                      | E                   | 3                                     |

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Table 3 (continued)

| Species | Family | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|---------|--------|--------------------|--------------------------------|---------------------|---------------------------------------|
| Paraserianthes lophantha (Willd.) | Fabaceae | A (in lit.) | 1b | E |
| L.C.Nielsen subsp. lophantha | | | | | |
| Parkinsonia aculeata L. | Fabaceae | A (in lit.) | 1b | E |
| Passalotum dilatatum Poir. | Poaceae | A (in lit.) | Unlisted | E |
| Passiflora caerulea L. | Passifloraceae | A (in lit.) | 1b | E |
| Passiflora edulis Sims. | Passifloraceae | A (in lit.) | 2 GP, NW, KZN, LP, MP, EC | E |
| Passiflora suberosa L. | Passifloraceae | A (market & in lit.) | 1b | E |
| Perilla frutescens (L.) Britton | Lamiaceae | B (2017 TCM-C) | Unlisted | E |
| Persea americana Mill. | Periplocaceae | A (market & in lit.); B (2017 market) | Unlisted | E |
| Persicaria hydropiper (L.) Delarbre | Polygonaceae | A (in lit.) | Unlisted | E |
| Persicaria lapathifolia (L.) Delarbre | Polygonaceae | A (in lit.) | Unlisted | E |
| Petroselinum crispum (Mill.) Fuss | Apiaceae | A (in lit.) | Unlisted | E |
| Phellodendron amurense Rupr. | Urticaceae | A (market & in lit.) | Unlisted | E |
| Phoenix dactylifera L. | Arecaceae | B (2017 market) | Unlisted | E |
| Physalis umbilicata L. | Sambucus | B (2017 market) | Unlisted | E |
| Physalis peruviana L. | Urticaceae | A (market & in lit.) | 3 | E |
| Phylanthus emblica L. | Phyllanthaceae | A (market & in lit.) | 1b | E |
| Physalis angulata L. | Solanaceae | A (in lit.) | Unlisted | C2 |
| Physalis peruviana L. | Solanaceae | A (in lit.) | Unlisted | E |
| Phytolacca americana L. | Phytolaccaceae | A (in lit.) | 1b | E |
| Phytolacca dioica L. | Phytolaccaceae | A (market & in lit.) | 1b | E |
| Phytolacca octandra L. | Phytolaccaceae | A (in lit.) | Unlisted | E |
| Pilea microphylla (L.) Liebm. | Urticaceae | A (market & in lit.) | Unlisted | E |
| Pinellia ternata (Thunb.) Makino | Araceae | B (2017 TCM-C) | Unlisted | E |
| Pinus roxburghii Sarg. | Pinaceae | A (in lit.) | 9 | E |
| Pinus sp. | Pinaceae | A (market & in lit.) | 2 | E |
| Piper longum L. | Piperaceae | B (2017 market) | Unlisted | E |
| Piper nigrum L. | Piperaceae | B (2017 market) | Unlisted | E |
| Plantago asiatica L. | Plantaginaceae | B (2017 TCM-C) | Unlisted | E |
| Plantago lanceolata L. | Plantaginaceae | A (in lit.) | Unlisted | E |
| Plantago major L. | Plantaginaceae | A (in lit.) | Unlisted | E |
| Platycladius orientalis (L.) Franco | Cupressaceae | B (2017 TCM-C) | Unlisted | E |
| Plectranthus barbatus Andrews. | Lamiaceae | A (in lit.) | 1b | E |
| Pogostemon cablin (Blanco) Benth | Lamiaceae | B (2017 TCM-C) | Unlisted | E |
| Pogostemon cablin (Blanco) Benth | Lamiaceae | B (2017 TCM-C) | Unlisted | E |

