



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

# FLORE

## Repository istituzionale dell'Università degli Studi di Firenze

### **Contribution to the Flora of Central-Southern Dhofar (Sultanate of Oman)**

Questa è la Versione finale referata (Post print/Accepted manuscript) della seguente pubblicazione:

*Original Citation:*

Contribution to the Flora of Central-Southern Dhofar (Sultanate of Oman) / S. Mosti; M. Raffaelli; M. Tardelli. - In: WEBBIA. - ISSN 0083-7792. - STAMPA. - 67(1):(2012), pp. 65-91.

*Availability:*

This version is available at: 2158/654870 since:

*Terms of use:*

Open Access

La pubblicazione è resa disponibile sotto le norme e i termini della licenza di deposito, secondo quanto stabilito dalla Policy per l'accesso aperto dell'Università degli Studi di Firenze (<https://www.sba.unifi.it/upload/policy-oa-2016-1.pdf>)

*Publisher copyright claim:*

(Article begins on next page)

## Contribution to the Flora of Central-Southern Dhofar (Sultanate of Oman)

STEFANO MOSTI, MAURO RAFFAELLI, MARCELLO TARDELLI

Centro Studi Erbario Tropicale dell'Università  
Via G. La Pira 4 - 50121 Firenze (Italia)  
e-mail: stefano.mosti@unifi.it

*Accepted 15 March 2012*

*Contributo alla Flora del Dhofar centro-meridionale (Sultanato dell'Oman)* — Dal 2000 al 2009 sono state effettuate 10 missioni scientifiche dedicate all'esplorazione floristica del Dhofar centro meridionale (Oman). Le raccolte hanno interessato i litorali sabbiosi, la pianura costiera e numerosi wadis che sboccano nell'Oceano Indiano (da Rachyut, Al Mughsayl, Salalah, Khor Rori, Mirbat, Hadbin fino ad Hasik). Particolare attenzione è stata dedicata all'esplorazione dei versanti monsonici delle montagne (soprattutto Jabal Qara) dove si concentra la maggiore ricchezza floristica e il maggior numero di taxa endemici. Raccolte sono state effettuate anche su Jabal Samhan, la montagna più alta del Dhofar, e nell'area pre-desertica di Wadi Andur, alle spalle di Jabal Samhan. Sono state inoltre indagate quelle aree dove ancor oggi sono presenti i maggiori nuclei di *Boswellia sacra*, l'albero dell'incenso, come Al Mughsayl, Adownib, Aluf, Uyun, Wadi Dowkah e Hasik. Sporadiche esplorazioni sono state effettuate nella vasta area pre-desertica che, oltre Thumrayt, si spinge verso nord fino al confine con l'Arabia Saudita, da Muddy, Al Mathafah, Ginan Bin Nawatish fino a Shisr (l'antica Ubar), Sayh al Kharyat e Dawka. In totale sono state esaminate 233 stazioni di raccolta che nel loro complesso coprono dettagliatamente l'area del Dhofar centro-meridionale. L'elenco floristico riporta 606 taxa di cui alcuni sono segnalati per la prima volta o per l'Oman (17 taxa) o per il Dhofar (13 taxa). Numerose sono le specie endemiche rinvenute (14 endemismi del Dhofar, 35 endemismi regionali: Dhofar/Oman e Yemen) presenti soprattutto sui versanti monsonici delle montagne costiere.

**Key words:** Flora, Dhofar, Oman.

Dhofar is a large region of the Sultanate of Oman bordering Yemen on the west and extending eastward for about 250 km. The northern boundary of Dhofar spreads into the Ar Rub al Kali, the Saudi Arabian desert, while its southern part faces the Arabian Sea. Some different phytogeographical zones, each one with its peculiar flora and vegetation, may be detected, as described by Radcliffe-Smith (1980), Miller & Morris (1988) and Ghazanfar (1992b, 2003). Local variations of flora and vegetation in Dhofar are the

response to two coexisting main factors: one is the presence of a chain of mountains parallel to the coast and extending eastwards for about 250 km from the Yemen border until the Gulf of Hasik, and the other are the monsoons.

From June to September during the southwest monsoon, the mist and clouds full of rain approaching from the Arabian Sea encounter a natural obstacle that precludes them from going further inland. As a consequence the steep slopes of the coastal moun-

tains facing south (in particular from Jabal Sayk to Jabal Qara) are covered with a luxuriant vegetation of woods, shrubs and grassland. On the other side of the mountains, instead, where the monsoon has little or no effect, the vegetation is sparse with isolated trees and shrubs. The northern sides of the coastal chain slope down gradually to form a stony and arid highland where many wadis have their source and penetrate northward into a vast semi-desert level land interrupted by rounded hillocks. Towards the border with Saudi Arabia the rocky desert changes gradually into a sand desert with high more or less parallel dunes where vegetation is scarce or absent.

### The floristic exploration of Dhofar

A. Radcliffe-Smith (1980) was the first botanist to produce a list of Dhofar plants; in 1977 he participated with other researchers to a scientific survey of flora and fauna of Dhofar, supported by the Government of Oman. In the eighties A.G. Miller and M. Morris further enlarged the knowledge of the Dhofar flora with the publication of an important illustrated work (Miller & Morris, 1988) in which the authors treat the plant species not only from the botanical point of view but also describe the medicinal and economical local practices.

New progress in the knowledge of the flora of Oman is due to the work of S. A. Ghazanfar who produced several monographic researches on critical families, genera and species and interesting studies on biodiversity and conservation. She is also the author of the first Flora of Oman, a work in progress of which the first two issues (2003 and 2007) have been published.

### Our researches on the flora of Dhofar

From 2000 to 2009 we carried out 10 scientific missions to Dhofar; we explored several habitats, different from the ecological and altitudinal point of view, such as seashores, coastal plains and the distal parts of several wadis ending in the Arabian Sea (from Rachyut, Al Mughasayl, Salalah, Khor Rori, Mirbat, Sadh, Hadbin up to Hasik). In particular, many plants were collected on the monsoon slopes of the mountains of central Dhofar (with special reference

to Jabal Qara) and in areas still rich in frankincense trees (*Boswellia sacra*): e.g. Al Mughsayl, Wadi Adownib, Aluf, Uyun, Wadi Dowkah and Hasik. We also collected on the upper part of Jabal Samhan, the highest mountain of Dhofar and on the semi-desert area of Wadi Andur (beyond Jabal Samhan), and explored some other semi-desert environments north to Thumrayt, i.e. Muddy, Al Mathafah, Ginan Bin Nawatish, with sporadic excursions to Shirs (the ancient Ubar), Sayh al Kharyat and Dawkah.

This program has been carried out in cooperation with IMTO (Italian Mission to Oman), supervised by Prof. A. Avanzini (Pisa University) and supported by the Office of the Advisor for Cultural Affairs, Sultanate of Oman (Muscat and Salalah). The Funds PRIN (National Interest Research Projects) of the years 2004 and 2007 and the Tropical Herbarium of Florence University, offered the necessary financial support to this research program.

The specimens collected are now conserved in the Tropical Herbarium of Florence (FT); a complete set of duplicates (about 350 specimens), mounted on Herbarium sheets and identified, was presented to the National Herbarium Natural History Museum (ON) in Muscat.

### Collection sites

The collection sites are grouped according to their ecological and/or altitudinal similarities and are marked with the following abbreviations: **L** = littorals and beaches, **CP** = coastal plain and foothills of the escarpment mountains, **LH** = low hills and grasslands up to 500 m on monsoon affected escarpments, **HH** = high hills and grasslands between 500 and 800 m on monsoon affected escarpments, **M** = mountain slopes and grassland above 800 m, **sW** = southwards draining wadis, **nW** = northwards draining wadis and semi-desert areas, **Ha** = dry (no monsoon affected) hills near Hasik, **Wa** = wet areas or mangrove vegetation.

Each abbreviation is followed by a progressive number, which refers to the respective position in the territory (from west to east). The geographical coordinates define each locality and identify the sites where the plants were collected. The maps of figure 1 and 2 show the sites of collection; when those sites are very near to each other, they overlap on the maps and therefore they are indicated in Fig. 1 and 2 with

the same abbreviations and the same numbers, but differentiated by a letter (a, b, c, etc.) both in the list of the collection sites and the following floristic lists. The collection sites are 233 in number, 139 of which

are indicated in Fig. 1 and 2. The number of sites explored was large enough to have exhaustive information on the local distribution of plant species.

### List of the collection sites

#### L = littorals and beaches

- L1 30.09.01. Rakhyut: beach. Alt. 2 m - 16°44.780'N, 53°25.420'E
- L2 a: 24.04.01. Al Mughsayl: beach and rocky outcrops near the sea-water spray. Alt. 10 m - 16°52.500'N, 53°45.980'E - b: 23.09.01. Al Mughsayl: beach in front of the restaurant. Alt. 0-5 m - 16°52.740'N, 53°46.500'E - c: 02.09.02 (idem) - d: 10.09.02 (idem).
- L3 a: 29.04.01. Khor Rori: beach. Alt 0-5 m - 17°1.830'N, 54°26.370'E - b: 09.09.02 (idem).
- L4 17.09.02. Beach 4 km from Mirbat, towards Salalah. Alt. 0-5 m - 17°1.057'N, 54°40.208'E.
- L5 a: 09.09.02. Mirbat: beach. Alt. 0-5 m - 16°59.262'N, 54°41.193'E - b: 02.03.07 (idem).
- L6 05.03.07. Hasik-Hadbin road: beach, 10 km from Hasik, towards Hadbin. Alt. 0-5 m - 17°21.177'N, 55°17.415'E.
- L7 14.03.05. Hasik: beach. Alt. 4 m - 17°26.770'N, 55°16.050'.
- L8 a: 15.09.03. Hasik: at the base of the vertical cliffs in front of the Ocean, 6 km east of the village. Alt. 5-10 m - 17°28.566'N, 55°13.806'E - b: 15.03.05 (idem) - c: 20.02.09 (idem).

