ОРИГИНАЛЬНАЯ СТАТЬЯ

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Новые виды эргазиофигофитов семейства Moraceae для флоры эмирата Фуджейра (ОАЭ)

В ходе флористических исследований в 2017–2022 гг. в эмирате Фуджейра (Объединенные Арабские Эмираты – ОАЭ/UAE) нами были сделаны новые находки, дополняющие видовой состав сосудистых растений ОАЭ в целом. В статье приведены данные о 8 новых или редких эргазиофигофитах из семейства Moraceae – культивируемых и дичающих видах растений, чужеродных для эмирата Фуджейра: *Ficus amplissima* Sm., *F. benghalensis* L., *F. benjamina* L., *F. carica* L., *F. microcarpa* L. f., *F. religiosa* L., *F. sycomorus* L., *Morus albus* L. Большинство из этих видов также ранее не приводились в Аравийских флорах и списках растений как чужеродные адвентивные виды.

Ключевые слова: Объединенные Арабские Эмираты, эмират Фуджейра, география растений, покрытосеменные растения, чужеродная флора, эргазиофигофиты, Moraceae, *Ficus*, *Morus*.

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ORIGINAL ARTICLE

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New ergasiofigophyte species from the Moraceae family in the flora of the Emirate of Fujairah (UAE)

New findings that complement the species composition of the flora of vascular plants in the territory of the Emirate and the UAE as a whole were made during the floristic research in the Emirate of Fujairah (the United Arab Emirates – UAE) in 2017–2022. The article provides data on 8 new or rare ergasiophygophytes (cultivated and running wild plant species) from the Moraceae family, alien to the Emirate of Fujairah. These are *Ficus amplissima* Sm., *F. benghalensis* L., *F. benjamina* L., *F. carica* L., *F. microcarpa* L. f., *F. religiosa* L., *F. sycomorus* L., and *Morus albus* L. Also, most of these species have never been previously listed in the Arabian floras and checklists as alien adventive.

Keywords: UAE, Emirate of Fujairah, plant geography, angiosperms, alien flora, ergasiophygophytes, Moraceae, *Ficus, Morus.*

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The article presents the fourth part of new findings of ergasiophygophytes (cultivated plants that escaped into the wild) in the flora of the Emirate of Fujairah (Byalt, Korshunov, 2020c, 2022; Korshunov, Byalt, 2021). Ergasiophygophytes are a 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 the 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 2017–2022, and the active research of the adventive element took place in 2019–2022 (Byalt, Korshunov, 2018, 2020 a–d; Byalt et al., 2020 a, b). As a result, we came to the conclusion that plant nurseries and mini-markets are the main source of the primary appearance of ergasiophygophytes (as well as 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 classification by F.-G. Schroëder (Schroëder, 1969; Baranova et al., 2018) was used. Latin names of plants are given in the "Catalogue of Life" (URL: https://www.catalogueoflife.org/col/) and "Plants of the world online" (POWO: URL: http://plantsoftheworldonline.org/). Herbarium specimens confirming the findings were transferred to the Herbarium of Moscow State University (MW), the doublets 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). Collectors are the authors of the article.

The following species of flowering plants are new to Fujairah: ***Ficus amplissima*** Sm., ***F. benghalensis*** L., ***F. benjamina*** L., ***F. carica*** L., ***F. microcarpa*** L. f., ***F. religiosa*** L., ***F. sycomorus*** L., ***Morus albus*** L. A part of these species have not been previously listed in the Arabian floras and checklists as alien adventive species.

Abbreviations used in article: United Arab Emirates – UAE, m a. s. l. – m above sea level, fl. – with flowers, fr. – with fruits, veg. – in a vegetative state, juv. – young, underdeveloped. LE – Herbarium of BIN RAS, FSH [no acronym yet] – Fujairah Scientific Herbarium (Byalt et al., 2020a), V. B., M. K. – V. V. Byalt, M. V. Korshunov, respectively. The labels are in English, or in Russian and English as in the original. The numbers in square brackets indicate the place of our research, recorded by GPS, e.g. "[point 776]". They are given on the labels for the convenience of working with the herbarium.

Scanned images of Moraceae specimens from the UAE preserved in the Herbarium of Higher Plants of the Komarov Botanical Institute RAS (LE) can be found at the website of the Institute: (https://herbariumle.ru/?t=occ&s=United%20Arab%20Emirates%2C%20Ficus&f=%5Ball%5D).

Ficus amplissima Sm.: 1) United Arab Emirates. Hajar Mntns. Old road Masafi-Dibba, gardens in NW environs of Al Khala village, 25°29'02.84'' N 56°11'22'' E, ca. 180 m a. s. l.: wasteland near private garden of Abdullah, irrigated place in hollow. – ОАЭ, Фуджейра, горы Хаджар. Старая дорога Масафи-Дибба, сады в сев.-зап. окр. пос. Аль Хала, 25°29'02.84'' N, 56°11'22'' E, ок. 180 м н. ур. м.: пустырь частного сада Абдулы, низина с поливом, 23 XI 2019, fr., V. B., M. K. 1474 (LE); 2) UAE, Emirate of Fujairah, Al Bidyah, plant market 0.2 km South to the old Al Bidyah mosque, 25°26'8.53'' N, 56°21'11.70'' E, 5 m a. s. l.: roadside near supermarket, 25 XI 2019, veg., V. B., M. K. 327 (LE); 3) UAE. Emirate of Fujairah, env. of Al Fujairah city, private garden and nursery of Dr. Ali near Hajar Mntns., 25.436911N, 56.333818E: weed in nursery. – ОАЭ,