(continued on next page)
| Species | Family | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|---------|--------|--------------------|--------------------------------|---------------------|--------------------------------------|
| Polycarpaea corymbosa (L.) Lam. var. corymbosa | Caryophyllaceae | A (in lit.) | Unlisted | | |
| Polygala sp. | Polygonaceae | B (2017 TCM-C) | | | 3 |
| Polygonum aviculare L. | Polygonaceae | A (in lit.); B (2017 TCM-C) | Unlisted | C2 | 1 |
| Polyporus umbellatus (Pers.) Fr. | Polyporaceae | B (2017 TCM-C) | Unlisted | | 2 |
| Populus x canescens (Aiton) Sm. | Salicaceae | A (in lit.) | 2 | | |
| Portulaca oleracea L. | Portulacaceae | A (in lit.) | Unlisted | E | |
| Proboscidea louisianica (Mill.) Thell. subsp. fragrans (Lindl.) | Martyniaceae | A (market & in lit.) | Unlisted | | |
| Prunella vulgaris L. | Lamiaceae | A (in lit.) | Unlisted | | |
| Prunus armeniaca L. | Rosaceae | B (2017 TCM-C) | Unlisted | E | 5 |
| Prunus davidiana (Carrière) Franch. | Rosaceae | B (2017 TCM-C) | Unlisted | E | 5 |
| Prunus persica var. persica | Rosaceae | A (in lit.) | Unlisted | E | |
| Psidium guajava L. | Myrtaceae | A (in lit.) | 2 and 3 (see NEM:BA) | E | |
| Pteridium aquilinum subsp. aquilinum (L.) Khum | Dennstaedtiaceae | A (in lit.) | Unlisted | | |
| Pterocarpus santalinus Lf. CAI | Fabaceae | B (2017 market) | Unlisted | | 3 |
| Pueraria montana (Lour.) Merr. | Fabaceae | B (2017 TCM-C) | 1a | E | 2 |
| Punica granatum L. | Punicaceae | A (in lit.) | Unlisted | E | |
| Quassia africana (Baill.) Baill. | Simaroubaceae | B (2017 market) | Unlisted | | 3 |
| Quercus injectoria G.Olivier | Fagaceae | A (2011 market) | Unlisted | 2 | |
| Quercus robur L. | Fagaceae | A (in lit.) | Unlisted | E | |
| Raphanus raphanistrum L. subsp. Domin | Brassicaceae | A (in lit.) | Unlisted | E | |
| Rheum glutinosum (Gaertn.) DC. | Plantaginaceae | B (2017 TCM-C) | Unlisted | | 19 |
| Reynoutria multiflora (Thunb.) Moldenke | Polygonaceae | B (2017 TCM-C) | Unlisted | | 3 |
| Rheum palmatum var. tanguticum Maxim. ex Balf. | Polygonaceae | B (2017 TCM-C) | Unlisted | | 9 |
| Richardia brasiliensis Gomes | Rubiaceae | A (in lit.) | Unlisted | E | |
| Ricinus communis L. | Euphorbiaceae | A (2011 market) | 2 | E | 6 |

(continued on next page)
Table 3 (continued)

| Species | Family       | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|---------|--------------|--------------------|---------------------------------|---------------------|---------------------------------------|
| Robinia pseudoacacia L. | Fabaceae | A (in lit.) | 1b | E | 1 |
| Rosa chinensis Jacq. | Rosaceae | B (2017 TCM-C) | Unlisted | | |
| Rosmarinus officinalis var. L. | Lamiaceae | A (in lit.); B (2017 market) | Unlisted | | 3 |
| Rumex acerosella L. | Polygonaceae | A (in lit.) | 1a Prince Edward & Marion Islands | C2 | |
| Rumex crispus L. | Polygonaceae | A (market & in lit.) | Unlisted | E | |
| Ruta chalepensis Mill. | Rutaceae | B (2017 market) | Unlisted | | 2 |
| Ruta graveolens L. | Rutaceae | A (in lit.) | Unlisted | | |
| Salix babylonica L. | Salicaceae | A (in lit.) | Unlisted | E | |
| Salvadoria persica L. | Salvadoraceae | B (2017 market) | Unlisted | | |
| Salvia coccinea Buc'hoz ex Etl. | Lamiaceae | A (in lit.) | | | |
| Salvia hispanica | Lamiaceae | B (2017 market) | Unlisted | E | |
| Salvia milii Bunge | Lamiaceae | B (2017 TCM-C) | Unlisted | | 7 |
| Salvia officinalis L. | Lamiaceae | A (in lit.) | | | 7 |
| Sanguisorba officinalis | Lamiaceae | B (2017 TCM-C) | Unlisted | | 1 |
| Saposhnikovia divaricata (Turcz. ex Lede) | Lamiaceae | A (in lit.) | Unlisted | | 6 |
| Schinus molle L. | Dracaenaceae | A (in lit.) | Unlisted | E | |
| Schisandra sp. | Magnoliaceae | B (2017 TCM-C) | | | 10 |
| Schkuhria pinnata (Lam.) Kuntze ex Thell. | Asteraceae | A (in lit.) | Unlisted | E | |
| Schluumbergera truncata (Haw.) Moran | Cactaceae | A (market & in lit.) | Unlisted | | |
| Scrophularia ningpoensis Hems. | Scrophulariaceae | B (2017 TCM-C) | Unlisted | | 5 |
| Scutellaria baicalensis Georgi | Lamiaceae | B (2017 TCM-C) | Unlisted | | 17 |
| Senecio vulgaris L. | Asteraceae | A (in lit.) | Unlisted | | |
| Senna alexandrina Mill. | Fabaceae | A (2011 market) | Unlisted | | 4 |
| Senna didymobotrya (Presen.) H.S.Irwin & Barney | Fabaceae | A (market & in lit.) | 1b EC, WC, KZN, LP, MP | E | |
| Senna occidentalis (L.) Link | Fabaceae | A (in lit.) | 1b | E | |
| Senna septemtrionalis (Viv.) H.S.Irwin & Barney | Fabaceae | A (in lit.) | 1b | E | |
| Senna sp. | Fabaceae | A (2011 market); B (2017 TCM-C) | | | 1 |