#### CP = coastal plain and foothills of the escarpment mountains

- CP1 30.09.01. Woody deep valley behind Rakhyut. Alt. 60 m - 16°45.080'N, 53°24.590'E.
- CP2 a: 27.04.01. Salalah-Al Mughsayl road: rocky hilly slope on the left, 5 km to Al Mughsayl. Alt. 30-100 m - 16°53.750'N, 53°48.950'E - b: 23.09.01 (idem) - c: 02.09.02 (idem).
- CP3 19.03.04. Raysut-Al Mughsayl road: track to Ad-ownib frankincense area, 2 km inland from the crossroads. Alt. 80 m - 16°54.970'N, 53°50.420'E.
- CP4 a: 04.10.01. Raysut: rocky coastal plain and grasslands on the hillocks west of the harbour. Alt. 10-30 m - 16°55.695'N, 53°58.650'E - b: 04.09.02 (idem - 16°55.550'N, 53°59.150'E).
- CP5 a: 13.09.03. Al Balid: inside the archaeological area: sandy brackish ground. Alt. 10 m - 17°0.240'N, 54°7.720'E - b: 14.02.06 (idem - 17°0.315'N, 54°7.900'E).
- CP6 a: 21.09.01. Salalah-Taqaq road: hills near Ain Razat. Alt. 40-100 m - 17°7.580'N, 54°14.400' - b:

- 07.09.02 (idem) - c: 24.03.04 (idem). - d: 28.02.09 (idem).
- CP7 24.09.01. Salalah-Taqaq road: at the crossroads to Ayn Hamran. Alt. 50 m - 17°3.330'N, 54°16.540'E.
- CP8 a: 21.10.00. Khor Rori: rocky coastal plain between Sumhuram excavation and the Wadi Darbat bed. Alt. 4-30 m - 17°2.730'N, 54°25.720'E - b: 11.09.03 (idem - 17°2.860'N, 54°26.470'E) - c: 13.09.03 (idem - 17°2.960'N, 54°26.330'E) - d: 18.03.04 (idem).
- CP9 21.10.00. Khor Rori: inside the archaeological site of Sumhuram. Alt. 20 m - 17°2.330'N, 54°26.060'E
- CP10 a: 11.09.03. Khor Rori: top of the hill on the left of the ancient harbour. Alt. 20-25 m - 17°1.610'N, 54°26.620'E - b: 18.03.04 (idem).
- CP11 20.03.04. Wadi Darbat: *Ficus* and *Ziziphus* thickets. Alt 95 m - 17°5.240'N, 54°26.010'E.
- CP12 22.04.01. Taqaq-Mirbat road: rocky and sandy coast, 9 km from Khor Rori. Alt. 5-10 m - 17°2.020'N, 54°31.410'E - b: 29.09.01(idem).
- CP13 29.09.01. Taqaq-Mirbat road: near the first crossroads to Tawi Atayr. Alt. 50 m - 17°3.240'N, 54°25.982'E.
- CP14 12.02.06. Rocky hillocks between Mirbat and Sadh, 11 km from Mirbat. Alt. 56 m - 17°1.220'N, 54°46.130'E.
- CP15 a: 14.03.04. Mirbat-Sadh road: rocky hillocks with *Boswellia sacra*, 5 km in the inland of Sadh. Alt. 70-87 m - 17°5.640'N, 55°3.470'E - b: 22.03.04 (idem - 17°5.520'N, 55°3.550'E) - c: 18.03.05 (idem - 17°5.420'N, 55°3.700'E) - d: 20.02.09 (idem - 17°5.634'N, 55°3.479'E).
- CP16 12.02.06. Rocky hillocks along the road between Sadh and Hadbin, 13 km from Sadh. Alt. 13 m - 17°7.410'N, 55°8.290'E.
- CP17 26.04.01. Sadh-Hadbin track: 16 km from Sadh, rocky plain. Alt. 60 m - 17°9.100'N, 55°8.720'E.
- CP18 26.04.01. Rocky plain near Hadbin. Alt. 10 m - 17°11.840'N, 55°13.140'E.
- CP19 12.02.06. Hadbin-Hasik road: 1,8 km from Hadbin, rocky cliffs at the roadside. Alt. 5 m - 17°12.160'N, 55°13.860'E.
- CP20 12.02.06. Hadbin-Hasik road: 10 km from Hadbin, rocky ground and cliffs at the roadside. Alt. 13 m - 17°16.270'N, 55°14.440'E.

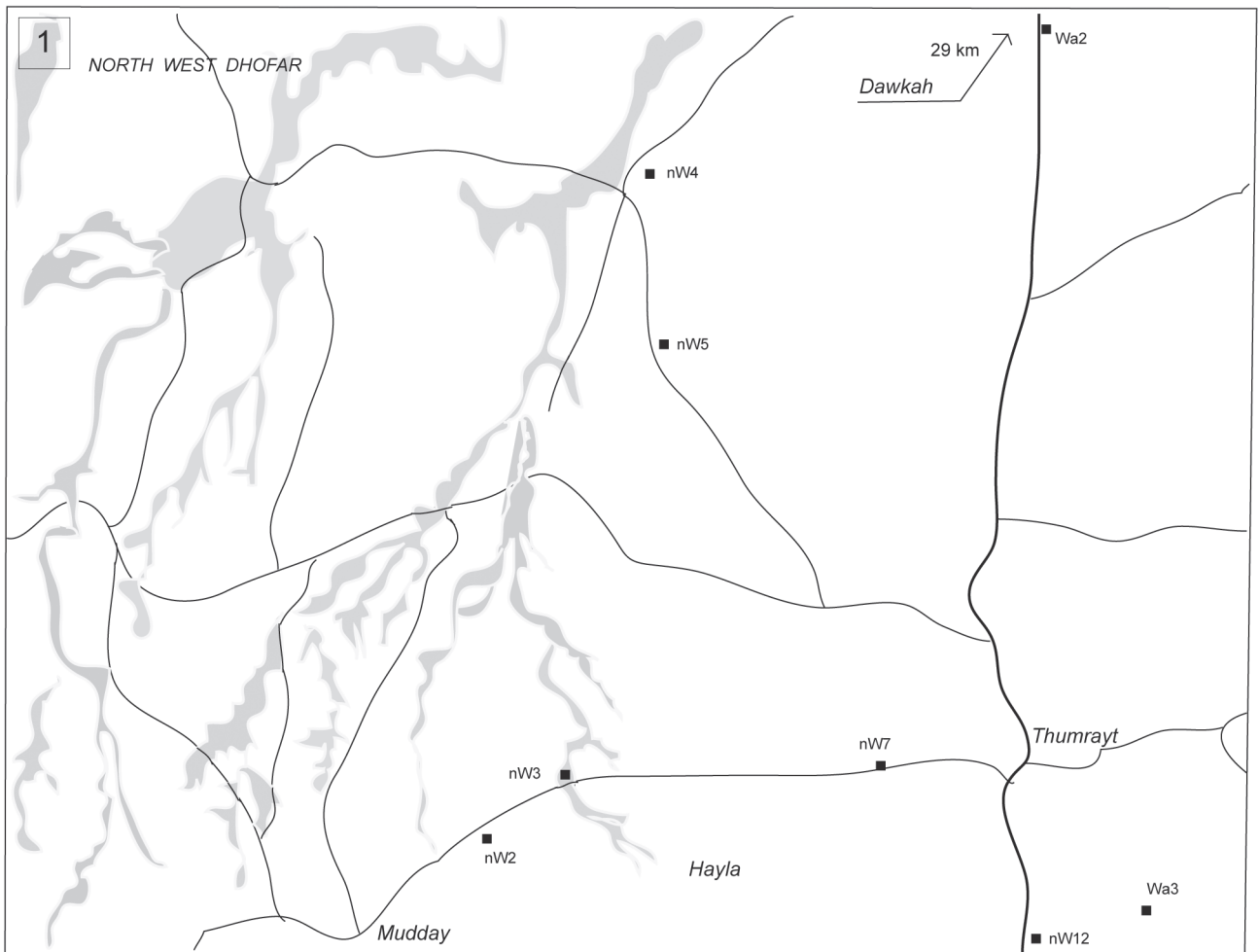


Fig. 1 – Top: Central Southern Dhofar: the study area and the collection sites. Bottom: Collection sites in North West Dhofar. 15 km

