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Flora of Fujairah Emirate (UAE): new species of ergasiofigophytes in Emirate. Part 3.

During the floristic research in the Emirate of Fujairah (United Arab Emirates, UAE) in 2017–2022, we found species that complement the flora of vascular plants in the Emirate and the UAE as a whole. The article provides data on 15 new ergasiophygophytes – cultivated and running wild plant species, alien to the Emirate of Fujairah: *Livistona chinensis* (Jacq.) R. Br. ex Mast., *Livistona rotundifolia* (Lam.) Mast., *Washingtonia filifera* (Linden ex André) H. Wendl. Ex A. de Bary (Arecaceae), *Handroanthus impetiginosum* (Mart. ex DC.) Mattos, *Spathodea campanulata* Beauv., *Tabebuia heterophylla* Britt., *Tabebuia rosea* DC., *Tecoma × smithii* W. Watson, *Tecoma stans* (L.) Kunth (Bignoniaceae), *Canna indica* L. (Cannaceae), *Carica papaya* L. (Caricaceae), *Combretum indicum* L., *Conocarpus erectus* L. var. *sericeus* Griseb., *Conocarpus lancifolius* Engl. & Diels and *Terminalia catappa* L. (Combretaceae). Also, most of these species have never been previously listed in the Arabian flora as adventive species.

Key words: Arabia, UAE, Emirate of Fujairah, plant geography, flowering plants, alien flora, ergasiophygophytes

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ОРИГИНАЛЬНАЯ СТАТЬЯ

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Флора эмирата Фуджейра (ОАЭ): новые виды эргазиофигофитов для эмирата. Часть 3.

В ходе флористических исследований 2017–2022 гг. в эмирате Фуджейра Объединенных Арабских Эмиратов (ОАЭ) нами были обнаружены виды, дополняющие флору сосудистых растений эмирата и ОАЭ в целом. В статье приведены данные о 15 новых эргазиофигофитах – культивируемых и дичающих видах растений, чужеродных для эмирата Фуджейра: *Livistona chinensis* (Jacq.) R. Br. ex Mast., *Livistona rotundifolia* (Lam.) Mast., *Washingtonia filifera* (Linden ex André) H. Wendl. ex A. de Bary (Arecaceae), *Handroanthus impetiginosum* (Mart. ex DC.) Mattos, *Spathodea campanulata* Beauv., *Tabebuia heterophylla* Britt., *Tabebuia rosea* DC., *Tecoma × smithii* W. Watson, *Tecoma stans* (L.) Kunth (Bignoniaceae), *Canna indica* L. (Cannaceae), *Carica papaya* L. (Caricaceae), *Combretum indicum* L., *Conocarpus erectus* L. var. *sericeus* Griseb., *Conocarpus lancifolius* Engl. & Diels и *Terminalia catappa* L. (Combretaceae). Большинство из этих видов ранее не приводились для аравийской флоры как адвентивные виды.

Ключевые слова: Аравия, ОАЭ, эмират Фуджейра, география растений, цветковые растения, чужеродная флора, эргазиофигофиты

Благодарности: Авторы статьи благодарят рецензентов и редакторов журнала за ценные исправления и предложения. Статья представляет собой вклад в выполнение государственного задания Ботанического института им. В.Л. Комарова РАН, в рамках проекта БИН РАН «Сосудистые растения Евразии: систематика, флористические исследования, растительные ресурсы», № АААА-А 19-119031290052-1. Авторы также выражают благодарность Его Превосходительству Салему Аль-Захми – директору канцелярии Его Высочества наследного принца, доктору Фуаду Ламгари Ридуан – директору по исследованиям и инновациям Исследовательского центра Фуджейры и доктору Владимиру М. Коршунову – главному зоологу Департамента национального парка и заповедника Вади-Вурайя Правительства Фуджейры за их помощь в проведении полевых работ и за их большой вклад в реализацию данного исследования.

Для цитирования: Бялт В.В., Коршунов М.В. Флора эмирата Фуджейра (ОАЭ): новые виды эргазиофигофитов для эмирата. Часть 3. *Vavilovia*. 2022;5(2):3-20. DOI: 10.30901/2658-3860-2022-2-o1

The article presents the third part of the new findings of ergasiophygophytes (cultivated plants that have escaped into the wild) in the flora of the Emirate of Fujairah (Byalt, Korshunov, 2020c; Korshunov, Byalt, 2021). Ergasiophygophytes are the significant part of the alien flora of various regions (DAISIE, 2009; Pyšek et al., 2017; Kleunen et al., 2018; Mayorov et al., 2019). The monitoring of this fraction of a regional flora is undoubtedly relevant in modern times. The United Arab Emirates is located in the tropical desert zone, which leaves a serious imprint on the composition of the country's cultural flora. Most alien plant species are grown on irrigation and die very quickly without it. We studied the flora of the emirate in 2017–2020, and active research of the adventive element took place in 2019–2020 (Byalt, Korshunov, 2018, 2020a–2020d; Byalt et al., 2020a, 2020b, Korshunov, Byalt, 2021). As a result, we came to the conclusion that nurseries and mini-markets of plants are the main source of the primary appearance of ergasiophygophytes (as well as of many purely weedy species) in the emirate. We managed to find the largest number of alien adventive species, some of which turned out to be new for the flora of Fujairah and the UAE as a whole.

When identifying groups of alien species, the modernized F.–G. Schroeder (Schroeder, 1969; Baranova et al., 2018) classification is used. Latin names of plants are given in the «Catalog of Life» (Hassler, 2018) and «Plants of the World Online» (URL: http://plantsoftheworldonline.org/). Herbarium specimens confirming the findings are kept in the Herbarium of the V.L. Komarov Botanical Institute RAS (LE) and Fujairah Scientific Herbarium (FSH, Wadi Wuraya, Fujairah, United Arab Emirates) (Byalt et al., 2020a) and duplicates were transferred to the VIR Herbarium (WIR). Collectors are the authors of the article (V. B. and M. K.), unless otherwise specified.