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Table 3 (continued)

| Species                        | Family            | Information source | Legal invasive status category | Introduction status | Outlet and/or TCM catalogue frequency |
|--------------------------------|-------------------|--------------------|--------------------------------|---------------------|---------------------------------------|
| *Sesamum indicum* L.           | Pedaliaceae       | A (in lit.); B (2017 TCM-C) | Unlisted                       |                     | 1                                     |
| *Setaria italica* (L.) P.Beauv. | Poaceae           | A (in lit.)        | Unlisted                       |                     |                                       |
| *Sigeopectia orientalis* L.    | Asteraceae        | A (in lit.)        | Unlisted                       |                     |                                       |
| *Silybum marianum* (L.) Gaertn. | Asteraceae        | A (in lit.)        | Unlisted                       |                     |                                       |
| *Sinapis alba* L.              | Brassicaceae      | A (in lit.)        | Unlisted                       |                     |                                       |
| *Smilax glabra* Roxb.          | Smilacaceae       | B (2017 TCM-C)     | Unlisted                       |                     | 1                                     |
| *Solanum americanum* Mill.     | Solanaceae        | A (in lit.)        | Unlisted                       |                     |                                       |
| *Solanum mauritianum* Scop.    | Solanaceae        | A (in lit.)        | 1b                             | E                   |                                       |
| *Solanum pseudocapsicum* L.    | Solanaceae        | A (in lit.)        | 1b                             | E                   |                                       |
| *Solanum rostratum* Dunal.     | Solanaceae        | A (in lit.)        | Unlisted                       | C2                  |                                       |
| *Sonchus oleraceus* (L.) L.    | Asteraceae        | A (in lit.)        | Unlisted                       |                     |                                       |
| *Sorghum halepense* (L.) Pers  | Poaceae           | A (in lit.)        | 2                              | E                   |                                       |
| *Sporaxis grandiflora* (D.Delaroche) Ker Gawl. | Iridaceae | A (in lit.) | Unlisted |                     |                                       |
| *Spergula arvensis* L.         | Caryophyllaceae   | A (in lit.)        | Unlisted                       |                     |                                       |
| *Stellaria media* (L.) Vill.   | Caryophyllaceae   | A (in lit.)        | 1a Prince Edward; 1b Marion Island | C2                  |                                       |
| *Stemona* sp.                  | Stemonaceae       | B (2017 TCM-C)     | Unlisted                       |                     | 2                                     |
| *Stephania tetrandra* S.Moore  | Menisperaceae     | B (2017 TCM-C)     | Unlisted                       |                     | 2                                     |
| *Styphnolobium japonicum* (L.) Schott | Fabaceae   | A (in lit.)        | Unlisted                       |                     |                                       |
| *Togetes minuta* L.            | Asteraceae        | A (in lit.)        | Unlisted                       |                     |                                       |
| *Tamarindus indica* L.         | Fabaceae          | A (in lit.)        | Unlisted                       |                     |                                       |
| *Taraxacum campylodes* G.E.Haglund | Asteraceae     | A (in lit.)        | Unlisted                       |                     |                                       |
| *Taraxacum mongolicum* Hand. -Mazz. | Asteraceae | B (2017 TCM-C) | Unlisted |                     | 1                                     |
| *Taxillus chinensis* (DC.) Danser | Loranthaceae   | B (2017 TCM-C)     | Unlisted                       |                     | 1                                     |
| *Tephrosia densiflora* Hook. f. | Fabaceae          | A (in lit.)        | Unlisted                       |                     |                                       |
| *Tephrosia purpurea* (L.) Pers. | Fabaceae          | A (in lit.)        | Unlisted                       |                     |                                       |
| *Terminalia chebula* Retz.     | Combretaceae      | A (2011 market)    | Unlisted                       |                     | 4                                     |
| *Tetrapanax papyrifer* (Hook.) K.Koch | Araliaceae | B (2017 TCM-C)     | Unlisted                       |                     | 1                                     |