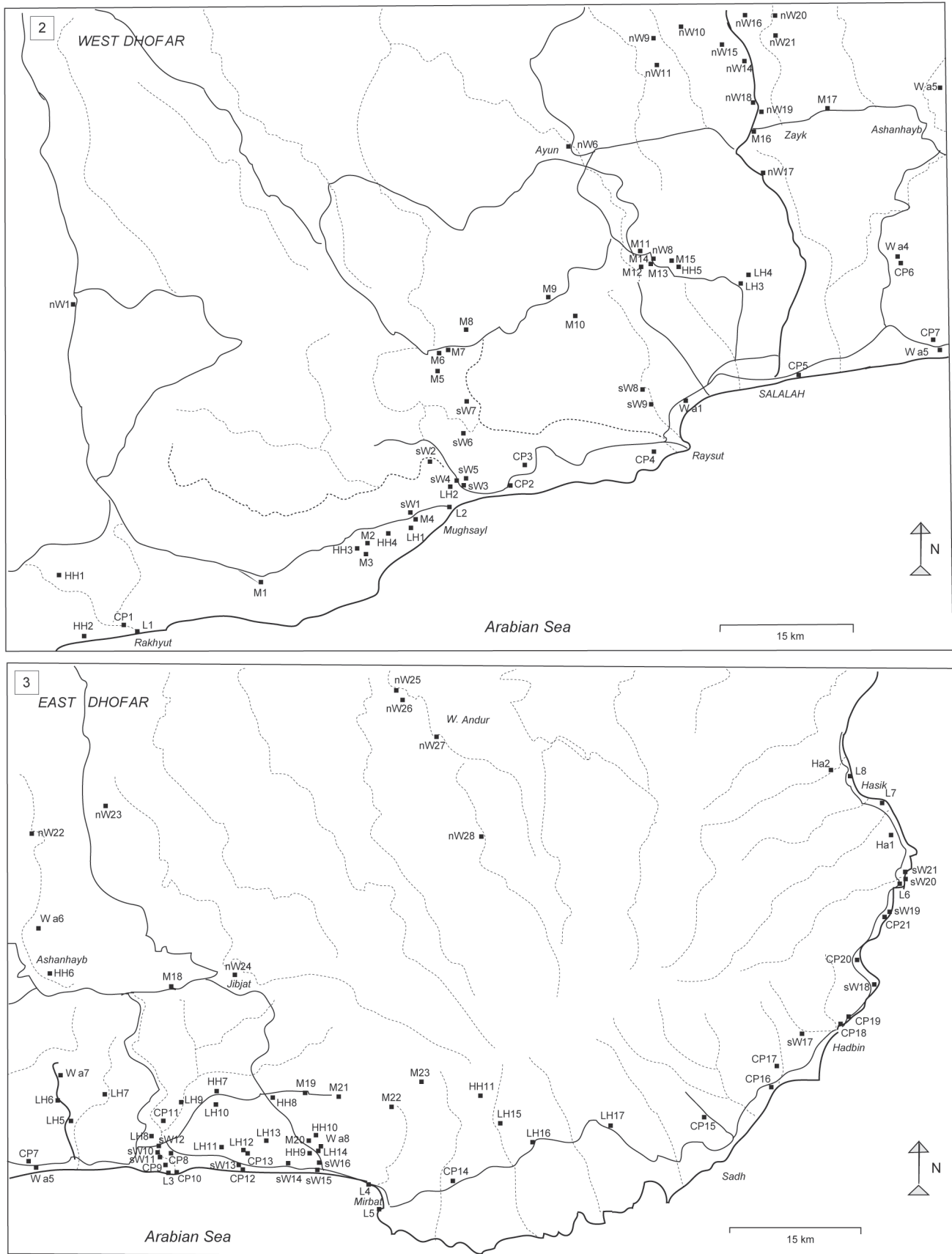


Fig. 2 – Top: Collection sites in West Dhofar. Bottom: Collection sites in East Dhofar.

CP21 12.02.06. Hadbin-Hasik road: 15 km from Hadbin, rocky ground and cliffs at the roadside. Alt. 18 m - 17°19.260'N, 55°16.250'E.

**LH: low hills and grasslands up to 500 m on monsoon affected escarpments**

LH1 21.04.01. Al Mughsayl-Ajdarawat road: rocky hilly slopes facing the Ocean, 8 km from Al Mughsayl. Alt. 500 m - 16°51.154'N, 53°43.089'E.

LH2 23.09.01. Grasslands, 3 km before Al Mughsayl coming from Salalah. Alt. 200 m - 16°53.630'N, 53°45.600'E.

LH3 a: 26.09.01. Salalah-Thumrayt road: hilly slopes beyond Salalah plain. Alt. 215 m - 17°6.140'N, 54°4.300'E - b: 02.03.07 (idem. Alt. 296 m - 17°6.397'N, 54°4.053'E).

LH4 02.03.07. Hilly slopes above Salalah: Ain Garziz valley. Alt. 172 m - 17°6.615'N, 54°4.767'E.

LH5 02.10.01. Grasslands on the foothills between Salalah and Taqah. Alt. 160 m - 17°5.280'N, 54°19.380'E.

LH6 02.10.01. Hills between Salalah and Taqah. Alt. 330-550 m - 17°6.500'N, 54°18.570'E.

LH7 a: 02.10.01. Salalah-Taqah road: deep valley to Athom Spring, *Anogeissus dhofarica* woods. Alt. 170-310 m - 17°6.910'N, 54°21.860'E - b: 11.09.02 (idem. Alt. 170-300 m - 17°6.290'-54°21.130'E) - c: 24.03.04 (idem. Alt. 230 m - 17°6.830'N, 54°21.840'E) - d: 24.03.04 (idem: at the end of the valley, near the spring. Alt. 235 m - 17°6.940'N, 54°21.800'E) - e: 13.02.06 (idem - 17°5.770'N, 54°20.380'E) - f: 13.02.06 (idem. Alt. 244 m - 17°6.840'N, 54°21.840'E).

LH8 a: 11.09.03. Wadi Darbat: scrubland near the higher edge of the waterfall. Alt. 140 m - 17°4.200'N, 54°25.200'E - b: 13.09.03 (idem).

LH9 29.04.01. Wadi Darbat: above the waterfall, inside the valley along the wadi banks. Alt. 180 m - 17°6.450'N, 54°27.210'.

LH10 06.09.02. Grasslands along the road to Tawi Atayr. Alt. 400 m - 17°6.280'N, 54°29.660'E.

LH11 01.09.02. Salalah-Mirbat road: foothills on the right, 7 km from the crossroads to Khor Rori. Alt. 130-150 m - 17°3.420'N, 54°30.020'E.

LH12 02.10.01. Taqah-Mirbat road: 13 km from Taqah, along the track to Jabal as Shawr. Alt. 103-205 m - 17°3.350'N, 54°31.510'E.

LH13 22.04.01. From Tawi Atayr, going down to the Salalah-Mirbat road. Alt. 450 m - 17°3.900'N, 54°33.040'E

LH14 a: Salalah-Tawi Atayr road: small valley with baobab trees, near Wadi Hinna. Alt. 330 m - 17°3.200'N, 54°36.540'E - b: 11.09.02 (idem).

LH15 16.09.02. Mirbat-Sadh road: 15 km from Mirbat, climbing along the lower course of Wadi Ayn Hilf for about 5 km. Alt. 50-400 m - 17°5.115'N, 54°49.460'E.

LH16 26.04.01. Mirbat-Sadh track: rocky slope 22 km to Sadh. Alt. 125 m - 17°3.850'N, 54°51.690'E.

LH17 26.04.01. Wadi banks along the track between Mirbat and Sadh, 16 km to Sadh. Alt. 305 m - 17°5.100'N, 54°57.220'E.

**HH: high hills and grasslands between 500- 800 m on monsoon affected escarpments**

HH1 30.09.01. From Rakhjut to the road n.° 47 to Ajdarawat. Thick woodland. Alt. 400-800 m - 16°48.200'N, 53°20.400'E.

HH2 30.09.01. Rakhiut-Ajdarawat road: along the track to Ajdarawat, 8 Km from Rakhyut. Alt. 568 m - 16°44.480'N, 53°22.040'E.

HH3 21.04.01. Salalah- Ajdarawat road: 13 km to Ajdarawat. Alt. 600 m - 16°49.792'N, 53°39.587'E.

HH4 a: 23.09.01. Al Mughsayl-Ajdarawat road: 11 km from Al Mughsayl, going up towards Ajdarawat, rocky slopes facing the Ocean. Alt. 568 m - 16°50.848'N, 53°41.650'E - b: 10.09.02 (idem. Alt. 600-900 m) - c: 27.02.07 (idem. Alt. 700 m) - d: 15.02.06 (idem. Alt. 476- 965 m - 16°51.305'-16°49.785'N, 53°43.275'- 53°39.690'E) - e: 21.02.09 (idem).

HH5 a: 28.04.01. Salalah-Ghadow road: grassland and scrubland 3 km to Ghadow, coming from Salalah. Alt. 630 m - 17°6.780'N, 54°1.630'E - b: 26.09.01 (idem) - c: 26.09.01 (idem, 2 km to Ghadow. Alt. 700 m - 17°7.180'N, 54°0.330'E).

HH6 07.09.02. Grasslands along the road to Ashanhaib, coming from Ain Razat. Alt. 600-700 m - 17°15.030'N, 54°18.050'E.

HH7 22.04.01. Taqah-Tawi Atayr road: climbing to Tawi Atayr, at the roadside - 17°7.130'N, 54°29.740'E

HH8 25.09.01. Sinkhole near Tawi Atayr. Alt. 650 m - 17°6.800'N, 54°33.550'E.