The following species of flowering plants are new to Fujairah: *Livistona chinensis* (Jacq.) R. Br. ex Mast., *Livistona rotundifolia* (Lam.) Mast., *Washingtonia filifera* (Linden ex André) H. Wendl. ex A. de Bary (Arecaceae), *Handroanthus impetiginosum* (Mart. ex DC.) Mattos, *Spathodea campanulata* Beauv., *Tabebuia heterophylla* Britt., *Tabebuia rosea* DC., *Tecoma × smithii* W. Watson, *Tecoma stans* (L.) Kunth (Bignoniaceae), *Canna indica* L. (Cannaceae), *Carica papaya* L. (Caricaceae), *Combretum indicum* L., *Conocarpus erectus* L. var. *sericeus* Griseb., *Conocarpus lancifolius* Engl. & Diels. and *Terminalia catappa* L. (Combretaceae). Most of these species have not been previously listed in the Arabian floras and Checklists as alien adventive species.

The species first reported for the emirate are marked with an asterisk (*); the species first reported for the UAE are marked with two asterisks (**). Abbreviations used in the article: V. V. Byalt – V. B., M. V. Korshunov – M. K., m a. s. l. – meters above sea leavel.

*****Livistona chinensis*** (Jacq.) R. Br. ex Mast.: 1) 25°36'5.21'' N, 56°15'45.67'' E, Al Dibba town, Green Oasis Nursery, 0.6 km Southwest of Street Number 35, or 0.8 km North of Federal Electricity & Water Authority, 10 m a. s. l. [point 769]: cultivated and run wild under palms in irrigated spots, 3 V 2020, V. B., M. K. 2668 (LE); 2) 25°32'11.94'' N, 56°21'4.36'' E, Rul Dhadna, Plant Nursery of Abu Abdallah in 1 km North-North-West from ADNOC Petrol Station on E99

Rugaylat road, 13 m a. s. l. [point 788]: cultivated and run wild in plant nursery under palms, 23 V 2020, V. B., M. K. 3166 (LE). – Ergasiophygophyte, colonophyte. – Ornamental palm, and its native range is East Asia from S. Japan to S. China (Guangdong) (URL: http://plantsoftheworldonline.org/). Recorded as introduced in 2 countries and sometimes naturalized, but no sites in Arabia according to GBIF data (URL: https://www.gbif.org/species/2733469). *Livistona chinensis* is not recorded in Arabian floras and Checklists as an alien adventive species (Miller, Morris, 1988; Colenette, 1989; Cornes, Cornes, 1989; Migahid, 1989; Wood, 1997; Böer, 2000; Jongbloed et al., 2003; Karim, Fawzi, 2007; Ghazanfar, 2018; Norton et al., 2009; Mosti et al., 2012). It is grown for sale in some plant nurseries of Dibba and Rul Dhadna and sometimes runs wild on damp sand on paths between rows of pots, on temporarily vacant beds and in irrigation pits under palms. Due to its easy self-seeding, it can be a potentially invasive species in the UAE under irrigated conditions (fig. 1).

****Livistona rotundifolia*** (Lam.) Mast.: 1) 25°7’22.82’’ N, 56°21’23.00’’ E, Al Fujairah, Fujairah Corniche road, opposite of Fujairah International Marine Club, 3 m a. s. l. [point 758a]: cultivated and run wild (seedlings) under palm crown in irrigated circles between highway lanes, 9 V 2020, V. B., M. K. 2788 (LE, FSH). – Ergasiophygophyte, colonophyte. – Ornamental palm, and its native range is South-East Asia from Borneo (Banggi Islands) to New Guinea (Raja Ampat Islands) (URL: http://plantsoftheworldonline.org/). Recorded as introduced in 13 countries and sometimes naturalized, but no sites in Arabia according to GBIF data (URL: https://www.gbif.org/species/2733426). *Livistona rotundifolia* is not recorded in the Arabian floras and Checklists as an alien adventive species (Miller, Morris, 1988; Colenette, 1989; Cornes, Cornes, 1989; Migahid, 1989; Wood, 1997; Jongbloed et al., 2003; Karim, Fawzi, 2007; Ghazanfar, 2018; Norton et al., 2009, etc.). It is grown for sale in plant nurseries and is commonly used in landscaping settlements. It runs wild under palm crown in irrigated strips between highway lanes of Fujairah Corniche road on seashore. Due to its easy self-seeding, it can be a potentially invasive species in the UAE under irrigated conditions but so far rarely cultivated in the emirate.

****Washingtonia filifera*** (Linden ex André) H. Wendl. ex A. de Bary: 1) 25°31’16.29’’ N, 56°21’19.69’’ E, Rul Dhadna, villas and dwellings for the labour north from Mina road, corner with E99 Rugaylat road. 12 m a. s. l. [pont 755]: in sidestreet between villas, in irrigation spot (pit) with palm, 17 IV 2020, V. B., M. K. 2214 (LE); 2) 25°7’22.82’’ N, 56°21’23.00’’ E, Al Fujairah city, wasteland near Fujairah Corniche road, opposite of Fujairah International Marine Club, 3 m a. s. l. [point 758]: in dry gravel-sand wasteland, 18 IV 2020, M. K. s.n. (LE); 3) 25°22’30.68’’ N, 56°20’41.51’’ E, UAE, Sharjah Emirate, Khorfakkan, waste water channel on the north of Khorfakkan town, E99 Rugaylat road, near Oceanic Khorfakkan Resort & Spa. 10 m a. s. l. [point 763]: run wild on right channel bank, near bridge, 23 IV 2020, V. B., M. K. 2381 (LE); 4) 25°35’49.78’’ N, 56°19’22.51’’ E, Al Dibba town, Al Phoenician Nursery, 0.3 km South-West of first roundabout on the E99 road from Khorfakkan to Dibba, 11 m a. s. l. [point 791]: run wild under palm trees of *Washingtonia*, on sand, 26 V 2020, V. B., M. K. 3221 (LE; FSH); 25°30’6.28’’ N, 56°21’30.01’’ E, Al Aqah, 14 m a. s. l. [point 792]: in irrigation circle near corner of villa, 26 V 2020, V. B., M. K. 3271 (LE; FSH). – Ergasiophygophyte, colonophyte. – Ornamental palm, and its native range is N. America from S. California to W. Arizona and Mexico (NE. Baja California) (URL: http://plantsoftheworldonline.org/). Recorded as introduced in 20 countries and sometimes naturalized, but no sites in Arabia according to GBIF data (URL: https://www.gbif.