Фуджейра, окр. г. Аль Фуджейра, поселок Бидия, сад директора нац. парка Али возле гор Хаджар, 25.436911 N, 56.333818 E: сорняк в питомнике, 11 XII 2017, V. V. Byalt 1320 (LE); 4) UAE. Emirate of Fujairah, Mirbah Beach, environs of Mirbah village, 25°16’15.29’’ N, 56°22’06.41’’ E [point 345]: along a wall in a backstreet, run wild. – ОАЭ, Фуджейра, окресности пос. Мерба, 25°16’15.29’’ N, 56°22’06.41’’ E [точка 345]: вдоль стены в переулках, одичавшее, 25 XI 2019, veg., V. B., M. K. 1646 (LE); 5) UAE. Emirate of Fujairah, seafront of Al Fujairah city, 25°06’38.35’’ N 56°21’27.04’’ E [point 346]: weed in irrigated circles between highway lanes. – ОАЭ, Фуджейра, морская набережная г. Фуджейра, 25°06’38.35’’ N, 56°21’27.04’’ E [точка 346]: сорняк в поливных кругах между полосами шоссе, одичавшее, подрост, 27 XI 2019, veg., V. B., M. K. 1757, 1778 (LE); 6) UAE. Emirate of Fujairah, seafront of the Al Fujairah city, 25°07’18.09’’ N, 56°21’22.92’’ E [point 347]: weed in irrigated circles between highway lanes at the middle of the seafront. – ОАЭ, Фуджейра, морская набережная г. Фуджейра, 25°06’38.35’’ N, 56°21’27.04’’ E [точка 347]: сорняк в поливных кругах между полосами шоссе в середине набережной, одичавший, 27 XI 2019, veg., V. B., M. K. 1820 (LE); 7) UAE, Emirate of Fujairah, Mirbah town, 0.3 km West from Comprehensive Police Station Mirbah, 25°16’46.11’’ N, 56°21’28.88’’ E, 19 m a. s. l. [point 765]: weed in irrigated circle, 23 IV 2020, veg., V. B., M. K. 2388 (LE); 8) UAE, Emirate of Fujairah, Al Dibba town, private nurseries, 0.2 km South from Al Amerey Nursery, 25°34’24.07’’ N, 56°14’6.39’’ E, 48 m a. s. l. [point 776]: run wild in nursery, 7 V 2020, veg., V. B., M. K. 2761 (LE); 9) UAE, Emirate of Fujairah, Al Fujairah city, wasteland near Fujairah Corniche road, opposite to Fujairah International Marine Club, 25°7’22.82’’ N, 56°21’23.00’’ E, 3 m a. s. l. [point 758a]: weed (run wild) in irrigated circles between highway lanes, 9 V 2020, veg., V. B., M. K. 2802 (LE); 10) UAE, Emirate of Fujairah, Al Fujairah city, median strips and greenery landscaping near Fujairah International Marine Club. 25° 7’48.93’’ N, 56°21’19.49’’ E, 4 m a. s. l. [point 777]: run wild on wet drainage near the wall of a villa, 9 V 2020, veg., V. B., M. K. 2772 (LE); 11) UAE, Emirate of Fujairah, Al Bidyah, near Green Coast Nursery, Al Bidyah plant selling. 25°25’55.03’’ N, 56°20’20.99’’ E, 14 m a. s. l.: run wild near a wall, 11 V 2020, veg., V. B., M. K. (LE); 12) UAE, Emirate of Fujairah, Al Bidyah, Abu Khalid agricultural nursery. 0.3 km South from Eid Prayer Ground Bidyah, 25°25’15.85’’ N, 56°20’27.64’’ E, 18 m a. s. l. [point 780]: run wild under a tree, in shade, 12 V 2020, veg., V. B., M. K. 2910 (LE; FSH); 13) UAE, Emirate of Fujairah, Al Bidyah, 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 between plastic pots with cultivated plants, 15 V 2020, veg., V. B., M. K. 2989 (LE); 14) UAE, Emirate of Fujairah, Roul Dadna, Plant Nursery of Abu Abdallah 1 km North-North-West from ADNOC Petrol Station on E99 Rugaylat road, 25°32’11.94’’ N, 56°21’4.36’’ E, 13 m a. s. l. [point 788]: run wild in a plant nursery between pots, on a path between rows of pots with cultivated plants, 23 V 2020, veg., V. B., M. K. 3171 (LE); 15) UAE, Emirate of Fujairah, Al Dibba town, 0.2 km North from ADNOC Service Station, Al Muhallab (885), 25°35’45.41’’ N, 56°16’36.48’’ E, 14 m a. s. l. [point 790]: on roadside, run wild near the wall of a garden, 23 V 2020, veg., V. B., M. K. 3204 (LE); 16) UAE, Emirate of Fujairah, Sharm, 25°28’17.54’’ N, 56°21’8.03’’ E, 10–45 m a. s. l. [point 793]: in drainage near a wall on the shady side of the street between villas, 28 V 2020, veg., V. B., M. K. 3344 (LE); 17) UAE, Emirate of Fujairah, Al Bidyah, Desert Oasis Nursery Bidyah, 0.7 km West from Bidyah Association for Culture and Folklore. 25°26’9.06’’ N, 56°20’17.72’’ E, 14 m a. s. l. [point 794]: run wild near the wall in a nursery, 4 VI 2020, veg., V. B., M. K. 3426 (LE; FSH); 18) UAE, Emirate of Fujairah, Al Dibba town, plant