HH9 22.09.01. Salalah-Mirbat road: along the road to Tawi Atayr (3° crossroads). Thick woodland on the top of the hill. Alt. 600 m - 17°3.100'N, 54°36.400'E.

HH10 06.09.02. Salalah-Mirbat road: along the road to Tawi Atayr (3° crossroads). Climbing from the "baobab" valley to the plateau of Tawi Atayr. Alt. 500-700 m - 17°4.300'N, 54°36.580'E.

HH11 17.09.02. Mirbat-Sadh road, 15 km from Mirbat, climbing along the bed of Wadi Ayn Hilf for 10 km, up to the spring below Jabal Samhan. Alt. 500-600 m - 17°7.040'N, 54°48.120'E.

**M: mountains slopes and grasslands above 800 m**

M1 30.09.01. Al Mughsayl-Ajdarawat road: on the plateau along the road n.°47, near Ajdarawat. Alt. 1064

- m - 16°47.780'N, 53°33.320'E.
- M2** a: 10.09.02. Al Mughsayl-Ajdarawat road: 14 km from Al Mughsayl, along the road n.°47, mountain slope facing the Ocean, in front of the police station, *Dracaena* scrubland. Alt. 965 m - 16°49.785'N, 53°40.006'E - b: 27.02.07 (idem).
- M3** 13.09.02. Al Mughsayl-Ajdarawat road: grassland and scrubland on the mountain slope facing the Ocean, 15 km from Al Mughsayl. Alt. 800-900 m - 16°49.690'N, 53°40.119'E.
- M4** 21.04.01. Al Mughsayl -Ajdarawat road: 7 km from Al-Mughsayl, rocky steep slope at the left roadside, going up to the escarpment facing the Ocean. Alt. 1100 m - 16°51.512'N, 53°43.381'E.
- M5** 01.03.07. Qaftawt-Wanat road: along the mountain ridge, 16 km from Qaftwat, going down 4 km towards the coast facing the Ocean. Alt. 1129 m - 17°0.704'N, 53°44.767'E.
- M6** 01.03.07. Qaftawt-Wanat road: along the mountain ridge, 16 km from Qaftwat, going down 2 km towards the coast facing the Ocean. Alt. 1059 m - 17°1.912'N, 53°44.960'E.
- M7** 01.03.07. Qaftawt-Wanat road: along the mountain ridge, 16 km from Qaftwat, going down 600-700 m towards the coast facing the Ocean. Alt. 1063 m - 17°1.990'N, 53°45.385'E.
- M8** 01.03.07. Qaftawt-Wanat road: along the mountain ridge, 5 km from Ar Raydah. Alt 1237-1172 m - 17°3.219'-17°2.587'N, 53°48.037'-53°46.618'E.
- M9** 01.03.07. Salalah-Qaftawt road: 3 km from Qaftawt, towards Ar Raydah. Alt. 1078 m - 17°5.223'N, 53°52.025'E.
- M10** a: 01.03.07. Teetaam-Gattawt road: going down 4 km from the mountain ridge. Alt. 933 m - 17°4.169'N, 53°53.643'E - b: 18.02.06 (idem. Alt. 916 m - 17°4.166'N, 53°53.641'E).
- M11** a: 28.04.01. On the top of the plateau between Ghadow and Teetaam, *Olea* woodland. Alt. 976 m - 17°8.170'N, 53°57.860'E - b: 01.10.01 (idem. Alt. 986 m) - c: 19.03.05 (idem. Alt. 936-990 m - 17°8.180'N, 53°57.890'E) - d: 10.02.06 (idem).
- M12** 23.04.01. Teetaam- Ghadow road: on the ridge between the mountain escarpment and the pre-desert. Alt. 810 m - 17°7.190'N, 53°57.930'E.
- M13** 30.04.01. Grassland and scrubland between Ghadow and Teetaam, 6 km from Ghadow. Alt. 850 m - 17°7.230'N, 53°58.640'E.
- M14** 26.09.01. Deep woody valley before Ghadow, coming from Salalah. Alt. 910 m - 17°7.260'N, 53°58.640'E.
- M15** 08.09.02. Grassland on the plateau near Ghadow, coming from Salalah. Alt. 810 m - 17°7.520'N, 53°59.860'E.
- M16** 28.02.07. Salalah-Thumrayt road: near the crossroads to Zayk. Alt. 864 m. 17°15.447'N, 54°5.018'E.
- M17** 27.09.01. Grassland between Ashanhaib and Zayk, 6 km to Zayk. Alt. 850 m - 17°16.910'N, 54°9.880'E.
- M18** 27.09.01. Rocky grassland on the plateau of Jibjat. Alt. 950 m - 17°14.170', 54°26.530'E.
- M19** 25.09.01. Grassland above Tawi Atayr. Alt. 920 m - 17°7.150'N, 54°35.960'E.
- M20** 27.09.01. Climbing to Tawi Atayr, coming from Wadi Hinna. Alt. 906 m - 17°3.920'N, 54°36.110'E.
- M21** 25.09.01. Track between Tawi Atayr and Jabal Samhan, near the drinking trough. Alt. 950 m - 17°6.810'N, 54°38.210'E.
- M22** 25.09.01. Jabal Samhan, going up from Tawi Atayr to the radio station. Alt. 1214 m - 17°6.160'N, 54°41.900'E.
- M23** a: 25.09.01. Jabal Samhan: rocky plateau, going up from the radio station (1214 m) to the mountain ridge (1425 m) - 17°7.860'N, 54°44.000'E - b: 06.09.02 (idem. Alt. 1214-1425 m - 17°6.160'-17°7.860'N, 54°41.890-54°43.990'E) - c: 27.02.09 (idem - 17°6.158'-17°8.407'N, 54°41.885'-54°45.456'E).
- sW: south-draining wadis**
- sW1** a: 21.04.01. Al Mughsayl-Ajdarawat road: 7 km from Al Mughsayl: Wadi Afal e W. Mughsayl (at the end of the down going road): *Boswellia sacra* scrubland. Alt. 100 m - 16°52.024'N, 53°42.965'E - b: 27.04.01 (idem) - c: 23.09.01 (idem) - d: 10.09.02 (idem. Alt. 50-100 m - 16°53.800'N, 53°43.400'E) - e: 10.09.02 (idem) - f: 19.03.04 (idem. Alt. 70 m - 16°51.900'N, 53°42.889') - g: 11.03.05 (idem. Alt. 30-100 m.) - h: 15.02.06 (idem. Alt 111 m - 16°52.096'N, 53°42.932'E) - i: 27.02.07 (idem - 16°52.103'N, 53°43.890'E).
- sW2** a: 24.04.01. Al Mughsayl: from the lagoon going up 7 km along Wadi Ashawq. Alt. 70 m. 16°55.250'N, 53°44.320'E - b: 02.09.02 (idem. Alt. 50 m - 16°55.240'N, 53°44.350'E).
- sW3** 19.03.04. Al Mughsayl: from the lagoon going up 1,7 km along Wadi Ashawq up to the pool of standing water and inside the left branch of the wadi. Alt. 50 m. 16°53.760'N, 53°46.390'E.
- sW4** 24.04.01. Al Mughsayl: right tributary of Wadi Ashawq. Alt. 50 m - 16°53.880'N, 53°45.960'E.
- sW5** 02.09.02. Al Mughsayl: Wadi Ashawq: along the right bank, 2,5 km from the crossroads near the Al Mughsayl lagoon. Alt. 36 m - 16°53.840'N, 53°46.350'E.