(continued on next page)
| Species | Family | Information source | Legal invasive status category | Introduction status | 2011 markets | 2017 markets | TCM-C |
|---------|--------|---------------------|-------------------------------|----------------------|--------------|--------------|-------|
| Theobroma cacao L. | Malvaceae | B (2017 market) | Unlisted | 1 |
| Thymus schimperi Ronniger | Lamiaceae | B (2017 market) | Unlisted | 2 |
| Tillandsia fasciculata Sw. | Bromeliaceae | A (in lit.) | Unlisted | |
| Tithonia diversifolia (Hemsl.) A.Gray | Asteraceae | A (in lit.) | 1b | E |
| Trachyspermum ammi (L.) Sprague | Apiaceae | B (2017 market) | Unlisted | 4 |
| Tragopogon porrifolius L. | Asteraceae | A (in lit.) | Unlisted | |
| Tribulus terrestris L. | Zygophyllaceae | B (2017 TCM-C) | Unlisted | 2 |
| Tridax procumbens L. | Asteraceae | A (in lit.) | Unlisted | 1 |
| Tricholium pratense L. | Fabaceae | A (in lit.) | Unlisted | |
| Trigonella foemum-graecum L. | Fabaceae | B (2017 market) | Unlisted | 7 |
| Tussilago farfara L. | Asteraceae | B (2017 TCM-C) | Unlisted | 1 |
| Typha sp. | Typhaceae | B (2017 TCM-C) | Unlisted | 1 |
| Uncaria sinensis (Oliv.) Havil. | Rubiaceae | B (2017 TCM-C) | Unlisted | 2 |
| Urtica dioica L. | Urticaceae | A (in lit.) | Unlisted | |
| Urtica urens L. | Urticaceae | A (in lit.) | Unlisted | |
| Verbena officinalis L. | Verbenaceae | A (in lit.) | Unlisted | E |
| Verbena rigida Spreng | Verbenaceae | A (in lit.) | 1b | E |
| Vernicia fordii (Hemsl.) Airy Shaw | Euphorbiaceae | A (in lit.) | Unlisted | |
| Vinca major L. | Apocynaceae | A (in lit.) | 1b | E |
| Vincetoxicum glaucescens (Decne.) C.Y.Wu & D.Z.Li | Apocynaceae | B (2017 TCM-C) | Unlisted | 1 |
| Viola tricolor L. | Violaceae | A (in lit.) | Unlisted | |
| Vitellaria paradoxa C.F.Gaertn. | Sapotaceae | B (2017 market) | Unlisted | 1 |
| Withania somnifera (L.) Dunal | Solanaceae | A (2011 market) | Unlisted | 14 |
| Wolffiaria extensa (Peck) Ginn. | Polyporaceae | B (2017 TCM-C) | Unlisted | |
| Wurfbainia longiligularis (T.L.Wu) Skornick. & A.D.Poulsen | Zingiberaceae | B (2017 TCM-C) | Unlisted | 1 |
| Wurfbainia villosa (Lour.) Skornick. & A.D.Poulsen | Zingiberaceae | B (2017 TCM-C) | Unlisted | 1 |
| Xanthium spinosum L. | Asteraceae | A (in lit.) | 1b | E |
| Xanthium strumarium L. | Asteraceae | A (in lit.); B (2017 TCM-C) | Unlisted | 1 |
| Xylopia aethiopica (Dunal) A.Rich. | Annonaceae | B (2017 market) | Unlisted | 1 |
| Zingiber officinale Roscoe | Zingiberaceae | A (in lit.); B (2017 market); B (2017 TCM-C) | Unlisted | 16 | 14 |
| Ziziphus jujuba Mill. | Rhamnaceae | B (2017 market) | Unlisted | 3 | 1 |
Fig. 1. Key to the photographic guides in Tables 1 and 2.
Fig. 2. a–e. Number of alien taxa per family listed in Table 4. Families are presented alphabetically and spread over five figures: (a) family names starting with A to B, (b) names starting with C to E, (c) names starting with F to Mor, (d) names starting with Mus to Por, and (e) names starting with Pri to Z.
Fig. 2. a–e. Continued
Table 4
Combined number of taxa per information source category and survey, where: A = 2010/2011; B = 2017/2018; market = obtained from a survey of traders selling alien medicinal plants in markets or outlets such as shops in Johannesburg, Pretoria and/or Durban; in lit. = obtained from a literature survey of alien plants used in South Africa; market & in lit. = recorded in the literature as being sold in a market/outlet in South Africa; TCM-C = obtained from a catalogue of Traditional Chinese Medicine remedies sold in at least four franchises in Johannesburg. Species recorded from >1 different information sources are listed.