org/species/5294589). *Washingtonia filifera* is not recorded in Arabian floras and Checklists as an alien adventive species (Miller, Morris, 1988; Colenette, 1989; Cornes, Cornes, 1989; Migahid, 1989; Wood, 1997; Böer, 2000; Jongbloed et al., 2003; Karim, Fawzi, 2007; Ghazanfar, 2018; Norton et al., 2009, etc.). It is grown for sale in plant nurseries and is commonly used in landscaping settlements. It runs wild under palm crown in irrigated strips between highway lanes of Fujairah Corniche road on seashore. Due to its easy self-seeding, it can be a potentially invasive species in the UAE not only under irrigated conditions but also on dry gravel-sand wastelands, roadsides, under walls of villas and stony fences. According to our observations, seeds of *Washingtonia* can fly far away from fruit-bearing palms and germinate in suitable places during the rainy season.

In Fujairah, two species of *Washingtonia* are grown, which outwardly differ well from each other in the thickness of the trunks of adult palms – thicker than 1 m in diameter in *W. filifera*, and thinner than 80 cm in diameter in *W. robusta* H. Wendland (Zona, 2020). Young plants with still undeveloped trunks differ rather poorly from each other, so we do not exclude that some of the plants we have collected belong to the second species (moreover, there is evidence that the latter is running wild in the neighboring Qatar – see URL: http://www.floraofqatar.com/indexf.htm#Arecaceae).

Handroanthus impetiginosus (Mart. ex DC.) Mattos 1) 25°36’9.81’’ N, 56°16’41.30’’ E, Al Dibba town, Al Shams Nursery, near Dibba Theatre (0.1 km East of), 6 m a. s. l. [point 767a]: cultivated and running wild in plant market and nursery, 28 IV 2020, V. B., M. K. 2517 (LE); 2) 25°36’5.21’’ N, 56°15’45.67’’ E, Al Dibba town, Green Oasis Nursery, 0.6 km South-West from Street Number 35, or 0.8 km North from Federal Electricity & Water Authority, 10 m a. s. l. [point 769]: weed (running wild) in the pots and between pots, on irrigation in plantation, 3 V 2020, V. B., M. K. 2687 (LE). – Ergasiophygophyte, colonophyte. – This is an ornamental tree, and its native range is Central Mexico to S. Tropical America (URL: http://plantsoftheworldonline.org/). Recorded as introduced in 13 countries and sometimes naturalized, but no sites in Arabia according to GBIF data (URL: https://www.gbif.org/species/4092242). The study of relevant literature revealed that *Handroanthus impetiginosus* has not been reported as alien in other countries of the Arabian Peninsula (Daoud, Al-Rawi, 1985; Collenette, 1985, 1999; Miller, Morris, 1988; Phillips, 1988; Migahid, 1989; Cornes, Cornes, 1989; Western, 1989; Gazanfar, 1992; Shuaib, 1995; Wood, 1997; Chaudhary, 1999–2001; Omar, 2000; Jongbloed et al., 2003, Karim, Fawzi, 2007; Norton et al., 2009, etc.). It is grown for sale in some plant nurseries in Dibba town and is commonly used in landscaping settlements. Due to the fact that it forms many flying seeds and its easy self-seeding, it can be a potentially invasive species in the UAE under irrigated conditions (fig. 2).

Spathodea campanulata Beauv.: 1) 25°34’24.07’’ N, 56°14’6.39’’ E, Al Dibba town, private nurseries, 0.2 km South from Al Amerey Nursery, 48 m a. s. l. [point 776]: cultivated in plastic pots and run wild under trees and between pots, 7 V 2020, V. B., M. K. 2756 (LE); 2) 25°25’15.85’’ N, 56°20’27.64’’ E, Al Bidiya, Abu Khalid agricultural nursery, 0.3 km South of Eid Prayer Ground Bidyah, 18 m a. s. l. [point 780]: weed (run wild) in and between plastic pots with cultivated plants and under trees, in shade, 12 V 2020, V. B., M. K. 2914 (LE; FSH); 3) 25°32’11.94’’ N, 56°21’4.36’’ E, Rul Dhadna, Plant Nursery of Abu Abdallah in 1 km North-Northwest of ADNOC Petrol Station on E99 Rugaylat road, 13 m a. s. l. [point 788]: run wild in plant nursery between pots, on the path between rows of pots with cultivated plants, 23 V 2020, V. B., M. K. 3160 (LE);