- sW6** a: 22.10.00. Salalah-Al Mughsayl road: rocky hills of Adownib frankincense area (*Boswellia sacra* scrubland). Alt. 200 - 16°56.781'N, 53°46.450'E - **b**: 05.09.02 (idem) - **c**: 11.03.05 (idem. Alt. 180 m - 16°56.910'N, 53°46.410'E) - **d**: 11.03.05 (idem. Alt. 198 m, on a rocky slope - 16°57.190'N, 53°46.860'E) - **e**: 17.02.06 (idem. Alt. 161 m, at the bottom of a little valley - 16°56.784'N, 53°46.431'E) - **f**: 03.03.07 (idem. Alt. 187 m)
- sW7** 03.03.07. From Adownib frankincense area going up 3 km to the hilly slopes of Wadi Adownib. Alt. 371 m - 16°58.795'N, 53°46.655'E.
- sW8** 17.02.06. Wadi to the west of Salalah, 5 km behind Raysut. Alt. 36 m - 16°59.568'N, 53°57.954'E.
- sW9** 16.09.03. Wadi to the west of Salalah, 4 km behind Raysut. Alt. 30 m - 16°58.670'N, 53°58.500'E.
- sW10** a: 09.02.06. Khor Rori: along the Wadi Darbat, between the excavations of Sumhuram and the rocky slopes of the right bank. Alt. 5-16 m - 17°3.080'-17°2.720'N, 54°25.530'- 54°25.730'E - **b**: 26.02.07 (idem).
- sW11** 29.09.01. Khor Rori: coastal plain and bed of Wadi Darbat, on the right of the excavations of Sumhuram. Alt. 5 m - 17°2.680'N, 54°25.740'E.
- sW12** a: 01.09.02. Salalah-Khor Rori road: dry bed of Wadi Darbat, on the right of the road, before the crossroads to Khor Rori. Alt. 10 m - 17°3.160'N, 54°25.600'E - **b**: 09.02.06 (idem. Alt. 13 m - 17°3.080', 54°25.530'E).
- sW13** a: 20.10.00 Khor Rori-Mirbat road: wadi bed and coastal plain 9 km east of Khor Rori towards Mirbat. Alt. 1-10 m - 17°2.020'N, 54°31.326'E - **b**: 01.09.02 (idem. Alt. 25 m - 17°2.220'N, 54°31.300'E) - **c**: 26.02.07 (idem) - 17°2.012'N, 54°31.514'E) - **d**: 26.02.07 (idem. Alt. 1-10 m) 17°2.214'N, 54°31.514'E.
- sW14** 22.04.01. Salalah-Mirbat road: wadi between Khor Rori and Mirbat, 15 km from Khor Rori. 17°2.460'N, 54°34.610'E.
- sW15** 22.04.01. Khor Rori-Mirbat road: bed of Wadi Hinna, 18 km from Khor Rori. Alt. 15 m - 17°2.053'N, 54°36.580'E.
- sW16** a: 22.09.01. Khor Rori-Mirbat road: going up to Tawi Atayr, baobab trees in the bed of Wadi Hinna. Alt. 100 m - 17°2.440'N, 54°36.660'E) - **b**: 20.03.04. Wadi Hinna: *Adenium* scrubland on the left bank of the wadi - Alt. 45 m - **c**: 13.03.05 (idem. Alt. 33 m) - **d**: 13.03.05 (idem. Alt. 40 m) - **e**: 09.02.06 (idem) - **f**: 19.02.09 (idem. Alt. 18 m - 17°2.296'N, 54°36.430'E).
- sW17** 12.02.06. Wadi along the road Sadh-Hadbin, 5 km to Hadbin. Alt. 50 m - 17°11.080'N, 55°10.360'E.
- sW18** a: 12.02.06. Wadi along the road Hadbin-Hasik, 7 km from Hadbin. Alt. 18 m - 17°14.590'N, 55°15.640'E - **b**: 05.03.07 (idem) - **c**: 20.02.09 (idem).
- sW19** 18.03.05. Wadi along the road Hadbin-Hasik, 16 km from Hadbin. Alt. 20-100 m - 17°19.360'N, 55°16.690'E.
- sW20** 18.03.05. Wadi along the road Hadbin-Hasik, 20 km from Hadbin. Alt. 20-90 m - 17°21.940'N, 55°17.490'E.
- sW21** 12.02.06. Wadi along the road Hadbin-Hasik, 10 Km to Hasik. Alt. 25 m. - 17°22.090'N, 55°17.530'E.
- nW: north-draining wadis and semi-desert areas**
- nW1** 13.09.02. Aybut-Hayrun road: semi-desert plateau with rocky hillocks and gullies near Hayrun. Alt. 840 m - 17°4.928'N, 53°21.298'E.
- nW2** 13.09.02. Thumrayt-Mudday road: bed and banks of Wadi Banar, 60 km from Thumrayt. Alt. 450 m - 17°34.500'N, 53°28.500'E.
- nW3** 25.02.09. Thumrayt-Mudday road: bed of Wadi Ghadur, 50 km from Thumrayt. Alt. 499m - 17°37.857'N, 53°33.526'E.
- nW4** 28.09.01. Semi-desert area near the ancient citadel of Ubar (Shisr). Alt. 350 m - 18°15.230'N, 53°38.850'E
- nW5** 28.09.01. Semi-desert area near Ginan Bin Nawatish. Alt. 360 m - 18°4.687'N, 53°39.845'E.
- nW6** a: 23.04.01. Uyun pool, wadi with permanent water. Alt. 730 m - 17°14.800'N, 53°53.330'E - **b**: 01.10.01 (idem) - **c**: 19.03.05 (idem. Alt. 700 m - 17°14.790'N, 53°53.320'E) - **d**: 10.02.06 (idem. Alt. 697 m - 17°14.780'N, 53°53.320'E).
- nW7** 13.09.02. Thumrayt-Al Mathafah road: semi-desert plateau, 14 km from Thumrayt. Alt. 400-450 m - 17°39.055'N, 53°54.094'E.
- nW8** 30.04.01. Wadi between Ghadow and Teetan. Alt. 850 m. - 17°7.230'N, 53°58.640'E.
- nW9** 23.04.01. Salalah-Thumrayt road: along the track to Haluf, rocky plateau, 1.7 km before Haluf. Alt. 700 m - 17°21.400'N, 53°58.880'E.
- nW10** 08.09.02. Salalah-Thumrayt road: along the track Haluf-Uyun, rocky plateau. Alt. 600 m - 17°22.310'-17°19.690'N, 54°0.480'-53°59.040'E.
- nW11** 10.02.06. Rocky slopes on the plateau Haluf-Uyun. Alt. 718 m - 17°19.670'N, 53°59.050'E.
- nW12** 23.04.01. Salalah-Thumrayt road: semi-desert plain 20 Km before Thumrayt. Alt. 580 m - 17°28.178'N, 54°02.996'E.
- nW13** 12.09.02. Thumrayt-Dawkah road: semi-desert plain along the road, 29 km to Dawkah. Alt. 220 m - 18°24.316'N, 54°3.740'E.
- nW14** a: 23.10.00. Salalah-Thumrayt road: 42 km from

- Salalah, Wadi Dowkah Frankincense Park (numerous old *Boswellia* plants). Alt. 650-680 m - 17°20.080'N, 54°4.500'E - **b**: 23.04.01 (idem) - **c**: 28.09.01 (idem) - **d**: 08.09.02 (idem - 17°20.170'-17°20.080'N, 54°4.450'-54°4.500'E) - **e**: 14.09.02 (idem) - **f**: 12.09.02 (idem - 17°19.600'-17°21.500'N, 54°3.010'-54°5.000'E) - **g**: 10.09.03 (idem) - **h**: 12.09.03 (idem) - **i**: 21.03.04 (idem) - **l**: 25.03.04 (idem - 17°20.010'N, 54°44.680'E) - **m**: 12.03.05 (idem) - **n**: 11.02.06 (idem, inside the transplanting area of the Park. 17.20.334'N, 54°4.528'E) - **o**: 28.02.07 (idem - 17°20.085'N, 54°4.500'E)
- nW15** 10.02.06. North boundary of Wadi Dowkah Park. Alt. 649 m - 17°21.200'N, 54°3.210'E.
- nW16** 04.03.07. 5 Km north of Wadi Dowkah Park, towards Thumrayt: rocky plain 1 km east of the road. Alt. 630 m. - 17°23.018'N, 54°4.548'E.
- nW17** 23.10.00. Salalah-Thumrayt road: wadi bed and rocky slopes 25 km north of Salalah. Alt. 700 m - 17°13.060'N, 54°5.580'E.
- nW18 a**: 27.09.01 Salalah-Thumrayt road: gullies near Aqabat al Hatab, 35 km from Salalah, rocky slopes 3,5 km from the police station. Alt. 743 m - 17°17.570'N, 54°5.200'E - **b**: 28.09.01 (idem) - **c**: 03.09.02 (idem. Alt. 720 m - 17°17.600'N, 54°5.200'E) - **d**: 08.09.02 (idem) - **e**: 14.09.02 (idem. Alt. 730 m - 17°17.580'N, 54°5.210'E).
- nW19 a**: 23.04.01. Salalah-Thumrayt road: gullies near Aqabat al Hatab, 33 km from Salalah, rocky slopes 2 km further on the police station. Alt. 700 m. 17°17.053'N, 54°5.610'E - **b**: 21.03.04 (idem. Alt. 715 m - 17°17.130'N, 54°5.490'E) - **c**: 11.02.06 (idem. Alt. 730 m - 17°17.120'N, 54°5.490'E).
- nW20 a**: 11.02.06. Salalah-Thumrayt road: 6 km north-east of Wadi Dowkah Park: rocky plain and hillocks near the ancient frankincense store at Wadi Sahnut. Alt. 616-629 m - 17°23.080'N, 54°6.270' - **b**: 04.03.07 (idem. Alt 617 m - 17°22.946'N, 54°6.291'E).
- nW21** 04.03.07. Salalah-Thumrayt road: 4 km north-east of Wadi Dowkah Park, along the bed of Wadi Sahnut. Alt. 642 m - 17°21.759'N, 54°6.562'E.
- nW22** 23.10.00. Wadi along the track Thumrayt-Rabkut, 16 km south of Rabkut. Alt. 578 m - 17°24.400'N, 54°16.740'E.
- nW23** 14.09.03. Wadi Dhahabun: along the track to Jibjat, 17 km from Dhahabun. Alt. 600 m - 17°26.240'N, 54°21.890'E.
- nW24** 14.02.06. Wadi along the track Jibjat- Barbazum, 2 km before Jibjat. Alt. 942 m - 17°15.010'N, 54°30.876'E.
- nW25 a**: 14.09.03. From Barbazum to Wadi Andur, near the pool of standing water of Wadi Andur. Alt. 500 m - 17°34.190'N, 54°42.230'E - **b**: 17.03.05 (idem).
- nW26** 17.03.05. Wadi Andur: rocky hills along a tributary wadi of Wadi Andur, southwards for 2 km from the pool of standing permanent water (nW25). Alt. 500 m ca. 17°33.630'N, 54°42.700'E.
- nW27** 14.02.06. Wadi Andur: rocky bed of a tributary wadi of Wadi Andur, southwards for about 10 km from the pool of standing water(nW25a) . Alt 558 m - 17°34.224'-17°31.085'N, 54°42.171'-54°45.050'E.
- nW28** 14.09.03. From the pool of standing water of Wadi Andur (nW25a) for about 22 km to the northern slopes of Jabal Samhan. Alt. 750 m - 17°24.342'N, 54°48.137'E.
- Ha: dry (no monsoon affected) hills near Hasik (east Dhofar)**
- Ha1 a**: 15.03.05. Hadbin-Hasik road: rocky hills with *Boswellia sacra*, 3 km before Hasik. Alt. 100-500 m - 17°24.550'-17°24.860'N, 55°16.150'-55°16.830'E - **b**: 16.02.06 (idem. Alt. 56-400 m - 17°24.710'-17°24'870"N, 55°16.940'- 55°16'530"E) - **c**: 05.03.07 (idem. Alt. 10-350 m - 17°24.870'-17°24.710'N, 55°16.530'-55°15.940'E).
- Ha2** 23.03.04. Hasik: rocky hills with *Boswellia sacra*, 9 Km east of the village. Alt. 100-475 m - 17°29.680'-17°28.962'N, 55°12.345'-55°12.610'E.
- Wa: wet areas or mangrove vegetation**
- Wa1 a**: 04.10.01. Salalah: along the road to Raysut, mangrove vegetation of Khawar Al Qurum Al Saghir (near the Hilton Hotel) Alt. 0-3 m - 16°58.840'N, 54°0.784'E - **b**: 05.09.02 (idem).
- Wa2** 28.09.01. Thumrayt-Dawkah road: 1 km to Dawkak, near a salty pool. Alt. 237 m - 18°39.610'N, 54°4.390'
- Wa3** 23.10.00. Wet area along the track Thumrayt-Dhahabun. Alt. 520 m - 17°30.014'N, 54°11.004'E.
- Wa4** 07.09.02. Salalah-Mirbat road: spring of Ain Razat. Alt. 80 m - 17°7.800'N, 54°14.200'E.
- Wa5** 13.02.06. Mangrove vegetation along the Salalah-Khor Rori road, 14 km from Salalah. Alt. 1-3 m - 17°2.050'N, 54°17.020'E.
- Wa6** 23.10.00. Rocky semi-desert plateau north of Ashanhaib: spring and wet area at the base of a rocky cliff. Alt. 840 m - 17°18.150'N, 54°17.220'E.
- Wa7** 24.09.01. Wet area at Sahalnawt, near Salalah - 17°8.182'N, 54°18.702'E
- Wa8** 02.10.01. Salalah-Mirbat road: track to Tawi Atayr (3° crossroads): wet area inside the baobab valley of Wadi Hinna. Alt. 330. - 17°3.216'N, 54°36.591'E.