nursery on the corner between Street Number 30 and Corniche Street 101, 25°36′32.36′′ N, 56°16′39.21′′ E, 6 m a. s. l. [point 799]: run wild near the garden fence, 16 VI 2020, veg., V. B., M. K. 3680 (LE; FSH); 19) UAE, Emirate of Fujairah, Roul Dadna, Al Jawhara Plants Nursery, 2 km up an unnamed road from E99 to Wadi Zikt dam. 25°30′52.69′′ N, 56°20′11.79′′ E, 33 m a. s. l. [point 805]: run wild in the plantation irrigation ditch near the garden wall, 4 VII 2020, veg., V. B., M. K. 3963 (LE; FSH). Ergasiophygophyte, ephemerophyte. – New alien species to the Fujairah and UAE. A very ornamental plant, the native range of this species is Southern Asia (Maldives, India, Sri Lanka) (Chaudhary et al., 2012; Chantarasuwan, et al., 2013; URL: http://plantsoftheworldonline.org/). It is a tree and grows primarily in the seasonally dry tropical biome. It is used in traditional medicine, for environmental purposes and for food (URL: http://plantsoftheworldonline.org/) It has been introduced as an ornamental plant to Vietnam (Lê, 2003), Pakistan (Ghafoor, 1985), and some another countries (Miller, Cope, 1996; Govaerts, 2001).

On the Arabian Peninsula it is cultivated in Oman (Ghazanfar, 1992), Saudi Arabia (Miller, Cope, 1996) and UAE (Byalt, Korshunov, 2020d, sub *F. cordata* auct.). The study of relevant literature revealed that *Ficus amplissima* Sm. 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; Mandaville, 1990; Ghazanfar, 1992; Shuaib, 1995; Miller, Cope, 1996; Wood, 1997; Chaudhary, 1999; Jongbloed et al., 2000, 2003; Omar, 2000, 2007; Karim, Fawzi, 2007; Norton et al., 2009, et al.). It is grown for sale in some plant nurseries in the Emirate of Fujairah in Dibba, Al Bidyah, Roul Dadna, and commonly used in the landscaping of most settlements, parks, hotels and private villas.

Self-sowing forms of this plant were found by us many times among the old plantings of this tree on the territory of hotels, nurseries and settlements (Fig. 1). We have observed a large invasive potential in this plant, since it forms a mass of fruits that are eaten by birds and carried around far from the mother plant. As a result, self-sown plants and undergrowth can be found both in and out of irrigation circles on roadsides, at the walls of villas and garden fences, at the outlet of water drainage near houses, and even in wall cracks and on date palm trunks as epiphytic plants.

Ficus benghalensis L.: 1) United Arab Emirates. Emirate of Fujairah, Qidfa village, 25°17′40.91′′ N, 56°21′28.51′′ E [point 343]: cultivated near gates of a house in a backstreet. – ОАЭ, Фуджейра, пос. Кидфа, 25°17′40.91′′ N, 56°21′28.51′′ E [point 343]: культивируется у ворот дома в переулке, 25 XI 2019, fr., V. B., M. K. 1704 (LE); 2) UAE, Emirate of Sharjah, Khorfakkan, waste water channel in the North of Khorfakkan town, E99 Rugaylat road, near Oceanic Khorfakkan Resort & Spa. 25°22′30.68′′ N, 56°20′41.51′′ E, 10 m a. s. l. [point 763]: on the right channel bank near villa walls, 23 IV 2020, veg., V. B., M. K. 2380 (LE); 3) UAE, Emirate of Fujairah, Masafi, near Masafi Fort. 25°18′9.44′′ N, 56° 9′45.71′′ E, 440–460 m a. s. l. [point 762]: wet drainage on slope near a house, 21 IV 2020, fl., V. B., M. K. 2350 (LE); UAE, Emirate of Fujairah, Al Bidyah, near Green Coast Nursery, Al Bidyah plant selling. 25°25′55.03′′ N, 56°20′20.99′′ E, 14 m a. s. l. [point 779]: in irrigated spot near house, 11 V 2020, fr., V. B., M. K. s. n. (LE); 4) UAE, Emirate of Fujairah, Al Bidyah, Abu Khalid agricultural nursery. 0.3 km South from Eid Prayer Ground Bidyah, 25°25′15.85′′ N, 56°20′27.64′′ E, 18 m a. s. l. [point 780]: run wild on irrigated land under date palm, in shade, 12 V 2020, veg., V. B., M. K. 2860, 2913 (LE; FSH); 5) UAE, Emirate of Fujairah, Roul Dadna, Al Jawhara Plants Nursery, 2 km up an unnamed road from E99 to Wadi Zikt dam. 25°30′52.69′′ N,

56°20′11.79′′ E, 33 m a. s. l. [point 805]: run wild near the garden fence, 4 VII 2020, veg., V. B., M. K. 3964 (LE; FSH). – Ergasiophygophyte, colonophyte, neophyte. – New for Emirate of Fujairah, UAE and, probably, for Arabia as a whole.

Fig. 1. *Ficus amplissima* Sm. as a weed in a flower bed

Рис. 1. *Ficus amplissima* Sm. растущий как сорный на клумбе

Fig. 2. *Ficus benghalensis* L. run wild under a date palm

Рис. 2. *Ficus benghalensis* L., одичавший под финиковой пальмой

The native range of this species is Indostan Peninsula and Andaman Islands (Grierson, Long, 1983; Govaerts, 2001; Chaudhary et al., 2012; Barooah, Ahmed, 2014; URL: http://plantsoftheworldonline.org/). It is a tree and grows primarily in the seasonally dry tropical biome. It has environmental and social applications, and is also used as a feed, in traditional medicine and for food (Usher, 1974; Jansen et al., 1991; Sosef et al., 1998). Cultivated in many countries and islands (Afghanistan, Chagos Archipelago, USA – Florida, Gilbert Isl., Iran, Jamaica, Laos, Marianas Isls., Mauritius Isl., Myanmar, Palestine, Australia – Queensland, Rodrigues Isl., Réunion Isl., St. Helena Isl., Trinidad and Tobago Isl., Vietnam) (Browicz, 1982; George, 1989; Wunderlin, 1997; Kress et al., 2003; Lê, 2003; Newman et al., 2007; Acevedo-Rodríguez, Strong, 2012, etc.), it is ideal for parks, gardens roadsides and large courtyards near the sea. Grows well in the open sun and has a very long life.