4) 25°28′17.54′′ N, 56°21′8.03′′ E, Sharm, 10–45 m a. s. l. [point 793]: run wild in irrigation circles, in shady side street between villas, 28 V 2020, V. B., M. K. 3366 (LE; FSH); 5) 25°17′28.28′′ N, 56° 6′48.62′′ E, Masafi Friday market, E88 Al Dhaid – Masafi road, 5.2 km to Masafi, 370 m a. s. l. [point 732a]: run wild on irrigation, under trees, in shade, between irrigated lines, 2 VI 2020, V. B., M. K. 3359 (LE; FSH); 5) 25°26′9.06′′ N, 56°20′17.72′′ E, Al Bidiya, Desert Oasis Nursery Bidyah, 0.7 km West of Bidiyah Association for Culture and Folklore, 14 m a. s. l. [point 794]: common weed (run wild) in plastic pot and between pots, under trees, in shade and between irrigated lines, 4 VI 2020, V. B., M. K. 3441 (LE; FSH); 6) 25°30′52.69′′ N, 56°20′11.79′′ E, Rul Dhadna, Al Jawhara Plants Nursery, 2 km by the unnamed road from E99 to Wadi Zikt dam, 33 m a. s. l. [point 805]: run wild on irrigation between plastic pots with cultivated plants, 4 VII 2020, V. B., M. K. 3911 (LE; FSH); 7) 25°32′11.94′′ N, 56°21′4.36′′ E, Rul Dhadna, Plant Nursery of Abu Abdallah 1 km North-North-West of ADNOC Petrol Station on E99 Rugaylat road, 13 m a. s. l. [point 788]: cultivated and run wild in plant nursery between pots, on the path between rows of pots with cultivated plants, 23 V 2020, V. B., M. K. 3148 (LE; FSH). – Ergasiophygophyte, colonophyte. – Very ornamental tree, and its native range is W. Tropical Africa to Uganda and Angola (URL: http://plantsoftheworldonline.org/). Recorded as invasive in 57 countries or islands (URL: http://plantsoftheworldonline.org/) and sometimes naturalized in USA (Simpson et al., 2021), Australia (Randall et al., 2020), but no sites in Arabia according to GBIF data (URL: https://www.gbif.org/species/3172574). *Spathodea campanulata* is cultivated in Oman (Ghazanfar, 1992) and Qatar (URL: http://www.floraofqatar.com/indexf.htm#Bignoniaceae), but the study of relevant literature revealed that it has not been reported as alien in other countries of the Arabian Peninsula (Daoud, Al-Rawi, 1985; Collenette, 1985, 1999; Phillips, 1988; Migahid, 1989; Cornes, Cornes, 1989, Western, 1989; Gazanfar, 1992; Shuaib, 1995; Wood, 1997; Chaudhary, 1999–2001; Omar, 2000; Jongbloed et al., 2003; Karim, Fawzi, 2007; Norton et al., 2009, etc.). It is commonly grown for sale practically in all plant nurseries and commonly used in landscaping settlements, in private gardens and parks and sometime goes wild in irrigated places. In more humid conditions *S. campanulata* produces long underground root suckers and spreads far from the mother plants. Also, it forms many flying seeds and its easy self-seeding, it can be a potentially invasive species in the UAE under irrigated conditions (fig. 3).

Fig. 1. *Livistona chinensis* (Jacq.) R. Br. ex Mast.

Fig. 2. *Handroanthus impetiginosus* (Mart. ex DC.) Mattos

Fig. 3. *Spathodea campanulata* Beauv

Tabebuia heterophylla Britt.: 1) 25°34’24.07’’ N, 56°14’6.39’’ E, Fujairah Emirate, Al Dibba town, private nurseries, 0.2 km South of Al Amerey Nursery, 48 m a. s. l. [point 776]: cultivated in plastic pots and run wild between pots and under tree, 7 V 2020, V. B., M. K. 2739 (LE). – Ergasiophygophyte, colonophyte. Ornamental tree; its native range is Caribbean (URL: http://plantsoftheworldonline.org/). Recorded as invasive in 28 countries or islands, sometimes naturalized, but no sites in Arabian Peninsula according to GBIF data (URL: https://www.gbif.org/species/3172526). The study of relevant literature revealed that *Tabebuia heterophylla* has not been reported as alien in other countries of the Arabia (Daoud, Al-Rawi, 1985; Collenette, 1985, 1999; Miller, Morris, 1988; Phillips, 1988; Migahid, 1989; Cornes, Cornes, 1989, Western, 1989; Gazanfar, 1992; Shuaib, 1995; Wood, 1997; Chaudhary, 1999–2001; Böer, 2000; Omar, 2000; Jongbloed et al., 2003, Karim, Fawzi, 2007; Norton et al., 2009, etc.). It is sometime grown for sale in plant nurseries and is commonly used in landscaping settlements. New adventive species for the flora of Fujairah and the UAE. Self-seedings of this species was found by us in Al Amerey Plant

Nursery on wet sand on paths, between pots and under trees. Due to the fact that it forms many flying seeds and its easy self-seeding, it can be a potentially invasive species in the UAE under irrigated conditions (fig. 4).

Tabebuia rosea DC.: 25°28′17.54′′ N, 56°21′8.03′′ E, Sharm, 10–45 m a. s. l. [point 793]: cultivated near villa on side street between villas, runs wild under tree on irrigated spots, 28 V 2020, V. B., M. K. 3355 (LE). – Ergasiophygophyte, colonophyte. Ornamental tree, and its native range is Mexico to Ecuador (URL: http://plantsoftheworldonline.org/). Recorded as introduced in 13 countries and sometimes naturalized, but no sites in Arabia according to GBIF data (URL: https://www.gbif.org/species/3172537). *Tabebuia rosea* is sometimes cultivated in Qatar (URL: http://www.floraofqatar.com/indexf.htm#Bignoniaceae) and in UAE (Byalt, Korshunov, 2020d), but has not been reported in Arabian floras and Checklists as alien (adventive) in other countries of the Arabian Peninsula (Daoud, Al-Rawi, 1985; Collenette, 1985, 1999; Phillips, 1988; Migahid, 1989; Cornes, Cornes, 1989, Western, 1989; Gazanfar, 1992; Shuaib, 1995; Wood, 1997; Chaudhary, 1999–2001; Omar, 2000; Jongbloed et al., 2003, Karim, Fawzi, 2007; Norton et al., 2009, etc.). It is commonly grown in landscaping settlements. We observed massive self-seeding of this species under the trees near the fence in the village Sharm on irrigation spots along farm fence and near gates. Like other species of the genus *Tabebuia*, it forms many flying seeds and its easy self-seeding; it can be a potentially invasive species in the UAE under irrigated conditions (fig. 5).

