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ФЛОРА ЭМИРАТА ФУДЖЕЙРА (ОАЭ): НОВЫЕ ВИДЫ ЭРГАЗИОФИГОФИТОВ ДЛЯ ЭМИРАТА. СООБЩЕНИЕ 2

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FLORA OF FUJAIRAH EMIRATE (UAE): NEW SPECIES OF ERGASIOFIGOPHYTES IN EMIRATE. SECOND CONTRIBUTION

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In this contribution, we present the second part of new records of ergasiophytes (i.e. cultivated plants that has escaped into the wild) in the flora of Fujairah Emirate, UAE prepared after the first contribution (Byalt, Korshunov, 2020). Ergasiophytes form the significant part of the alien flora of various regions (DAISIE, 2009; Pyšek et al., 2017; Kleunen et al., 2018; Mayorov et al., 2019). 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 grow on irrigation and die very quickly without it. We study the flora of the emirate during 2017–2020, and active research of the alien element took place in 2019–2020 (Byalt, Korshunov, 2020). The nurseries and mini-markets of plants are the main source of the primary appearance of ergasiophytes (as well as many purely weed species) in the emirate. Here we find the number of alien species, some of which are new for the flora of Fujairah and the UAE as a whole.

We follow classification of alien species by F.-G. Schroöder (1969) modified by Baranova et al. (2018). Nomenclature is following the “Catalogue of Life” (Hassler, 2020) and “Plants of the world online” (POWO, 2020). Herbarium specimens are preserved in MW with duplicates distributed to LE and FSH (Byalt et al., 2020). Collectors are the authors of the paper (V.B., M.K.), unless otherwise specified. The species first reported for the emirate are marked with an asterisk (*); the species first reported for the UAE are marked with two asterisks (**). The following species of flowering plants are new to Fujairah: *Thunbergia grandiflora* Roxb., *Coriandrum sativum* L., *Mangifera indica* L., *Allamanda blanchetii* A. DC., *Cascabela thevetia* (L.) Lippold, *Pentalinon luteum* (L.) B.F. Hansen et Wunderlin, *Plumeria obtusa* L. and *Tabernaemontana divaricata* G. Don, *Epipremnum aureum* (Linden ex André) G.S. Bunting, *Cordia sebestena* L., *Ehretia microphylla* Lam., *Boswellia sacra* Flueck. Most of them are new for the Arabian Pen-

insula comparing to published floras and checklists (Collenette, 1985; Cornes, Cornes, 1989; Migahid, 1989; Wood, 1997; Böer, 2000; Jongbloed, 2003; Karim, Fazwi, 2007; Ghazanfar, 2007; Norton, 2009, etc.).

*****Thunbergia grandiflora* Roxb.:** 1) 25°26'8.53" N, 56°21'11.70" E, Al Bidya, plant market 0.2 km to south to old Al Bidya mosque, 5 m a.s.l.: weed in plant market on roadside, run wild between pots, 22.III 2020, V.B., M.K. 957 (LE); 2) 25°31'36.30" N, 56°20'58.46" E, Rul Dadhna, Salama Plant Nursery 0.6 km West from ADNOC Petrol Station on E99 Rugaylat road, 17 m a.s.l.: weed in plant nursery between pots with cultivated plants, 25.IV 2020, V.B., M.K. 2450 (FSH). – Ergasiophyte, ephemero-phyte. Ornamental climbing plant and its native range is Central Nepal to South China and Peninsula Malaysia. Recorded as introduced in 44 countries (GBIF, 2019). Rare cultivated in private gardens in the UAE, also grown in Fujairah in plant nurseries for sale, where it sometimes runs wild. We found self-seeding of this plant on damp sand in a small plant market on the side of the road (village of Al Bidya). So far, it is not a potentially invasive species in the UAE due to its rather high water resistance.