For the Arabian Peninsula, it is reported as a cultivated plant in Oman, Qatar, Saudi Arabia, UAE (Ghazanfar, 1992; Miller, Cope, 1996; Karim, Dakheel, 2006). Commonly cultivated in the UAE in Al Ain, Abu Dhabi, Dubai and Fujairah (Karim, Dakheel, 2006; Byalt, Korshunov, 2020d). Tolerates salinity, that is why it is growing very well in the region.

A study of relevant literature revealed that *Ficus benghalensis* 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; Mandaville, 1990; Ghazanfar, 1992; Shuaib, 1995; Wood, 1997; Chaudhary, 1999; Jongbloed et al., 2000, 2003; Omar, 2000, 2007; Karim, Fawzi, 2007; Norton et al., 2009, et al.). A moderately salt tolerant, widely spread ornamental plant in the region. It is grown for sale in some plant nurseries in the Emirate of Fujairah (in Dibba, Al Bidyah, Roul Dadna), and is commonly used in landscaping of settlements, parks, hotels and private villas.

Like *Ficus amplissima,* this *Ficus* species has a large invasive potential, since it produces a lot of orange fruits that are eaten by birds and carried around far from the mother plant. As a result, self-sown plants and their undergrowth can be found both in and out of irrigation circles on roadsides, at the walls of villas and garden fences, at the drainage water outlets near houses, and even in wall cracks and on date palm trunks (Fig. 2).

Ficus benjamina L.: 1) UAE, Emirate of Fujairah, 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, 25°36’5.21’’ N, 56°15’45.67’’ E, 10 m a. s. l. [point 769]: weed (running wild) on the side of the path not far from the mother tree, 3 V 2020, veg., V. B., M. K. 2629 (LE); 2) UAE, Emirate of Fujairah, Roul Dadna, Majid Nursery (plants), near E99 road and Mina road intersection. 25°31’15.68’’ N, 56°21’10.02’’ E, 15 m a. s. l. [point 804]: cultivated in plastic pots, 30 VI 2020, fr., V. B., M. K. 3859 (LE; FSH). – Ergasiophygophyte, colonophyte, neophyte. – New for Emirate of Fujairah, UAE and, probably, for Arabia as a whole.

The native range of this ornamental tree is Tropical & Subtropical Asia and N. Australia (Dassanayake, 1981; Grierson, Long, 1983; Turner, 1995; Dy Phon, 2000; Kress et al., 2003; Lê, 2003; Wu, Raven, 2003; Chaudhary et al., 2012; Balkrishna, 2018; URL: http://plantsoftheworldonline.org/). It is a big tree and grows primarily in the wet tropical biome. It has environmental and social uses as a feed, as poison, in traditional medicine, as fuel, and for food (URL: http://plantsoftheworldonline.org/). Recorded as introduced in 38 countries or islands (Dassanayake, 1981; Ghafoor, 1985; Akoègninou et al., 2006; Acevedo-Rodríguez, Strong, 2012; https://www.gbif.org/species/5361932). Recorded as invasive in the USA (Wunderlin, 1997; Kraus et al., 2020), Ecuador (Pagard, 2020a), Nicaragua (Pagard, 2020b).

This species is sometimes cultivated in Oman (Ghazanfar, 1992), Saudi Arabia (Miller, Cope, 1996) and UAE (Fujairah) (Byalt, Korshunov, 2020a). It is rarely grown for sale in some plant nurseries in the Emirate of Fujairah in Dibba, Al Bidyah, Roul Dadna, and sometimes used in landscaping of settlements, hotels and private villas. The case of its naturalization we have seen in “Green Oasis Nursery” at Al Dibba town on the side of the path not far from the mother tree (Fig. 3). At present, *Ficus benjamina* does not have a large invasive potential in Fujairah as it is rarely cultivated, as it requires large amounts of moisture and is not as salinity tolerant as some other cultivated species of *Ficus*.

Ficus carica L.: 1) UAE, Emirate of Fujairah, Al Wahlah, wadi Al Hilo Fort (Ohala Fort). 24°54’29.51’’ N, 56°18’11.86’’ E, 75 m a. s. l. [point 334]: run wild in wet drainage near the wall of a villa, 19 III 2020, veg., V. B., M. K. 852 (FSH); 2) UAE, Emirate of Fujairah, Fujairah city, median strips and greenery landscaping near Fujairah International Marine Club. 25°7’48.93’’ N, 56°21’19.49’’ E, 4 m a. s. l. [point 777]: run wild (seedling) in wet drainage near the wall of a villa, 9 V 2020, veg., V. B., M. K. 2773 (LE); 3) UAE, Emirate of Fujairah, Roul Dadna, Plant Nursery of Abu Abdallah, 1 km North-North-West from ADNOC Petrol Station on E99 Rugaylat road,

25°32’11.94’’ N, 56°21'4.36’’ E, 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, veg., V. B., M. K. 3175 (FSH); 4) UAE, Emirate of Fujairah, Al Bidyah, Green Coast Nursery, Al Bidyah plant selling, 25°25’53.43’’ N, 56°20’20.90’’ E, 13 m a. s. l. [point 803]: run wild in irrigation ditch in the nursery, 27 VI 2020, veg., V. B., M. K. 3810 (LE; FSH). – Ergasiophygophyte, colonophyte, neophyte. – New for the Emirate of Fujairah, and, probably, for UAE as a whole.