Tecoma × smithii W. Watson: 1) 25°31′16.29′′ N, 56°21′19.69′′ E, Rul Dhadna, villas and accommodations North of Mina road, at the corner with E99 Rugaylat road, 12 m a. s. l. [point 755]: run wild in sidestreet between villas, on roadside, near wall, 17 IV 2020, V. B., M. K. 2201 (LE). – Ergasiophygophyte, colonophyte. Ornamental tree, fertile garden hybrid (URL: http://plantsoftheworldonline.org/). Recorded as introduced in 13 countries and sometimes naturalized, but no sites in Arabia according to GBIF data (URL: https://www.gbif.org/species/4094615). The study of relevant literature revealed that *Tecoma × smithii* has not been reported as alien in other countries of the Arabian Peninsula (Daoud, Al-Rawi, 1985; Collenette, 1985, 1999; Phillips, 1988; Cornes, Cornes, 1989; Migahid, 1989; Western, 1989; Gazanfar, 1992; Shuaib, 1995; Wood, 1997; Chaudhary, 1999–2001; Böer, 2000; Omar, 2000; Jongbloed et al., 2003; Karim, Fawzi, 2007; Norton et al., 2009; Al-Khulaidi, 2013, etc.). It is grown for sale in plant nurseries and sometimes is used in landscaping settlements. We found self-sown plants of this species on roadside, near wall of villa in sidestreet between villas (fig. 6).

Tecoma stans (L.) Kunth: 1) 25°36′9.81′′ N, 56°16′41.30′′ E, Al Dibba town, Al Shams Nursery, near Dibba Theatre (0.1 km East of), 6 m a. s. l. [point 767]: weed or naturalized plant on sand in wasteland in place of an abandoned garden (or plant nursery), 28 IV 2020, V. B., M. K. 2494, 2566 (FSH, LE); 2) 25°36′9.81′′ N, 56°16′41.30′′ E, Al Dibba town, Al Shams Nursery, near Dibba Theatre (0.1 km East of), 6 m a. s. l. [point 767a]: weed (running wild) in plant market and nursery, between pots, seedlings, 28 IV 2020, V. B., M. K. 2509 (LE); 3) 25°25′24.70′′ N, 56°20′18.77′′ E, Al Bidiya, Al Qalamoon Nursery, 0.3 km East of Eid Prayer Ground Bidyah, 22 m a. s. l. [point 781]: cultivated and run wild in nursery, 15 V 2020, fr., V. B., M. K. 2991 (LE; FSH); 4) 25°31′15.68′′ N, 56°21′10.02′′ E, Rul Dhadna, Majid Nursery (plants), near E99 road and Mina road intersection. 15 m a. s. l. [point 804]: cultivated and run wild in and between plastic pots with cultivated plants and under tree, in

Fig. 4. *Tabebuia heterophylla* Britt

Fig. 5. *Tabebuia rosea* DC

Fig. 6. *Tecoma* × *smithii* W. Watson

shade, 30 VI 2020, V. B., M. K. 3854 (LE; FSH). – Ergasiophygophyte, colonophyte. – Ornamental tree, its native range is Tropical and Subtropical America. It is used for the treatment of certain diseases in traditional medicine (URL: http://plantsoftheworldonline.org/). Recorded as invasive in 67 countries or islands (URL: https://www.gbif.org/species/3172492). Cultivated in Oman (Ghazanfar, 1992), Yemen (Wood, 1996; Al-Khulaidi, 2013), Qatar (URL: http://www.floraofqatar.com), UAE (Karim, Dakheel, 2006). *Tecoma stans* is not recorded in Arabian floras and Checklists as an alien adventive species (Collenette, 1989; Cornes, Cornes, 1989; Migahid, 1989; Ghazanfar, 1992; Wood, 1997, Böer, 2000; Jongbloed et al., 2003; Karim, Fawzi, 2007; Norton et al., 2009, etc.). It is grown for sale in plant nurseries and is commonly used in landscaping settlements. We have repeatedly observed this species in a feral state in plant nurseries, on the streets and even wastelands in Dibba, Rul Dhadna, Al Bidiya, etc. Due to the fact that it forms many flying seeds and its easy self-seeding, it can be a potentially invasive species in the UAE under irrigated conditions (fig. 7).