## FLORISTIC LIST

The list is subdivided in Pteridophyta, Gymnospermae, Angiospermae (Dicotyledones and Monocotyledones). To facilitate the consultation, families, genera, species and subspecies are arranged in alphabetical order. Abbreviations of the names of authors of plant names are standardized according to Brummit & Powell (1992).

## PTERIDOPHYTA

## ADIANTHACEAE

*Adiantum capillus-veneris* L. - LH14a; HH11.

*Adiantum philippense* L. - LH(7b, 12b); HH(1, 10).

*Negripteris scioana* (Chiov.) Pic.-Serm. - L2d; CP6a; LH3a; HH9; M14; sW(6b, 11); nW18d.

## HYPODEMATIACEAE

*Hypodematum crenatum* (Forssk.) Kuhn - CP1; M(14, 19).

## PARKERIACEAE

*Ceratopteris cornuta* (P.Beauv.) Le Prieur - LH14a; Wa7.

## PTERIDACEAE

*Pteris vittata* L. - LH14a; HH11.

## SELAGINELLACEAE

*Selaginella imbricata* (Forssk.) Spring ex Decne. - M2a.

## GYMNOSPERMAE

## EPHEDRACEAE

*Ephedra foliata* Boiss. ex C.A.Mey - nW(18d, 19c, 21); Wa6.

## ANGIOSPERMAE (DICOTYLEDONES-MAGNOLIOPSIDA)

## ACANTHACEAE

*Asystasia gangetica* (L.) T.Anderson - Wa8.

*Barleria acanthoides* Vahl - LH17; sW(2b, 9).

*Barleria hochstetteri* Nees ex DC. - CP(2b, 6a); LH(9, 12, 14).

*Barleria parviflora* R.Br. ex T.Anderson - HH4b; M1; sW(1d, 1e); Ha1a - First record from Oman.

*Barleria proxima* Lindau - L2d; CP(2b, 8b, 6a); HH(4b, 4e); nW(17, 18a, 18c); M23b; nW14m; Wa6.

*Barleria almughsaylensis* Mosti, Raffaelli & Tardelli - CP2a; HH4e; M2b; sW1h (*locus classicus*) - Endemic to Dhofar (Mosti et al., 2011). - (Fig. 3d).

*Bentia fruticulosa* Rolfe - CP(6a, 11); HH11 - Regional endemic: Dhofar & Yemen (Hadramaut) (Miller & Morris, 1988).

*Blepharis dhofarensis* A.G.Mill. - CP(2a, 2b); HH(4e, 8); M13 - Regional endemic: Dhofar & SE Yemen (Thulin et al., 2001).

*Blepharis scindica* T.Anderson - L5a; CP(4b, 10a, 14); LH(11, 16); sW(2a, 2b, 6a, 6b); nW(14d, 14e, 25a, 25b, 27, 28); Ha1a - Syn.: *B. linariifolia* Pers.

*Dyschoriste dalyi* A.G.Mill. - HH(4b, 5a, 6, 9); M(1, 11b, 18, 17, 23b); nW(14d, 18d) - Endemic to Dhofar (Miller & Morris, 1988; Ghazanfar, 1992a).

*Hypoestes forskalei* (Vahl) Solander ex Roem. & Schult. - LH7f; HH5c; M(1, 11a, 13).

*Justicia calyculata* Deflers - CP(6a, 11); HH11 - Syn.: *Bentia fruticulosa* Rolfe.

*Justicia diffusa* Willd. - LH7f; HH(5c, 6, 11); M(3, 23b); sW(2b, 6a, 6f); nW(14i, 18b) - (Thulin et al., 2001: also Yemen).

*Justicia heterocarpa* T.Anderson - LH3a; M18; Wa7.

*Justicia odora* (Forssk.) Lam. - HH11; M(14, 23b).

*Lepidagathis calycina* Hochst. ex Nees - LH(11, 14); HH4c.

*Megalochlamys violacea* (Vahl) Vollesen - CP(2b, 2c); LH(3a, 6, 8b, 14); M1; sW1a; nW18b; M1 - Syn.: *Ecbolium violaceum* (Vahl) Hillc. & J.R.Wood.

*Monechma debile* (Forssk.) Nees - LH(5, 12, 14); sW16a - Syn.: *Justicia debilis* (Forssk.) Vahl.

*Neuracanthus robecchii* (Lindau) C.B.Clark subsp. *attratus* Bidgood & Brummitt - CP(2b, 4a, 4b, 8b); HH(4b, 4c); M23c; sW(3, 6a, 6b, 9, 16).

*Peristrophe paniculata* (Forssk.) Brummitt - CP2b; LH2.

*Ruellia discifolia* Oliv. - HH(1, 4a, 4b); M4; sW(1d, 2b, 6a, 8, 16a); nW6a - Syn.: *R. longiflora* Vahl.

*Ruellia patula* Jacq. s. l. - CP2c; LH(3a, 8b); HH1; sW(1d, 2b).

*Rungia pectinata* Nees - LH(3a, 6, 7f), M11d - Syn.: *R. parviflora* Nees (Thulin et al., 2001: also Yemen).

*Ruttya fruticosa* Lindau - LH6; HH(8, 9); M14.

## AIZOACEAE (INCL. MOLLUGINACEAE)

*Aizoon canariense* L. - L(2c, 5a); CP(4a, 10a, 12); LH12; sW18c; nW(14d, 18c).

*Corbichonia decumbens* (Forssk.) Exell - LH 15; sW(19, 20).

*Glinus lotoides* L. - sW(12a, 12b); Wa4.

*Trianthemum* sp. - sW12a; nW28; Ha1a - Incomplete specimens.

*Zaleyia pentandra* (L.) C.Jeffrey - L1; CP(5a, 6a, 16) - Ruderal, disturbed areas.

## AMARANTHACEAE

*Achyranthes aspera* L. - CP6a; LH(7b, 8a, 14); HH9; M11b; sW12a; nW(14d, 18e) - Ruderal, disturbed areas.

*Aerva artemisioides* Viehr. & O.Schwartz subsp. *batharctica* A.G.Mill. & J.A.Nyberg - L8a; CP17; sW20; nW(23, 27); Ha(1a, 1c, 2) - Endemic to Dhofar (Miller, 1996; Ghazanfar, 2003).