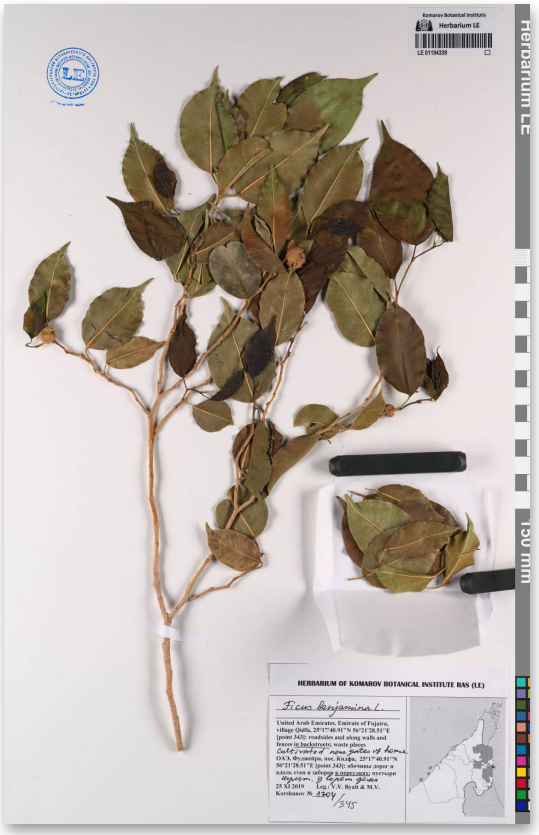

Fig. 3. A herbarium specimen of *Ficus benjamina* L. in LE

Рис. 3. Гербарный экземпляр *Ficus benjamina* L. в LE

Fig. 4. *Ficus carica* L. run wild in a plant nursery

Рис. 4. *Ficus carica* L., одичавший в питомнике растений

The native range of this species is Eastern Mediterranean to Central Asia and Afghanistan (URL: http://plantsoftheworldonline.org/). It is a tree and grows primarily in the temperate biome. It has environmental and social use as a feed, poison, medicine, and for food (URL: http://plantsoftheworldonline.org/).

Figs are among the oldest cultivated plants, presumably the oldest ones (URL: https://elementy.ru/novosti_nauki/430250). In culture, figs were first grown in Arabia, from where they were borrowed by Phoenicia, Syria and Egypt. In the XIII century BC it played an important role in the agriculture of the kingdom of Pylos (this country existed from XVI to XI century BC.). *Ficus carica* came to Americas only at the end of the XVI century AC.

On the Arabian Peninsula, *Ficus carica* is reported as a cultivated species in Bahrain, Oman, Qatar, Saudi Arabia, UAE and Yemen (Wester, 1989; Ghazanfar, 1992, 2003; Heller, Heyn, 1994; Wood, 1997; Miller, Cope, 1996; Karim, Dakheel, 2006; Norton et al., 2009; Al-Khulaidi, 2013). Commonly cultivated in the UAE in Al Ain, Abu

Dhabi, Dubai and Fujairah (Karim, Dakheel, 2006; Byalt, Korshunov, 2020d). Tolerates salinity, that is why it grows very well in this region (Karim, Dakheel, 2006). Occasionally found as an escapee from cultivation in Oman and Yemen, but always present near inhabited areas (Wood, 1997; Ghazanfar, 2003). The study of relevant literature revealed that *Ficus carica* has not been reported as an alien species in other countries of the Arabian Peninsula (Daoud, Al-Rawi, 1985; Collenette, 1985, 1999; Phillips, 1988; Migahid, 1989; Cornes, Cornes, 1989; Western, 1989; Mandaville, 1990; Shuaib, 1995; Chaudhary, 1999; Jongbloed et al., 2000, 2003; Omar, 2000, 2007; Karim, Fawzi, 2007; Norton et al., 2009, et al.).

According to our observations, fig sometimes self-sows in irrigation pits under mother trees (for example, in "Green Coast Nursery, Al Bidyah plant selling" in Al Bidyah or "Plant Nursery of Abu Abdallah" in Roul Dadna), while at the same time we have repeatedly observed it in wet drainage near the walls of villas in Fujairah city and Al Wahlah. Apparently, a potentially invasive species, has edible fruits and is distributed by birds far from mother trees (Fig. 4).

We consider this species in *sensu stricto* – *Ficus carica* L. s. str. without including related species *F. joahanneana* and *F. palmata*, which are found in the natural condition in the region and not alien.

Ficus microcarpa L. f.: 1) UAE. Emirate of Fujairah, Al Taiba in environs of Al Fujairah city, 25°09'29.6'' N, 56°17'31'' E: cultivated in 2 rows in an alley in the central part of the farm of the Sheikh Hamad II [point 342]. – ОАЭ, Фуджейра, Аль Тайба в окр. г. Фуджейра, 25°09'29.6'' N, 56°17'31'' E: культивируется на аллее в 2 ряда в центре части фермы шейха Хамада II [точка 342], 24 XI 2019, veg., V. B., M. K. 1634 (LE); 2) UAE, Emirate of Fujairah, Al Bidyah, near Green Coast Nursery, Al Bidyah. 25°25'55.03'' N, 56°20'20.99'' E, 14 m a. s. l.: cultivated near garden fence, 11 V 2020, fr., V. B., M. K. 2842 (LE); 3) UAE, Emirate of Fujairah, Al Bidyah, yards near Bidyah Association for Culture and Folklore, 25°26'20.95'' N, 56°20'43.71'' E, 8 m a. s. l.: cultivated. 19 V 2020, veg., V. B., M. K. 3063 (FSH); 4) UAE, Emirate of Fujairah, Al Dibba town, Alamarey Nursery, 0.5 km South from Khalid Hadi Resort Dibba. 25°34'33.97'' N, 56°14'6.15'' E, 45 m a. s. l. [point 797]: cultivated and run wild on irrigated spot under a tree, in shade, 13 VI 2020, veg., V. B., M. K. 3630 (FSH). – New for the Emirate of Fujairah, UAE and Arabia as a whole.