Canna indica L.: 1) 25°36’9.81’’ N, 56°16’41.30’’ E, Al Dibba town, Al Shams Nursery, near Dibba Theatre (0.1 km East of), 6 m a. s. l. [point 767a]: weed in plant market and nursery, damp place near accommodation, 28 IV 2020, V. B., M. K. 2527 (LE); 2) 25°36’9.81’’ N, 56°16’41.30’’ E, Al Dibba town, Al Shams Nursery, near Dibba Theatre (0.1 km East of), 6 m a. s. l. [point 767a]: weed in plant market and nursery, damp place near accommodation, 28 IV 2020, V. B., M. K. 2547 (LE); 3) 25°36’5.21’’ N, 56°15’45.67’’ E, Al Dibba town, Green Oasis Nursery, 0.6 km South-West of Street Number 35, or 0.8 km North of Federal Electricity & Water Authority, 10 m a. s. l. [point 769]: running wild without irrigation on abandoned land near accommodation, 3 V 2020, fr., V. B., M. K. 2672 (LE); 4) Al Bidiya, Al Qalamoon Nursery, 0.3 km East from Eid Prayer Ground Bidyah, 25°25’24.70’’ N, 56°20’18.77’’ E, 22 m a. s. l. [point 781]: run wild in plastic pots with cultivated plants (*Chamaerops*), under tree, in shade, 15 V 2020, V. B., M. K. 2948 (LE); 5) 25°17’47.12’’ N, 56°7’26.88’’ E, Masafi Friday market [Salaman et al. plant nurseries], E88 Al Dhaid – Masafi road, 4 km to Masafi, 380 m a. s. l. [point 358a]: run wild on path between irrigated lines, 2 VI 2020, V. B., M. K. 3385 (LE; FSH). – Ergasiophygophyte, colonophyte. – Ornamental species; its native range is Tropical and Subtropical America – South America, Central America, the West Indies, and Mexico (Kress, Prince, 2000; URL: https://www.gbif.org/species/8034409; URL: http://plantsoftheworldonline.org/). *Canna indica* (achira in Latin America, cana-da-índia in Brazil) has been a minor food crop cultivated by indigenous peoples of the Americas for thousands of years (Gade, 1966). Recorded as introduced or invasive in 76 countries or islands. Cultivated in Saudi Arabia (Santosh Kumar, 2014), Oman (Ghazanfar, 1992), UAE (Byalt, Korshunov, 2020d), etc. The study of relevant literature revealed that *Canna indica* has been reported as alien adventive plant in Yemen (Al-Khulaidi, 2013), but not in other countries of the Arabian Peninsula (Daoud, Al-Rawi, 1985; Collenette, 1985, 1999; Phillips, 1988; Migahid, 1989; Cornes, Cornes, 1989, Western, 1989; Gazanfar, 1992, 2018; Shuaib, 1995; Chaudhary, 1999–2001; Böer, 2000; Omar, 2000; Jongbloed et al., 2003, Karim, Fawzi, 2007; Norton et al., 2009, etc.). New alien species to Fujairah and the UAE as whole. It is grown for sale in all plant nurseries and commonly used in landscaping settlements. In plant nurseries, it sometimes self-sows in more or less humid places around plant pots, and also sometimes occurs in garbage places and dumps on the territory of nurseries. We did not observe a large invasive potential in this plant, since it gives few seeds and is demanding on moisture (fig. 8).

Fig. 7. *Tecoma stans* (L.) Kunth

Fig. 8. *Canna indica* L.

Carica papaya L.: 1) 25°30’6.28’’ N, 56°21’30.01’’ E, Al Aqah, 14 m a. s. l. [point 792]: run wild in drainage ditch near corner of villa, 26 V 2020, V. B., M. K. 3312 (LE). – Ergasiophygophyte, colonophyte. – Native to S. Mexico to Venezuela (URL: http://plantsoftheworldonline.org/). Recorded as introduced in 50 countries or islands (URL: https://www.gbif.org/species/2874484), papaya has become naturalized throughout the Caribbean Islands, Florida, Texas, California, Hawaii (Simpson et al., 2021), and other tropical and subtropical regions of the world (Morton, 1987; Randall et al., 2020; URL: http://plantsoftheworldonline.org/), including part of Arabia – Yemen (Van Harten et al., 2020). Cultivated on Arabian penisula in Oman (Ghazanfar, 1992; URL: http://www.floraofqatar.com/caricaceae.htm), UAE (Karim, Dakheel, 2006; Byalt, Korshunov, 2020d), Yemen (Wood, 1997), etc. The study of relevant literature revealed that *Carica papaya* has not been reported as alien in countries of the Arabian Peninsula other than Yemen (Daoud, Al-Rawi, 1985; Collenette, 1985, 1999; Phillips, 1988; Migahid, 1989; Cornes, Cornes, 1989, Western, 1989; Gazanfar, 1992; Shuaib, 1995; Wood, 1997; Chaudhary, 1999–

2001; Böer, 2000; Omar, 2000; Jongbloed et al., 2003, Karim, Fawzi, 2007; Norton et al., 2009; Al-Khulaidi, 2013, etc.). New adventive species to UAE. It is widely cultivated in private gardens and around villas, especially Hindustani workers grow it in places of their compact residence. At the same time, it very rarely runs wild, as it requires good watering. We saw this plant in the wild only at the places where the drainage exits near the villas, where it is constantly humid. Not potentially invasive in the UAE (fig. 9).

Fig. 9. *Carica papaya* L.

****Combretum indicum*** (L.) DeFilipps (*Quisqualis indica* L.): 1) 25°25’15.85’’ N, 56°20’27.64’’ E, Al Bidiya, Abu Khalid agricultural nursery. 0.3 km South of Eid Prayer Ground Bidyah, 18 m a. s. l. [point 780]: weed (run wild) between irrigated lines on temporarily abandoned land, on sand, 12 V 2020, V. B., M. K. 2867 (LE; FSH); 2) 25°25’15.85’’ N, 56°20’27.64’’ E, Al Bidiya, Abu Khalid agricultural nursery. 0.3 km South of Eid Prayer Ground Bidyah, 18 m a. s. l. [point 780]: cultivated in plastic pots with cultivated plants, 12 V 2020, V. B., M. K. 2915 (LE). – Ergasiophygophyte, colonophyte. – This is ornamental vine is cultivated in tropics; its native range is Tanzania, Tropical and Subtropical Asia to N. Australia (URL: http://plantsoftheworldonline.org/). Recorded as invasive in 26 tropical countries, but no sites in Arabia according to GBIF data (URL: https://www.gbif.org/species/3699632). Cultivated in Qatar (URL: http://www.floraofqatar.com/indexf.htm#Combretaceae) and UAE (Byalt, Korshunov, 2020d). The study of relevant literature revealed that *Combretum indicum* has not been reported as alien in other countries of