****Mangifera indica* L.:** 1) 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.: run wild on irrigation in plantation, under tree, 3.V 2020, V.B., M.K. 2683 (LE); 2) 25°26'20.95" N, 56°20'43.71" E, Al Bidiya, yards near Bidiyah Association for Culture and Folklore, 8 m a.s.l.: irrigated plantation near wall of villa, under trees, 19.V 2020, V.B., M.K. 3028 (LE); 3) 25°32'11.94" N, 56°21'4.36" E, Rul Dadhna, Plant Nursery of Abu Abdallah in 1 km North-North-West from ADNOC Petrol Station on E99 Rugaylat road, 13 m a.s.l.: cultivated and run wild on irrigation in plant nursery near garden wall, 23.V 2020, V.B., M.K. 3180 (LE, FSH); 4) 25°30'6.28" N, 56°21'30.01" E, Al Aqah, 14 m a.s.l.: run wild near villa in irrigation

circle under tree, 26.V 2020, V.B., M.K. 3282 (LE, FSH); 5) 25°28'17.54" N, 56°21'8.03" E, Sharm, 10-45 m: run wild in irrigation circle in shady side street between villas, 28.V 2020, V.B., M.K. 3387 (LE); 6) 25°34'33.97" N, 56°14'6.15" E, Al Dibba town, Alamarey Nursery, 0.5 km South from Khalid Hadi Resort Dibba, 45 m a.s.l.: run wild on irrigation under cultivated trees, 13.VI 2020, V.B., M.K. 3563 (LE, FSH); 7) 25°30'52.69" N, 56°20'11.79" E, Rul Dadhna, Al Jawhara Plants Nursery, 2 km by the unnamed road from E99 to Wadi Zikt dam. 33 m a.s.l.: run wild under cultivated tree, in shade, 4.VII 2020, V.B., M.K. 3947 (LE, FSH); 8) 25°31'20.73" N, 56°20'39.06" E, Rul Dadhna, 0.8 km by the unnamed road from E99 to Wadi Zikt dam and after 0.4 km to North by track-road, 27 m a.s.l.: cultivated and run wild on irrigation near garden fence, 11 VII 2020, V.B., M.K. 4113 (LE, FSH); 9) 25°25'57.68" N, 56°20'12.09" E, Al Bidiya, Desert Nurseries Group store 2 (trees and bushes), 1.1 km South-West from Bidiyah Association for Culture and Folklore, 18 m a.s.l.: run wild under cultivated on irrigation tree, in shade, 16 VII 2020, V.B., M.K. 4279 (LE, FSH). – Ergasiophygophyte, ephemerophyte. Fruit tree native to the Indian subcontinent where it is indigenous (its native range is Assam to S. China). It is also used to treat unspecified medicinal disorders (POWO, 2020). Hundreds of cultivated varieties have been introduced to other warm regions of the world (Liz, 2006), including Arabian Peninsula (Gazanfar, 1992; Wood, 1997; POWO, 2020 et al.). In the emirate of Fujairah, it is a common fruit tree in gardens and amenity stands in settlements. Very often, it runs wild on watering around fruit-bearing trees. Self-seeding and undergrowth of mangoes one can find in almost any garden or nursery. Possibly, it is potentially invasive species as it has a high salt tolerance (Karim, Dakheel, 2006), but so far it runs wild only on irrigation or on drainage.

**Coriandrum sativum* L.: 1) ca. 25°23' N, 56°18' E, Wadi Wurayah National Park, 8 km NW from Khor Fakkan, Centre of Bioreproduction, 150 m a.s.l.: irrigated spots in the yard, 23.III 2017, V.B. 188 (LE!); 2) 25°32'49.70" N 56°9'32.28" E, environs of t. Dibba, 3,5 km to SW from vil. Ghub, ca. 200–250 m a.s.l., wadi with waterfall: in garden and near garden fence, 2.IV 2018, V.B., M.K. 1001 (LE); 3) 25°17'47.12" N, 56°7'26.88" E, Masafi friday market, E88 Al Dhaid – Masafi road, 4 km to Masafi, 380 m a.s.l.: weed in plant market and plant nursery, near outbuildings, 23.III 2020, V.B., M.K. 993 (LE); 4) 25°17'47.12" N, 56°7'26.88" E, Masafi friday market, E88 Al Dhaid – Masafi road,