The native range of this species is Tropical & Subtropical Asia to W. Pacific. It is a tree and grows primarily in the wet tropical biome (Fosberg et al., 1979; Bosser et al., 1985; Ghafoor, 1985; Govaerts, 2001; Pandey, Dilwakar, 2008; Chaudhary et al., 2012; URL: http://plantsoftheworldonline.org/). It has environmental and social applications and is used as a feed, as poison, in traditional medicine, as invertebrate food, as fuel and human food (URL: http://plantsoftheworldonline.org/).

Recorded as introduced in 35 countries and islands (George, 1989; George et al., 1993; Wunderlin, 1997; Turner, 1995; Stevens et al., 2001; Lê, 2003; Wu, Raven, 2003; Iwatsuki et al., 2006; Hokche et al., 2008; Nelson Sutherland, 2008; Hedberg et al., 2009; Acevedo-Rodríguez, Strong, 2012; Leti et al., 2013; Stinca et al., 2017; Dufour-Dror, 2019; Von Raab-Straube, Raus, 2019; https://www.gbif.org/species/7467639), sometime is invasive, for example, in USA and Brazil (https://www.gbif.org/species/7467639).

In Arabia, this species is sometimes cultivated in Saudi Arabia (Miller, Cope, 1996; Santhosh Kumar et al., 2014) and UAE (Fujairah) (Byalt, Korshunov, 2020). It is rarely grown for sale in some plant nurseries in the Emirate of Fujairah in Dibba, Al Bidyah, Roul Dadna, and sometimes used in the landscaping of settlements, hotels and private villas. We saw a case of its naturalization in the "Alamarey Nursery" at Al Dibba town where it ran wild on an irrigated spot under a tree, in shade (Fig. 5).

At present, *Ficus microcarpa* in Fujairah does not have a large invasive potential, as it is rarely cultivated, since it requires large amounts of moisture and is not as salinity tolerant as some other cultivated species of *Ficus*.

Ficus religiosa L.: 1) UAE. Emirate of Fujairah, env. of Al Fujairah city, private garden and nursery of Dr. Ali near Hajar Mntns., 25.436911°N, 56.333818°E: weed in a nursery. – ОАЭ, Фуджейра, окр. г. Аль Фуджейра, поселок Бидия, сад директора нац. парка Али возле гор Хаджар, 25.436911°N, 56.333818°E: сорняк в питомнике, 11 XII 2017, V. V. Byalt 1328 (LE); 2) UAE. Emirate of Fujairah, Al Fujairah city, near airport, 25°07′11.8′′ N, 56°19′49.3′′ E, weed in a palm garden near a house. – ОАЭ, Эмират Фуджейра, г. Фуджейра, район города близ аэропорта, 25°07′11.8′′ N, 56°19′49.3′′ E, сорняк в пальмовом саду у жилого дома, 30 III 2018, V.V. Byalt 1324 (LE); 3) United Arab Emirates. Emirate of Fujairah, Al Bidyah village, 25°26'13" N, 56°20'22.2" E: weed along the fence of a garden. – ОАЭ, Фуджейра, поселок Аль Бидия, 25°26'13" N, 56°20'22.2" E: сорняк вдоль забора сада, 3–4 IV 2018, V. B., M. K. 1321, 1322 (LE); 4) United Arab Emirates, Emirate of Fujairah, Bidiyah village: run wild in an irrigated circle near a supermarket. – ОАЭ, Фуджейра, пос. Бидие: одичавшее в поливном круге у супермаркета, 25 XI 2019, veg., V. B., M. K. 1665 (LE); 5) UAE. Emirate of Fujairah, Qidfa village, 25°17′40.91′′ N, 56°21′28.51′′ E [point 343]: run wild along a wall in a backstreet. – ОАЭ, Фуджейра, пос. Кидфа, 25°17′40.91′′ N, 56°21′28.51′′ E [point 343]: одичавшее у стены в переулке, 25 XI 2019, veg., V. B., M. K. 1738 (LE); 6) UAE. Emirate of Fujairah, seafront of Al Fujairah city, 25°07′18.09′′ N, 56°21′22.92′′ E [point 347]: weed in irrigated circles between highway lanes at the middle of the seefront. – ОАЭ, Фуджейра, морская набережная г. Фуджейра, 25°06′38.35′′ N, 56°21′27.04′′ E [точка 347]: сорняк в поливных кругах между полосами шоссе в середине набережной, 27 XI 2019, veg., V. B., M. K. 1827 (LE); 7) UAE. Emirate of Fujairah, seafront of Al Fujairah city, 25°08′49.51′′ N, 56°21′15.68′′ E [point 348]: run wild at the theater fence near rear gates. – ОАЭ, Фуджейра, морская набережная г. Фуджейра, 25°08′49.51′′ N, 56°21′15.68′′ E [точка 348] одичавшее (сорняк) у забора театра близ задних ворот театра, 27 XI 2019, veg., V. B., M. K. 1803 (LE); 8) UAE, Fujairah: Wadi Wurayah. Fujairah. Al Bidyah. UAE, Emirate of Fujairah, Bidyah, villas and sideroads opposite the Al Bidyah market. 25°25′57.34′′ N, 56°21′6.57′′ E, 10 m a. s. l. [point 752]: run wild near the wall of a house in the lane, 14 IV 2020, V. B., M. K. (LE); 9) UAE, Emirate of Fujairah, Al Bidyah, near Green Coast Nursery, Al Bidyah plant selling. 25°25′55.03′′ N, 56°20′20.99′′ E, 14 m a. s. l.: run wild on dry roadside near the garden wall, 11 V 2020, veg., V. B., M. K. 2834 (LE); 10) UAE, Emirate of Fujairah, Al Bidyah, Desert Oasis Nursery Bidyah, 0.7 km West from Bidyah Association for Culture and Folklore. 25°26′9.06′′ N, 56°20′17.72′′ E, 14 m a. s. l. [point 794]: run wild between irrigated lines, 4 VI 2020, veg., V. B., M. K. 3437 (LE; FSH). – Ergasiophygophyte, epecophyte, neophyte. – Rare adventive species for Fujairah and UAE.