| Study and information source | No. taxa | Species common to >1 information source |
|-----------------------------|---------|----------------------------------------|
| A (2011 market)             | 27      | Brassica sp., Coriandrum sativum, Curcuma longa |
| A (2011 market); B (2017 market) | 3     | Foeniculum vulgare, Glycyrrhiza glabra |
| A (2011 market); B (2017 market); B (2017 TCM-C) | 2 | Acorus calamus, Areca catechu, Coix lacryma-jobi, Senna sp. |
| A (2011 market); B (2017 market); B (2017 TCM-C) | 4 | A (in lit.); B (2017 market) | 223 | Allium sativum, Momordica charantia, Rosmarinus officinalis var. |
| A (in lit.); B (2017 market); B (2017 TCM-C) | 2 | Anethum graveolens, Zingiber officinale |
| A (in lit.); B (2017 TCM-C) | 3 | Polygonum aviculare, Xanthium strumarium |
| A (market & in lit.) | 28 | A (market & in lit.); B (2017 market) | 2 | Annona reticulata, Persea americana |
| A (market & in lit.); B (2017 market); B (2017 TCM-C) | 1 | Cinnamomum verum |
| A (market & in lit.); B (2017 TCM-C) | 2 | Eclipta prostrata, Eriobotrya japonica |
| B (2017 market) | 55 | Total plants | 120 | |
| B (2017 TCM-C) | 285 | 475 |

* In addition to the 475 identified taxa, there were and 12 and 8 unidentified plants were recorded in studies A (2011 market) and B (2017 market) respectively.

Table 5
Number and percentage of alien plant species assigned a legal status category (according to NEM:BA A&IS regulations), where: category 1a = invasive species that are targets for national eradication; 1b = invasive species that must be controlled; 2 = invasive species where cultivation, ownership and trade are allowed subject to the issuing of a permit, and that must be controlled in the absence of a permit; 3 = invasive species that are subject to exemptions, but that cannot be further traded or propagated, and otherwise must be controlled; unlisted = alien species that are not listed in the regulations, but that have been reported as present outside of captivity or cultivation in South Africa or on offshore islands.

| Legal status category | Number of species (S=447)* | Percentage of total taxa** |
|-----------------------|----------------------------|---------------------------|
| 1a                    | 4                         | 0.8%                      |
| 1a & 1b               | 1                         | 0.2%                      |
| 1b                    | 56                        | 11.8%                     |
| 1b & 2                | 2                         | 0.4%                      |
| 1b & 3                | 3                         | 0.6%                      |
| 2                     | 14                        | 2.9%                      |
| 3                     | 5                         | 1.0%                      |
| 2 & 3                 | 1                         | 0.2%                      |
| Unlisted              | 361                       | 76.0%                     |

* Excludes 28 taxa identified to genus only and taxa not identified to species level.
Table 6
Number and percentage of species assigned an Introduction status category in South Africa, where: A0 = never introduced beyond limits of indigenous range to South Africa; C0 = individuals released outside of captivity or cultivation in location where introduced, but incapable of surviving for a significant period; C2 = individuals surviving outside of captivity or cultivation in location where introduced, but population not self-sustaining; D1 = self-sustaining population outside of captivity or cultivation, with individuals surviving a significant distance from the original point of introduction; E = fully invasive species, with individuals dispersing, surviving and reproducing at multiple sites across a greater or less spectrum of habitats and extent of occurrence; introduced = introduced, but no other data available;

| Introduction status category | Number of species (S=175) | Percentage of total taxa* |
|-----------------------------|---------------------------|---------------------------|
| A0                          | 1                         | 0.2%                      |
| C0                          | 1                         | 0.2%                      |
| C2                          | 18                        | 3.8%                      |
| D1                          | 1                         | 0.2%                      |
| E                           | 150                       | 31.4%                     |
| Introduced                  | 3                         | 0.6%                      |
| NA                          | 1                         | 0.2%                      |

* a percentage of S = 475.