4 km to Masafi, 380 m a.s.l.: weed in plant market and plant nursery, 23.III 2020, V.B., M.K. 977 (LE); 5) 25°11'13.38" N, 56°14'17.34" E, village Bithna, Bithna Fort. 172 m a.s.l.: weed in garden close the fort wall, 30.III 2020, V.B., M.K. 1400 (LE). – Ergasiophygophyte, colonophyte. Widespread in cultivation in the warmer regions of the world and not infrequently spontaneous as a casual even in the temperate zones. Probably, its native range is E. Mediterranean region to Pakistan, including north of Saudi Arabia (Townsend, 1989; Migahid, 1996; POWO, 2020 et al.). According to our observations, it is quite often cultivated in the emirate of Fujairah and sometimes gives abundant self-seeding around plantings in vegetable gardens, in gardens and plant nurseries, as well as in shady places near fences and walls of gardens. Perhaps, it is a potentially invasive species as it gives abundant self-seeding. It is already recorded not only in places of cultivation.

***Allamanda blanchetii* A. DC.: 1) 25°25'15.85" N, 56°20'27.64" E, Al Bidiya, Abu Khalid agricultural nursery. 0.3 km to South from Eid Prayer Ground Bidiyah, 18 m a.s.l.: cultivated and run wild in and between plastic pots with cultivated plants, 12.V 2020, V.B., M.K. 2891 (LE, FSH). – Ergasiophygophyte, ephemerophyte. It is rather decorative plant, and its native range is NE. Brazil (POWO, 2020). Recorded as introduced in seven countries (GBIF, 2019). Occasionally cultivated in Fujairah Emirate as an ornamental shrub, it blooms and bears fruit regularly. We found self-seeding of this plant on damp sand between pots of cultivated plants at the “Abu Khalid agricultural nursery” in the village Al Bidiya. The species is not listed in Arabian floras and checklists. It is not a potentially invasive species as it is rarely cultivated and is highly moisture-loving.

***Cascabela thevetia* (L.) Lippold: 1) 25°14'5.97" N, 56°21'20.50" E, Al Qurayah, 8 m a.s.l.: running wild near garden fence, 15.III 2020, V.B., M.K. 556 (LE); 2) 25°36'9.81" N, 56°16'41.30" E, Al Dibba town, Al Shams Nursery, near Dibba Theatre (0.1 km to East), 6 m a.s.l.: on sand in wasteland in place of an abandoned garden (or plant nursery), near garden wall without irrigation, 28.IV 2020, V.B., M.K. 2473, 2572 (FSH, LE); 3) 25°32'11.94" N, 56°21'4.36" E, Rul Dadhna, Plant Nursery of Abu Abdallah in 1 km North-North-West from ADNOC Petrol Station on E99 Rugaylat road, 13 m a.s.l.: run wild in plant nursery between pots and on the path between rows of pots, 23.V 2020, V.B., M.K. 3152 (LE, FSH); 4) 25°35'45.41" N, 56°16'36.48" E, Al Dibba town, 0.2 km North from ADNOC

Service Station, Al Muhallab (885), 14 m a.s.l.: in irrigation circles under tree, 23.V 2020, V.B., M.K. 790 (LE); 25°36'32.36" N, 56°16'39.21" E, Al Dibba town, plant nursery on the corner between Street Number 30 and Corniche Street 101, 6 m a.s.l.: run wild on in and between plastic pots with cultivated plants, 16.VI 2020, V.B., M.K. 3686 (LE, FSH). – Ergasiophygophyte, colonophyte. Ornamental shrub, which has native range from Mexico to S. Tropical America (POWO, 2020). Recorded as introduced in 26 countries (GBIF, 2019), including cultivated in Oman and the UAE. It is not listed in Arabian floras and checklists as an alien species. It is widely cultivated in the UAE and, as it turned out, sometimes runs wild on irrigation near cultural sites, both in plant nurseries and in green landscaping of settlements (in Dibba town and some other places). Possibly, potentially invasive species as it has a high salt tolerance (Karim, Dakheel, 2006), but so far it runs wild only on irrigation.