The native range of this species is SE Pakistan and India to Myanmar (Grierson, Long, 1983; Ghafoor, 1985; Turner, 1995; Govaerts, 2001; Pandey, Dilwakar, 2008; Chantarasuwan et al., 2013; Chaudhary et al., 2012; URL: http://plantsoftheworldonline.org/). It is a tree and grows primarily in the seasonally dry tropical biome. It has environmental and social applications as a feed, in traditional medicine, as fuel and human food (URL: http://plantsoftheworldonline.org/).

Recorded as introduced in ca. 20 countries and islands – Afghanistan, Cambodia, Chagos Archipelago, China, USA – Florida, Hawaii, Iran, Laccadive Isl., Laos, Maldives, Marianas, Mauritius, Mozambique, Palestine, Réunion

Isl., Sri Lanka, Thailand, Trinidad and Tobago, Venezuela, Vietnam (Fosberg et al., 1979; Browicz, 1982; Bosser et al., 1985; Wunderlin, 1997; Dy Phon, 2000; Lê, 2003; Wu, Raven, 2003; Newman et al., 2007; Hokche et al., 2008; Nelson Sutherland, 2008; Acevedo-Rodríguez, Strong, 2012; Evenhuis, Eldredge, 2012; Baksh-Comeau et al., 2016; Odorico et al., 2022; https://www.gbif.org/species/5361935; URL: http://plantsoftheworldonline.org/).

Fig. 5. A herbarium specimen of *Ficus microcarpa* L. f. in LE

Рис. 5. Гербарный экземпляр *Ficus microcarpa* L. f. в LE

Fig. 6. Epiphytic seedling of *Ficus religiosa* L. on the date palm trunk

Рис. 6. Эпифитный сеянец *Ficus religiosa* L. на финиковой пальме

Moderately salt tolerant species of *Ficus*, a widely spread ornamental plant in Arabia, at least in Oman, Qatar, Saudi Arabia and UAE (Ghazanfar, 1992; Karim, Dakheel, 2006; Santhosh Kumar et al., 2014; https://www.floraofqatar.com/indexf.htm#Moraceae, Byalt, Korshunov, 2020a). Cultivated in the desert regions, gardens, parks and roadsides near the sea. Common in some towns and cities of UAE, e.g. Al Ain, Abu Dhabi and Sharjah (Karim, Dakheel, 2006).

A study of relevant literature revealed that *Ficus religiosa* Sm. has not been reported as alien in countries of the Arabian Peninsula (Daoud, Al-Rawi, 1985; Collenette, 1985, 1999; Phillips, 1988; Migahid, 1989; Cornes, Cornes, 1989; Western, 1989; Mandaville, 1990; Ghazanfar, 1992; Shuaib, 1995; Miller, Cope, 1996; Wood, 1997; Chaudhary, 1999; Jongbloed et al., 2000, 2003; Omar, 2000, 2007; Karim, Fawzi, 2007; Norton et al., 2009, et al.). There is an indirect record of the naturalization of this plant in Qatar. The Flora of Qatar website has a photo of a “seedling of sacred fig (Bo-Tree, *Ficus religiosa*) growing from a stone fence in Onaiza area. Doha, Qatar, June 3, 2015” (https://www.floraofqatar.com/indexf.htm#Moraceae). In addition, a case of this plant running wild is a “single seedling growing from woody rootstock on the cement pipeline casing at edge of pool just above a waterfall” in Wadi Wurrayah (Feulner, 2015, 2016).

Our latest observations have shown that *Ficus religiosa* is one of the most invasive species of the genus in Fujairah and the UAE as well as *F. amplissima*. Due to the fact that it is a drought resistant and moderately salt tolerant species, it can successfully naturalize not only on irrigated lands, but also near the walls of houses and garden fences, on roadsides, at drainage water outlets near villas and in shady alleys. Sometimes, it is found as an epiphyte on palm trunks (photo) and even in stone wall cracks (Fig. 6). According to our observations, there is also a small grove of this *Ficus* species on the coast of the Gulf of Oman in the vicinity of Fujairah city along the collection channel with fresh water pits. Potentially invasive species, easily spread by birds far from plantations, as it produces a large number of edible fruits.