the Arabian Peninsula (Daoud, Al-Rawi, 1985; Collenette, 1985, 1999; Miller, Morris, 1988; Phillips, 1988; Migahid, 1989; Cornes, Cornes, 1989, Western, 1989; Gazanfar, 1992; Shuaib, 1995; Wood, 1997; Chaudhary, 1999–2001; Böer, 2000; Omar, 2000; Jongbloed et al., 2003, Karim, Fawzi, 2007; Norton et al., 2009; Al-Khulaidi, 2013, etc.). It is commonly cultivated near villas, in private gardens and near hotels. Also grown for sale in some plant nurseries of Dibba and Rul Dhadna, and sometimes goes wild on damp sand around plant pots, on paths between rows of pots, on temporarily empty beds, and in irrigation pits under palms. Due to its easy self-seeding, it can be a potentially invasive species in the UAE under irrigated conditions (fig. 10).

****Conocarpus erectus*** L. var. ***sericeus*** Griseb.: 1) 25°25’15.85’’ N, 56°20’27.64’’ E, Al Bidiya, Abu Khalid agricultural nursery. 0.3 km South of Eid Prayer Ground Bidyah, 18 m [point 780]: cultivated on irrigation near greenhouse, 12 V 2020, fl., V. B., M. K. 2882 (LE; FSH). – Ergasiophygophyte, colonophyte. New adventive species for Fujairah, UAE and Arabia ta whole – This plant is an ornamental tree; its native range is America from S. Florida to Peru and Brazil, W. Tropical Africa to N. Angola (URL: http://plantsoftheworldonline.org/). Recorded as introduced in 2 countries and sometimes naturalized, but no sites in Arabia according to GBIF data (URL: https://www.gbif.org/species/5421045). Cultivated in Saudi Arabia (Santhosh Kumar, 2014) and UAE (Byalt, Korshunov, 2020d). The study of relevant literature revealed that *Conocarpus erectus* L. var. *sericeus* has not been reported as alien in other countries of the Arabian Peninsula (Daoud, Al-Rawi, 1985; Collenette, 1985, 1999; Phillips, 1988; Migahid, 1989; Cornes, Cornes, 1989, Western, 1989; Gazanfar, 1992; Shuaib, 1995; Wood, 1997; Chaudhary, 1999–2001; Böer, 2000; Omar, 2000; Jongbloed et al., 2003; Karim, Fawzi, 2007; Norton et al., 2009; Al-Khulaidi, 2013, etc.). It is grown for sale in some plant nurseries of Dibba and Rul Dhadna and sometimes goes wild on damp sand around plant pots, on paths between rows of pots and on temporarily empty beds and in irrigation pits under palms. Due to its easy self-seeding, it can be a potentially invasive species in the UAE under irrigated conditions (although nowadays it is rather rarely grown) (fig. 11).

****Conocarpus lancifolius*** Engl. & Diels: 1) 25°16’46.11’’ N, 56°21’28.88’’ E, Mirbah town, 0.3 km West of Comprehensive Police Station Murbah, 19 m a. s. l. [point 765]: on gravel-sand roadside, weed in irrigated circle, 23 IV 2020, V. B., M. K. 2389 (LE); 2) 25°25’55.03’’ N, 56°20’20.99’’ E, Al Bidya, near Green Cost Nursery Bidiya plant selling, 14 m a. s. l. [point 779]: run wild near garden wall, 11 V 2020, V. B., M. K. 2843 (LE); 3) 25°25’55.03’’ N, 56°20’20.99’’ E, Al Bidya, near Green Cost Nursery Bidiya plant selling, 14 m a. s. l.: run wild on dry roadside near wall of plant nursery, 11 V 2020, V. B., M. K. 2849, 2843 (LE); 4) 25°35’45.41’’ N, 56°16’36.48’’ E, Al Dibba town, 0.2 km North of ADNOC Service Station, Al Muhallab (885), 14 m a. s. l. [point 790]: run wild near wall, on roadside, 23 V 2020, V. B., M. K. 3194 (LE); 5) 25°36’19.87’’ N, 56°17’0.48’’ E, Al Dibba town, plant nursery “Corniche Nursery”, 0.4 km South-West by road from roundabout between Corniche Street 101 and Sambraid Beach road, 3 m a. s. l. [point 800]: run wild near the garden fence, 19 VI 2020, V. B., M. K. 3721 (LE; FSH). – Ergasiophygophyte, colonophyte. – This plant is an ornamental tree; its native range is Somalia (URL: http://plantsoftheworldonline.org/; URL: https://www.gbif.org/species/5553336). *Conocarpus lancifolius*, one of two species in the genus *Conocarpus*, is a tree native to coastal and riverine areas of Somalia, Djibouti, and Yemen (Hadhramaut). It is found in cultivation throughout the Horn of Africa, South Asia, and the Arabian Peninsula (Ghazanfar, 1992; Karim, Dakheel, 2006;

Fig. 10. *Combretum indicum* (L.) De Filipps

Fig. 11. *Conocarpus erectus* L. var. *sericeus* Griseb.

Fig. 12. *Conocarpus lancifolius* Engl. & Diels

Al-Khulaidi, 2013; URL: http://www.floraofqatar.com/indexf.htm#Combretaceae). Not native for UAE. *Conocarpus lancifolius* is not recorded in Arabian floras and Checklists as an alien adventive species (Colenette, 1989; Cornes, Cornes, 1989; Migahid, 1989; Wood, 1997; Böer, 2000; Jongbloed et al., 2003; Karim, Fawzi, 2007; Ghazanfar, 2007; Norton, 2009 et al., etc.). It is commonly used in landscaping settlements, grown in private gardens and parks. It forms many flying seeds and its self-seeding is easy; it tolerates dry and saline soil conditions well (Karim, Dakheel, 2006), it can be a potentially invasive species in the UAE (fig. 12).