*****Pentalinon luteum* (L.) B.F. Hansen et Wunderlin:** 1) ca. 25°31' N, 56°20' E, Rul Dadhna, gardens, ca. 20 m a.s.l.: on roadside, near and on garden wall, 25.IV 2020, V.B., M.K. 2450 (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.: running wild braided everything on the irrigation ditch and around it, fl. yellow, 3.V 2020, V.B., M.K. 2640 (LE); 3) 25°25'15.85" N, 56°20'27.64" E, Al Bidiya, Abu Khalid agricultural nursery, 0.3 km to South from Eid Prayer Ground Bidyah, 18 m a.s.l.: run wild without irrigation on abandoned land, near fence, 12.V 2020, V.B., M.K. 2905 (LE, FSH). – Ergasiophygophyte, colonophyte. Cultivated ornamental vine, and its native range is S. Florida to Caribbean (POWO, 2020). It is sometimes cultivated in tropical countries (*Pentalinon* ... , 2020). Quite often, it is cultivated near the fences of gardens and villas, and occasionally runs wild around plantings, sometimes forming large clumps. It can grow without watering, such as on the outer side of the garden fence in the village Rul Dadhna. New alien species for Fujairah and the UAE as a whole. Also not previously listed in Arabian floras and checklists as an alien species.

*****Plumeria obtusa* L.:** 1) 25°36'09.81" N, 56°16'41.30" E, Al Dibba town, Al Shams Nursery, near Dibba Theatre (0.1 km to East), 6 m a.s.l.: in abandoned garden near garden wall without irrigation, 28.IV 2020, V.B., M.K. 2480 (FSH, LE). – Ergasiophygophyte, colonophyte. Ornamental tree, and its native range is Florida Keys, Carib-

bean, SE. Mexico to Guatemala (POWO, 2020). It is introduced in a number of tropical countries, including Bahrain, Oman and the UAE (GBIF, 2019). The tree has succulent stems and can tolerate long dry periods. We found this plant in a wild state in a long-abandoned plant nursery in Dibba town, where it grows along a stone fence in a vacant lot without watering or maintenance for several years.

*****Tabernaemontana divaricata* G. Don:** 1) 25°36'9.81" N, 56°16'41.30" E, Al Dibba town, Al Shams Nursery, near Dibba Theatre (0.1 km to east), 6 m a.s.l.: running wild in plant market and nursery, between pots and on paths, 28.IV 2020, V.B., M.K. 2501 (LE); 2) 25°36'9.81" N, 56°16'41.30" E, Al Dibba town, Al Shams Nursery, near Dibba Theatre (0.1 km to East). 6 m a.s.l.: on sand in wasteland in place of an abandoned garden (or plant nursery), near garden wall without irrigation, 28 IV 2020, V.B., M.K. 2558 (FSH, LE); 3) 25°25'15.85" N, 56°20'27.64" E, Al Bidiya, Abu Khalid agricultural nursery, 0.3 km to South from Eid Prayer Ground Bidyah, 18 m a.s.l.: run wild on sand on temporally abandoned land, 12.V 2020, V.B., M.K. 2866 (LE, FSH); 4) 25°32'11.94" N, 56°21'4.36" E, Rul Dadhna, Plant Nursery 1 km North-North-West from ADNOC Petrol Station on E99 Rugaylat road, 13 m a.s.l.: cultivated and run wild in plant nursery between pots and on the path between rows of pots with cultivated plants, 23.V 2020, V.B., M.K. 3150 (LE); 25°34'33.97" N, 56°14'6.15" E, Al Dibba town, Alamarey Nursery, 0.5 km South from Khalid Hadi Resort Dibba, 45 m a.s.l.: cultivated and run wild between plastic pots with cultivated trees, 13.VI 2020, V.B., M.K. 3581 (LE, FSH). – Ergasiophygophyte, colonophyte. Ornamental shrub, and its native range is Himalaya to China (S Yunnan) and Indo-China (POWO, 2020). Recorded as introduced in 13 countries and sometime naturalized with no sites in Arabia (*Tabernaemontana* ... , 2020). The species is absent in Arabian floras and checklists as an alien species. Quite often grown for sale in plant nurseries of Masafi, Dibba, Rul Dadnah, Al Bidiya and sometimes runs wild on damp sand around plant pots, on paths between rows of pots and on temporarily empty beds. Due to its easy self-seeding, it can be a potentially invasive species in the UAE under irrigated conditions.