- Aerva javanica** (Burm. f.) Juss. ex Schult. - CP(2b, 4a, 4b, 8b, 10b, 14, 15a, 15d); LH(2, 15, 17); sW(1a, 1b, 2a, 3, 6a, 6b, 6f, 9, 13a, 13b, 16a, 19, 20, 21); nW(14d, 18b, 25b, 26, 27).
- Alternanthera pungens** Kunth. - CP6a; LH2; M1; sW1d.
- Amaranthus dubius** Thell. - nW18c - First record from Dhofar.
- Amaranthus graecizans** L. subsp. **graecizans** - M23b; sW20; nW(14e, 18a); Ha1b.
- Amaranthus graecizans** L. subsp. **silvestris** (Vill.) Henkels - CP4b; LH12; sW12a; nW(18a, 18e).
- Amaranthus hybridus** L. subsp. **hybridus** - sW12a, nW14d.
- Amaranthus viridis** L. - sW12a.
- Celosia trigyna** L. - sW12a.
- Digera muricata** (L.) Mart. subsp. **muricata** - CP(1, 4b, 6a, 8b); LH8a; sW(5, 12a, 16); nW(14d, 14e, 18c).
- Psilotrichum virgatum** C.C.Towns. - sW(1b, 1c, 1f); Ha1a.
- Pupalia lappacea** (L.) A.Juss. var. **velutina** (Moq.) Hook. f. - CP(2c, 4b, 6a); LH8a; HH(1, 11); M2b; sW(1b, 2a, 2b, 8, 9).
- ANACARDIACEAE
- Lanea malifolia** (Chiov.) Sacleux - CP13; LH12; M4; sW(3, 6f).
- Pistacia chinensis** Bunge subsp. **falcata** (Becc. ex Martelli) Rech.f. - HH(4d, 4e); M 22.
- Rhus somalensis** Engl. - HH(4c, 4e); M(10a, 19, 20, 23b, 23c); nW8.
- APIACEAE (UMBELLIFERAE)
- Ammi majus** L. - LH(6, 10); M(1, 17, 18, 19); sW(12a, 16); nW(14a, 14d, 17, 18c, 18e).
- Adenosciadium arabicum** (T.Anderson) H.Wolff - CP6a; HH8; sW(1b, 1d, 12a, 20); nW19c; Ha1a.
- Pimpinella schweinfurthii** Asch. - LH(3a, 6, 10); HH(1, 5a, 10); M(11b, 18); sW16a.
- Pycnocycla aucheriana** Decne. ex Boiss. - Ha (1a, 2) - Flowers white, calyx densely pubescent and bracts exceeding the umbel - First record from Dhofar.
- APOCYNACEAE (INCL. ASCLEPIADACEAE)
- Adenium obesum** (Forssk.) Roem. & Schult. - CP(2c, 3); HH4b; M23b; sW(16c, 16e, 16f); nW17.
- Carissa spinarum** L. - HH5c; M23a - Syn.: *C. edulis* (Forssk.) Vahl.
- Calotropis procera** (Aiton) W.T.Aiton - sW13a; nW2 - Ruderal, disturbed areas.
- Caralluma edulis** (Edgew.) Benth. et Hook. - sW5 - Syn.: *Caudanthera edulis* (Edgew.) Meve & Liede - Second record from Oman.
- Desmidorchis adenensis** (Deflers) Meve & Liede - CP2a; sW(1e, 1f, 1h) - Syn.: *Caralluma adenensis* (Deflers) Berger - A rare, endangered species found only in a few localities - Regional endemic: Oman & Yemen (Meve & Liede, 2002; Pilbeam, 2010).
- Desmidorchis flava** (N.E.Br.) Meve & Liede - sW(6f, 16c, 16e, 16f); nW(18a, 18c, 18e); Ha1a - Syn.: *Caralluma flava* N.E.Br. - Regional endemic: Oman & Yemen (Meve & Liede, 2002; Pilbeam, 2010).
- Desmidorchis tardellii** Mosti & Raffaelli - CP(4a, 4b); LH17 (*locus classicus*); sW(8, 9) - Endemic to Dhofar (Mosti & Raffaelli, 2004).
- Desmidorchis** cf. **flava/tardellii** - CP(8d, 14); sW(10a, 10b, 13a) - Specimens of doubtful identification: flowers lacking.
- Echidnopsis scutellata** A.Berger subsp. **dhofarensis** Bruyns - nW(17, 18a, 18d, 19c); M9 - Syn.: *Echidnopsis planiflora* Bally - Endemic to Dhofar (Bruyns, 1988; Pilbeam, 2010).
- Glossonema varians** (Stocks) Benth. ex Hook f. - CP10a; M3; nW(14i, 18c).
- Gomphocarpus fruticosus** (L.) R.Br. - M(1, 11b, 19); nW17.
- Leptadenia pyrotechnica** (Forssk.) Decne. - nW(5, 16, 19b).
- Monolluma quadrangula** (Forssk.) Plowes - LH11; M(2, 23a, 23b, 23c) - Syn.: *Caralluma quadrangula* (Forssk.) N.E.Br. - Endemic to Oman, Saudi Arabia and Yemen (Pilbeam, 2010).
- Nerium oleander** L. - CP8a - Culta.
- Orbea luntii** (N.E.Br.) Bruyns - M22 - Syn. *Caralluma luntii* N.E.Br., *Pachycymbium luntii* (N.E.Br.) M.G.Gilbert - Regional endemic: Dhofar & S Yemen (Raffaelli et al., 2008).
- Orbea nardii** Raffaelli, Mosti & Tardelli - M3 (*locus classicus*) - Endemic to Dhofar (Raffaelli et al., 2008; Mosti & Raffaelli, 2011).
- Pentatropis bentii** (N.E.Br.) Liede - Ha(1b, 1c) - Regional endemic: Dhofar & Yemen (Raffaelli et al., 2008).
- Pentatropis nivalis** (J.F.Gmel.) D.V.Field & J.R.I.Wood - nW(20a, 20b) - Syn.: *Pentatropis spiralis* Auct. (non Decne.).
- Pergularia daemia** (Forssk.) Chiov. - CP6c, LH8b.
- Pergularia tomentosa** L. - L8a; CP16; LH15; sW(1b, 1c, 12b); nW7.
- Periploca aphylla** Decne. - nW16.
- Periploca visciformis** (Vatke) K.Schum. - HH4e; M(8, 22); sW(1b, 2a, 2b); nW(14d, 20a, 22).
- Raphionacme arabica** A.G.Mill. & Biagi - Wa8.
- Rhazya stricta** Decne. - nW(7, 13, 27).
- Rhytidocaulon fulleri** Lavranos & Mortimer - sW9 - A rare, endangered species - Regional endemic: Oman & Yemen (Lavranos & Mortimer, 1970; Pilbeam, 2010).
- Sarcostemma viminale** (L.) R.Br. - HH4e; nW(14a, 17, 19c).

## ARISTOLOCHIACEAE

**Aristolochia bracteolata** Lam. - sW(8, 9, 11, 12a, 16d) - Syn.: *A. bracteata* Retz.

## ASTERACEAE (COMPOSITAE)

**Atractylis kentrophyloides** (Baker) F.G.Davies - M22b.

**Bidens biternata** (Lour.) Merr. & Scherff - CP6a; LH(7b, 8a); HH(5a, 6, 10); sW(2b, 8d); nW18c.

**Blepharispermum hirtum** Oliv. - CP6a; LH(6, 13, 14); HH(1, 9) - Regional endemic: Dhofar & SE Yemen (Thulin et al., 2001).

**Blumea axillaris** (Lam.) DC. - LH12; HH5c - Syn.: *Conyza axillaris* Lam., *Blumea lacera* (Burm. f.) DC. - First record from Oman.

**Centaurea dhofarica** Baker - L2b.

**Centaurea pseudosinaica** Czerep. subsp. *niebuhrii* Wagenitz - nW(14a, 14d, 14e, 20b).

**Dicoma schimperi** (DC.) Baill. ex O.Hoffm. - sW(1c, 1e, 1i, 5, 6a, 6f, 20); nW(1, 3); Ha(1a, 2) - Syn.: *Hochstetteria schimperi* DC.

**Doellia bovei** (DC.) Anderb. - HH11; nW(25a, 28) - Syn.: *Blumea bovei* (DC.) Vatke.

**Echinops spinosissimus** Freyn - nW6a - First record from Dhofar.

**Eclipta prostrata** (L.) L. - LH(8a, 9, 10); HH10; sW(11, 12a); nW18c; Wa8 - Syn.: *E. alba* (L.) Hassk. (Beentje, 2006).

**Erigeron bonariensis** L. - M11b - Syn.: *Conyza bonariensis* (L.) Cronq.

**Erigeron trilobus** (Decne.) Boiss. - HH(4e, 8a); M(1, 11a, 11b, 15); nW6c - Syn.: *Conyza stricta* Willd.

**Helichrysum somalense** Baker f. - LH(6, 11); HH(4b, 4e); M(1, 8, 11b, 23b); sW1d; nW(14l, 17, 18a, 18c, 18e); Ha2 - The specimens in LH6, M11b, nW(17, 18a) have leaves up to 25 mm long and 11 mm wide (vs 15 mm and 4,5 mm max according to Beentje, 2006); the inflorescences have more than 10 heads.