2. Experimental Design, Materials and Methods

Two semi-quantitative surveys of alien plant taxa were conducted. First, a survey of plants sold in the Faraday (Johannesburg) and Warwick (Durban) umuthi markets (n=32 and 28 traders respectively) was conducted from October 2010 and February 2011 [1,2]. In addition, 17 umuthi shops were visited in Johannesburg, Pretoria and Durban; 10 of these shops were owned by the descendants of Indian indentured labourers brought to South Africa from 1860 to work in the sugarcane plantations. Specimens were purchased during the survey visits and deposited as vouchers at the C.E. Moss Herbarium (J) at University of the Witwatersrand. The qualitative information recorded during the survey included: the vernacular name of the plant specimen, the botanical name of the plant (if known), the plant part type (e.g. seeds, tubers, bulbs, etc.), the means by which the plant was acquired (i.e. harvested or bought), and the geographic origin (Questionnaire in Appendix 1a). While specimens that could potentially regrow or germinate were tested for viability (e.g. seeds and tubers) [9], voucher specimens were not collected of the plants once they had emerged, flowered, or grown out sufficiently. Photographs of the voucher specimens were taken retrospectively in 2019.

Second, a survey of plants sold by immigrants and migrants from West and East Africa (n=25), India (n=4), and China (n=1), who arrived in South Africa after 1994, was conducted from November 2017 to April 2018 [3]. Specimens were purchased during the survey visits and deposited as vouchers at the C.E. Moss Herbarium (J) – however, the Chinese trader would not permit specimens to be purchased and consequently no photographic data on Chinese plants sold in South Africa are included in the photographic guide. However, this part of the survey was based on plants listed in a catalogue that are allegedly imported from China [3]. The qualitative information recorded during the 2017/2018 survey included: the vernacular name of the plant specimen, the botanical name of the plant (if known), the plant part type (e.g. seeds, tubers, bulbs, etc.), the means by which the plant was acquired (i.e. harvested or bought), and the country of origin (Questionnaire in Appendix 1b). Specimens that could potentially regrow were tested for viability, and to identify them; voucher specimens were collected from these plants once they had emerged, flowered, or grown out sufficiently [3].

Plants are arranged alphabetically in the photo-guide according to genus and species (Tables 1 and 3), and unidentified plants for which photos were taken are in Table 2. Under every photograph is a table of information for the taxon obtained from the qualitative surveys, to which codes for the invasive alien plant category, and introduction status [4,8], were added. The numbers of traders from each nationality selling each species are also included. The online database Plants of the World Online [10] was used to cross-reference scientific names to find the currently accepted synonyms and plant families. The species in Table 3 were also checked
against CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) to establish whether international trade is regulated through import/export permits [11]. With the exception of information sourced from the literature, the frequencies (in Table 3) with which the species were recorded in the different surveys of traditional medicine outlets and the TCM catalogue are listed.

Ethics Statement

The protocols for this research were approved in: (i) 2010 (Protocol H120509) [1], and (ii) 2017 (Protocol H17/07/02) [3] by the Human Research Ethics Committee (non-medical) of the University of the Witwatersrand. Informed consent was obtained from all respondents before commencing the research, and respondents could discontinue their participation at any time.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships which have, or could be perceived to have, influenced the work reported in this article.

CRediT Author Statement

Vivienne L. Williams: Conceptualization, Methodology, Formal analysis, Writing – original draft, Supervision; Amy Burness: Methodology, Investigation, Data curation, Visualization; Ewa M. Wojtasik: Methodology, Investigation, Data curation; Marcus J. Byrne: Conceptualization, Methodology, Writing – original draft, Supervision.

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Supplementary Materials

Supplementary material associated with this article can be found in the online version at doi:10.1016/j.dib.2021.107395.

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