*****Epipremnum aureum* (Linden ex André) G.S. Bunting:** 1) 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.: cultivated and run wild in and between plastic pots with cultivated plants, 19.VI

2020, V.B., M.K. 3693 (LE, FSH). – Ergasiophygophyte, colonophyte. – Ornamental climbing vine has native range in Society Islands (Moorea), but now cultivated and frequently naturalized in many tropical and subtropical regions (POWO, 2020; GBIF, 2020). In Fujairah, it is occasionally cultivated in gardens near villas and in indoor culture, grown in some plant nurseries for sale and occasionally runs wild around plantings. In particular, we observed a case of running wild of this species in the “Corniche Nursery” in Dibba town, where it forms clumps outside plastic pots on wet sand in a shady place. New adventive species for Fujairah, UAE and possibly Arabia as a whole. It is not a potentially invasive species as it is rarely cultivated and is highly moisture-loving. We have not seen flowering or fruiting plants, and we assume that *E. aureum* runs wild only due to the rooting of accidentally broken off shoots.

*****Radermachera sinica* Hemsl.:** 1) 25°26'9.06" N, 56°20'17.72" E, Al Bidiya, Desert Oasis Nursery Bidiyah, 0.7 km West from Bidiyah Association for Culture and Folklore, 14 m a.s.l.: run wild between plastic pots with cultivated Ergasiophygophyte, colonophyte, 4 VI 2020, V.B., M.K. 3403 (LE, FSH). – Ergasiophygophyte, colonophyte. This is ornamental plant and its native range is Himalaya to Taiwan and Peninsula Malaysia (POWO, 2020), cultivated in some other tropic countries (GBIF, 2019). The species is not listed in the Arabian floras and checklists as an alien. In Fujairah, it is rarely cultivated in plant nurseries and in gardens around villas. We observed a case of this species becoming wild in the “Desert Oasis Nursery” in Al Bidiya village, where it runs wild between plastic pots with cultivated trees on wet sand. It is not a potentially invasive species due to its high moisture-loving and low salt tolerance.

*****Cordia sebestena* L.:** 1) 25°17'47.19" N 56°07'28.25" E, Al Dhaid-Masafi Road, environs of Masafi: run wild (weed) in Salman Nursery, 1 year seedling, 29.XI 2019, V.B., M.K. 790 / 539 (LE); 2) 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.: weed in plastic pots, under trees, in shade (in the second nursery), 7.V 2020, V.B., M.K. 2748 (LE); 3) 25°25'13.53" N, 56°20'27.57" E, Al Bidiya, 0.4 km to South from Eid Prayer Ground Bidiyah, 18 m a.s.l.: cultivated and run wild on in and between plastic pots, 22.VI 2020, V.B., M.K. 3886 (LE, FSH). – Ergasiophygophyte, colonophyte. Ornamental plant of American origin (POWO, 2020). Cultivated in dry places, gardens, parks in variety of salty regions of UAE (Karim, 2016). Rather common in some parts of

the UAE (grows in Al Ain, Abu Dhabi and Dubai). Also cultivated in Fujairah and sometime run wild on irrigation. We found numerous seedlings and undergrowth of this plant in plant nurseries in Mazafi and Dibba towns, as well as in a park near the Fujairah government (Diwan) in Fujairah City. Due to its high salt tolerance, it can be a potentially invasive species in the region.