Terminalia catappa L.: 1) 25°17′40.91′′ N, 56°21′28.51′′ E, village Qidfa, [point 343]: run wild in irrigated circle in backstreet [point 343], 25 XI 2019, V. B., M. K. 1701 (LE); 2) 25°06′38.35′′ N, 56°21′27.04′′ E, seafront of the city of Al Fujeira, [point 346]: run wild in irrigated round between highway lanes. [point 346], 27 XI 2019, V. B., M. K. 1781 (LE); 3) 25°17′47.19′′ N, 56°07′28.25′′ E, Al Dhaid-Masafi Road, environs of Masafi [point 358]: run wild in Salman Nursery (seedling). 29 XI 2019, V. B., M. K. 1837 (LE); 4) 25°36′5.21′′ N, 56°15′45.67′′ E, Al Dibba town, Green Oasis Nursery, 0.6 km South-West of Street Number 35, or 0.8 km North of Federal Electricity & Water Authority, 10 m a. s. l. [point 769]: cultivated and running wild on irrigation in plantation under tree, near garden wall, 3 V 2020, fr., V. B., M. K. 2641 (LE); 5) 25°34′24.07′′ N, 56°14′6.39′′ E, Al Dibba town, private nurseries, 0.2 km South of Al Amerey Nursery, 48 m a. s. l. [point 776]: run wild in nursery near fence, 7 V 2020, V. B., M. K. 2763 (LE); 6) 25°7′48.93′′ N, 56°21′19.49′′ E, Fujairah city, median strips and greenery landscaping near Fujairah International Marine Club, 4 m a. s. l. [point 777]: run wild in irrigated spot in the shady lane, under tree, 9 V 2020, V. B., M. K. 2770 (LE); 7) 25°25′15.85′′ N, 56°20′27.64′′ E, Al Bidiya, Abu Khalid agricultural nursery. 0.3 km South of Eid Prayer Ground Bidyah, 18 m a. s. l. [point 780]: run wild under tree, in shade, 12 V 2020, V. B., M. K. 2866, 2881 (LE; FSH); 8) 25°25′24.70′′ N, 56°20′18.77′′ E, Al Bidiya, Al Qalamoon Nursery, 0.3 km East of Eid Prayer Ground Bidyah, 22 m a. s. l. [point 781]: run wild on irrigation under tree, in shade, 15 V 2020, V. B., M. K. 2999 (LE; FSH); 9) 25°32′11.94′′ N, 56°21′4.36′′ E, Rul Dhadna, Plant Nursery of Abu Abdallah in 1 km North-North-West of ADNOC Petrol Station on E99 Rugaylat road, 13 m a. s. l. [point 788]: run wild in plant nursery on the path between rows of pots with cultivated plants, 23 V 2020, V. B., M. K. 3155 (LE; FSH); 10) 25°26′9.06′′ N, 56°20′17.72′′ E, Al Bidiya, Desert Oasis Nursery Bidyah, 0.7 km West of Bidiyah Association for Culture and Folklore, 14 m a. s. l. [point 794]: run wild on irrigation under tree, in shade, 4 VI 2020, V. B., M. K. 3403 (LE; FSH); 25°34′33.97′′ N, 56°14′6.15′′ E, Al Dibba town, Alamarey Nursery, 0.5 km South of Khalid Hadi Resort Dibba, 45 m a. s. l. [point 797]: run wild under date palm, in shade, near the garden fence, 13 VI 2020, V. B., M. K. 3579 (LE; FSH); 11) 25°36′19.87′′ N, 56°17′0.48′′ E, Al Dibba town, plant nursery “Corniche Nursery”, 0.4 km South-West by road from roundabout between Corniche Street 101 and Sambraid Beach road, 3 m a. s. l. [point 800]: run wild on irrigation under date palm, in shade, 19 VI 2020, V. B., M. K. 3733 (LE; FSH); 12) 25°31′15.68′′ N, 56°21′10.02′′ E, Rul Dhadna, Majid Nursery (plants), near E99 road and Mina road intersection, 15 m a. s. l. [point 804]: run wild under irrigated date palm in garden part, 30 VI 2020, V. B., M. K. 3902 (LE; FSH).– Ergasiophygophyte, colonophyte. *Terminalia catappa* is widely grown in tropical regions of the world as an ornamental tree with edible fruits; its native range is Madagascar, Tropical & Subtropical S. Asia to Pacific. It is also used to for the treatment of certain diseases in traditional medicine (URL: http://plantsoftheworldonline.org/). Recorded as introduced in 65 tropical countries (URL: https://www.gbif.org/

species/3189394). Cultivated in Oman (Ghazanfar, 1992), Qatar (URL: http://www.floraofqatar.com/indexf.htm#Combretaceae), UAE (Karim, Dakheel, 2006; Byalt, Korshunov, 2020d), Yemen (Al-Khulaidi, 2013). *Terminalia catappa* is not recorded in Arabia in floras and Checklists as an alien adventive species (Colenette, 1989; Cornes, Cornes, 1989; Migahid, 1989; Wood, 1997, Böer, 2000; Jongbloed et al., 2003; Karim, Fawzi, 2007; Ghazanfar, 2007; Norton et al., 2009; Al-Khulaidi, 2013, etc.). It is commonly grown for sale in all plant nurseries and is widely cultivated in private gardens. It forms many seeds (nuts) and commonly goes wild on irrigation under mother plants. Due to its easy self-seeding, it can be a potentially invasive species in the UAE under irrigated conditions and wet places.

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