Ficus sycomorus L.: 1) UAE. Emirate of Fujairah, Dibba, 25°36’59.8’’ N, 56°18’40.02’’ E, 12 m a. s. l., an alley near the stadium and adjacent streets on the border with Oman: run wild in an irrigated circle with date palm, unic. – ОАЭ, Фуджейра, Дибба, 25°36’59.8’’ N, 56°18’40.02’’ E, 12 м н. ур. м., аллея около стадиона и прилегающие улочки на границе с Оманом: одичавшее в поливном круге с финиковой пальмой у дома, сеянец, 21 XI 2019, veg., V. B., M. K. (LE); 2) UAE, Emirate of Fujairah, Al Bidyah, near Green Coast Nursery, Al Bidyah plant selling. 25°25’55.03’’ N, 56°20’20.99’’ E, 14 m a. s. l.: dry roadside near a garden wall, 11 V 2020, veg., V. B., M. K. 2834, 2845 (LE); 3) UAE, Emirate of Fujairah, Roul Dadna, Plant Nursery 1 km North-North-West from ADNOC Petrol Station on E99 Rugaylat road, 25°32’11.94’’ N, 56°21’4.36’’ E, 13 m a. s. l. [point 788]: run wild in plant nursery, 23 V 2020, veg., V. B., M. K. 3173 (LE); 4) UAE, Emirate of Fujairah, Roul Dadna, Majid Nursery (plants), near E99 road and Mina road intersection. 25°31’15.68’’ N, 56°21’10.02’’ E, 15 m a. s. l. [point 804]: run wild under a tree, in shade, 30 VI 2020, veg., V. B., M. K. 3871 (LE; FSH).

The native range of this species is Africa and Southern Arabia to Syria. It is a tree and grows primarily in the seasonally dry tropical biome (Collenette, 1985; Berg, Hijman, 1989; Hedberg, Edwards, 1989; Launert, Pope, 1991; Ghazanfar, 1992; Wood, 1997; Thulin, 1999; Govaerts, 2001; Germishuizen, Meyer, 2003; Dobignard, Chatelain, 2012; Darbyshire et al., 2015; URL: http://plantsoftheworldonline.org/). Cultivated in Brazil, USA, New Zealand and some other countries (Webb et al., 1988; https://www.gbif.org/species/5361921).

Natural in Southern Arabia (Oman, Saudi Arabia and Yemen) (Miller, Morris, 1988; Ghazanfar, 1992; 2003; Heller, Heyn, 1994; Wood, 1997; Mosti et al., 2012; Al-Khulaidi, 2013) and alien for Northeastern and eastern Arabia (Mandaville, 1990)., The species is not native in UAE, although it is well adapted to local climatic conditions and is occasionally found in cultivation (Byalt, Korshunov, 2020d) near villas and in green spaces in settlements. In Fujairah it is also sometimes grown and sometimes runs wild, e.g. as found as spontaneous plants in an irrigation circle with a date palm at Dibba, on the roadside near the garden wall in Al Bidyah, in a plant nursery in Roul Dadna, etc. (Fig. 7). It is rather difficult to talk about its invasiveness, since this species is native to a part of the Arabian Peninsula.

Morus alba L.: 1) UAE, Emirate of Fujairah, 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, 25°36’5.21’’ N, 56°15’45.67’’ E, 10 m a. s. l. [point 769]: cultivated and running wild near a garden wall, 3 V 2020, veg., V. B., M. K. 2651 (LE); 2) UAE, Emirate of Fujairah, Al Dibba town, garden on the road corner, 0.15 km North-East from Ministry of Community Development. 25°35’25.46’’ N, 56°15’32.36’’ E, 19 m a. s. l. [point 773]: near a wall without irrigation, 6 V 2020, veg., V. B., M. K. 2706 (LE). – Ergasiophygophyte, ephemerophyte. New alien (adventive) species to Fujairah and UAE as a whole.

Fig. 7. *Ficus sycomorus* L. growing on a date palm root
Рис. 7. *Ficus sycomorus* L., растущий на корне финиковой пальмы

Fig. 8. Seedlings of run wild *Morus alba* L. under the mother tree
Рис. 8. Одичавшие сеянцы *Morus alba* L. под материнским деревом

The native range of this species is Central China (Wu et al., 2003; URL: http://plantsoftheworldonline.org/). It is a tree and grows primarily in the temperate biome. It has environmental applications as a feed, as poison, in folk medicine, and as fuel and food (URL: http://plantsoftheworldonline.org/). Recorded as introduced in 61 countries or islands (Boulvert, 1977; Browicz, 1982; Davis, 1982; Brako, Zarucchi, 1993; Miller, Cope, 1996; Wunderlin, 1997); Dy Phon, 2000; Berg et al., 2006; Williams, 2010; Lazkov, Sultanova, 2011; Dobignard, Chatelain,

2012; Allred, 2012; Chang et al., 2014; Mao et al., 2017; https://www.gbif.org/species/5361889; URL: http://plantsoftheworldonline.org/).

Cultivated in the Arabian Peninsula and occasionally found as “apparently naturalized in irrigated date gardens”, without specifying particular places and countries (Miller, Cope, 1996). This species sometimes is cultivated in Fujairah (Byalt, Korshunov, 2020). It is commonly grown for sale in some plant nurseries in the Emirate of Fujairah at Al Dibba, Al Bidyah, Roul Dadna, and is commonly cultivated in private gardens for fruits, sometime it is used in landscaping of settlements, hotels and private villas. According to our observations, mulberry sometimes self-sows in irrigation pits under mother trees, while at the same time we have repeatedly observed it at Al Dibba town, as it runs wild without irrigation on abandoned land near garden walls (Fig. 8). Apparently a potentially invasive species, has edible fruits and distributed by birds far from mother trees. V

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Вклад авторов: В.В. Бялт (В. Б.) инициировал проект: вместе с М.К. собирал, сохранял, идентифицировал и маркировал растения, анализировал подготовленный М.К. материал, писал рукопись, участвовал в обсуждении и доработке рукописи, координировал проект. М.В. Коршунов (М. К.) вместе с В. Б. собирал, сохранял и идентифицировал растения, переводил рукопись и участвовал в ее обсуждении.
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