*****Ehretia microphylla* Lam.:** 1) 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.: cultivated in plastic pots, 2.VI 2020, V.B., M.K. 3367 (LE); 2) 25°30'52.69" N, 56°20'11.79" E, Rul Dadhna, Al Jawhara Plants Nursery, 2 km by the unnamed road from E99 to Wadi Zikt dam, 33 m a.s.l.: run wild between plastic pots with cultivated plants, 4.VII 2020, V.B., M.K. 3958 (LE, FSH); 3) 25°31'20.73" N, 56°20'39.06" E, Rul Dadhna, 0.8 km by the unnamed road from E99 to Wadi Zikt dam and after 0.4 km to North by track-road, 27 m a.s.l.: run wild between plastic pots with cultivated plants, 11.VII 2020, V.B., M.K. 4111 (LE, FSH). – Ergasiophygophyte, colonophyte. Ornamental shrub, and its native range is India to Nansei-shoto and Solomon Islands (POWO, 2020). The species is not listed in Arabian floras and checklists as an alien. It is quite often found in landscaping in the Emirates of Fujairah and Sharjah (Khor Fakkan), especially on the sea embankments and near hotels. Occasionally runs wild around plantings on damp sand in some plant nurseries with good watering in the Rul Dadhna village and Mazafi town.

****Boswellia sacra* Flueck.:** 1) 25°36'0.77" N, 56°15'50.95" E, Al Dibba town, side streets between villas, 0.7 km South-South-West from Street Number 35, or North-North-East from Federal Electricity & Water Authority, 12 m a.s.l.: in small garden near shady wall, 2.V 2020, V.B., M.K. 2606 (LE); 2) 25°29'58.80" N, 56°21'27.30" E, Al Aqah, near Masjid Saad Ben Moaz Mousqe, or 0.4km East from Iberotel Miramar Al Aqah Beach Resort, 12 m a.s.l.: cultivated and run wild (in 15 m from cultivated plant) in backstreet, near the gates of villa, 20.V 2020, V.B., M.K. 3135, 3135a (LE). – Ergasiophygophyte, colonophyte. Ornamental tree, which has long been valued for its sweet smelling fumes when burnt. It is native to Ethiopia, N Somalia, SW Oman and S Yemen (POWO, 2020). It is most widespread in northern Somalia, and in the woodlands of the escarpment mountains of the southern coast of the Arabian Peninsula (Miller, Morris, 1988; Ghazanfar, 1992; Wood, 1996; Mosti et al., 2012). The species does not occur in the wild in the UAE (West-

ern, 1989; Jongbloed et al., 2003; Karim, Fazwi, 2007), but it sometimes used in the landscaping of settlements and highways on the coast of the Gulf of Oman. We met it run wild in the village Al Aqah, where it self-seeding and undergrowth grow in 10–15 m from the mother plant in the alley between the villas, on roadside near the villa's gates.

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***CHARA CONTRARIA* И *C. GLOBULARIS* (CHAROPHYTA, CHARACEAE) – НОВЫЕ ВИДЫ ДЛЯ ФЛОРЫ ЧУВАШСКОЙ РЕСПУБЛИКИ**

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***CHARA CONTRARIA* AND *C. GLOBULARIS* (CHAROPHYTA, CHARACEAE) – NEW SPECIES RECORDS FOR THE FLORA OF THE CHUVASH REPUBLIC (RUSSIA)**

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