**Iphiona scabra** DC. ex Decne. - sW(18a, 18c); nW(3, 7, 13, 14b, 14c, 14e, 27).

**Iphiona senecionoides** (Baker) Anderb. - L8c; CP14; sW(1b, 1i, 2a, 2b, 12a, 13a, 13b); nW(10, 14d, 14m, 27); Ha1a - Syn.: *Grantia senecionoides* Baker.

**Iphiona teretifolia** Anderb. - nW(20a, 21) - First record from Oman - Found up to now only in a restrict area of Yemen (Anderberg, 1985) - Regional endemic: Dhofar & Yemen - (Fig. 3a).

**Kleinia odora** (Forssk.) DC. - CP14; HH4e; M12; nW(17, 18a, 19b); Ha1.

**Kleinia saginata** P.Halliday - M23b; nW(17, 19b) - Endangered species, known only from few localities - Endemic to Dhofar (Miller & Morris, 1988).

**Launaea almahrahensis** N.Kilian - nW14d.

**Launaea castanosperma** F.G.Davies - L3b; sW(1b, 1d, 13a); nW(10, 19b, 20b, 26).

**Launaea crassifolia** (Balf. f.) C.Jeffrey - CP(2b, 2c, 4b, 6a); LH(3a, 6, 8b, 14); HH(1, 8a, 8b, 9, 14); sW(1d, 2b, 16a); nW(14m, 18c, 18d); Ha1a.

**Launaea intybacea** (Jacq.) Beauverd - CP5a.

**Launaea massauensis** (Fresen.) Sch.Bip. ex Kuntze - CP2c; LH5; sW(1c, 1d); nW(14d, 18a, 18c, 19c).

**Launaea** sp. plur. - CP14, M18 - Incomplete specimens.

**Parthenium hysterophorus** L. - LH8a; M(11a, 11b); sW9; nW6c - Pantropical.

**Pegolettia senegalensis** Cass. - M22b.

**Pluchea arabica** (Boiss.) Qaiser & Lack - LC8, CP(2a, 2b, 16, 17); LH13; M11c, sW(3, 12b, 19, 21); nW(1, 6a, 10, 11, 14f, 17, 18b, 19a, 20b, 25b, 27); Wa6.

**Pluchea ovalis** (Pers.) DC. - CP5a; HH(3, 4d); M(11a, 11b); sW1a.

**Pseudoconyza viscosa** (Mill.) D'Arcy - sW(3, 13a, 12b) - Syn.: *Blumea aurita* (L. f.) DC.

**Psiadia punctulata** (DC.) Vatke - M(22, 23b, 23c) - Syn.: *P. arabica* Jaub. et Spach.

**Pulicaria argyrophylla** Franch. var. *oligophylla* Gamal-Eldin - CP2c; HH4b; M(1, 8, 11a, 11b, 22, 23b); nW(14a, 14b, 14c, 14g, 14l, 17, 18b, 20a, 21).

**Pulicaria cylindrica** (Baker) O.Schwartz - nW(3, 7, 10, 12, 14h, 14l, 14o, 26, 27).

**Pulicaria gamal-eldinae** N.Kilian & P.Hein - sW1i - First record from Oman - Known from S Yemen (Kilian, 1999) - Regional endemic: Dhofar & S Yemen.

**Pulicaria glutinosa** (Boiss.) Jaub. et Spach subsp. *glutinosa* - L8a; M23c.

**Pulicaria inuloides** (Poir.) DC. - M11a.

**Pulicaria nobilis** Gamal-Eldin - M6 - A rare species, second record from Oman (Gamal-Eldin, 1981; Mosti & Selvi, 2007).- (Fig. 3b).

**Pulicaria** cf. *nobilis* - M23c - Incomplete specimen: flowers lacking.

**Pulicaria omanensis** Gamal-Eldin subsp. *omanensis* - LH15; sW(2b, 3, 6b, 20); nW(14b, 14c, 14d, 14e, 14g, 14o, 14n, 25b, 27); Ha(1a, 2) - Regional endemic: Dhofar & SE Yemen (Thulin et al., 2001).

**Pulicaria undulata** (L.) C.A.Mey. - CP(7, 11); sW(3, 12b); nW(1, 3, 7, 12, 13, 27) - Syn.: *P. crispa* (Forssk.) Benth.

**Sclerocarpus africanus** Jacq. ex Murray - LH(8a, 14); HH(5b, 8, 9).

**Tridax procumbens** L. - CP6d; sW(8, 9) - Pantropical, collected in Salalah (Dhofar) - First record from Oman.

**Tripteris vaillantii** Decne. - nW(14e, 17, 18a, 18c, 18d, 19a) - Syn.: *Osteospermum vaillantii* (Decne.) Norl.

**Vernonia arabica** F.G.Davies - CP(2a, 2b, 4a, 8b); LH15; HH(4b, 4e, 11); M(1, 22, 23a, 23b); sW(1b, 1c, 1d, 1e, 6a, 6b, 6f, 8, 9, 12a, 13a); nW(14a, 14d, 14i, 14o, 17, 18a, 19b, 20a, 25a, 27, 28).

**Vernonia cinerascens** Sch.Bip. - M 23b - First record from Oman.

- Vernonia cinerea** (L.) Less. - CP6a; LH(5, 7f, 8b, 10, 14); HH9; M20; sW(12a, 16a); Wa(4, 8).
- Volutaria sinaica** (DC.) Wagenitz - M1; sW2b; nW(18c, 18d, 18e, 20a) - Syn.: *V. lippii* (L.) Cass. ex Maire.
- BALSAMINACEAE
- Impatiens balsamina** L. - LH(3a, 7b); HH4b; M14; sW16a - Native of tropical Asia.
- BOMBACACEAE
- Adansonia digitata** L. - LH14b; sW(16a, 16b, 16c, 16d, 16e, 16f) - Known only from two localities: Dalkut (near the Yemen border) and Wadi Hinna (hills between Khor Rori and Mirbat).
- BORAGINACEAE
- Arnebia hispidissima** (Lehm.) DC. - L5a; CP(2c, 4b, 8b, 15c); LH15; M11c; sW(1d, 5); nW(1, 7, 10, 14d, 14e, 15, 18a, 18c, 25b, 26, 27); Ha1a.
- Cordia monoica** Roxb. - LH7d; M21 - Syn.: *C. ovalis* Hochst. ex DC.
- Cordia myxa** L. - M11a; sW16f.
- Cordia nevillei** Alston - HH5a - Syn.: *C. perrottettii* Wight (cf. Warfa, 1990; Thulin et al., 2001).
- Echiochilon arabicum** (O.Schwartz) I.M.Johnst. - sW(1f, 1i); sW(6a, 6b).
- Echiochilon callianthum** Lönn - sW6b.
- Echiochilon jugatum** I.M.Johnst. - L5a; CP10a.
- Echiochilon kotschyi** (Boiss. & Hohen.) I.M.Johnst. - nW(14l, 14o, 21).
- Echiochilon longiflorum** Benth. - sW(1e, 6b, 6c).
- Echiochilon persicum** (Burm. f.) I.M.Johnst. - nW(1, 14d, 14n).
- Echiochilon** sp. plur. - LH15; sW(6b, 6f); nW(1, 18e) - Incomplete specimens.
- Ehretia obtusifolia** Hochst. ex DC. - CP6c.
- Heliotropium bacciferum** Forssk. - L(7, 8a, 8c); CP(14, 15d); LH7b; M(8, 22, 23a, 23b); sW(17, 18c, 20, 21); nW(3, 4, 11, 14i, 18b, 18c, 20a, 21, 25b, 26, 27); Ha(1a, 1b).
- Heliotropium brevilmbe** Boiss. - L(5a, 6); sW(17, 19); nW(14a, 14d, 14e, 14o, 27); Ha1a - Syn.: *H. calcareum* Stocks.
- Heliotropium fartakense** O.Schwartz - L(2a, 2c, 3b, 5a); CP(2b, 4b, 5a, 8a, 8b, 10a, 12); LH(2, 15); HH11; sW(1b, 1c, 2a, 2b, 3, 6a, 6b, 12a, 13a, 13d); nW(1, 7, 14b, 14m, 18a, 18c, 18d).
- Heliotropium longiflorum** (A.DC.) Jaub. & Spach subsp. **longiflorum** - CP(6a, 6b, 8d); LH(8b,12); HH5b; Ha1a; M(1, 23b); sW(1d, 2b, 6b, 12a, 16a, 16d, 20); nW(18c, 18d); Ha1a.
- Heliotropium ophioglossum** Stocks ex Boiss. - LH15; M(23a, 23b); sW1d; nW18c.
- Heliotropium ovalifolium** Forssk. - LH8a; sW(3, 12a, 12b).
- Heliotropium rariflorum** Stocks - HH3; sW1d; nW26.
- Heliotropium steudneri** Vatke - CP4b; sW(1d, 2b, 6b, 9) - First record from Oman.
- Heliotropium subspinosum** Thulin & A.G.Mill. - M6; sW6e.
- Nogalia drepanophylla** (Baker) Verdc. - CP14; LH15; sW(10b, 11, 13a, 16a).
- Trichodesma cinereum** Mosti & Selvi - M6 (*locus classicus*), 23c; nW1 - Syn.: *T. dhofaricum* Ghaz. (Ghazanfar, 2010) - Endemic to Dhofar (Mosti & Selvi, 2007).- (Fig. 3c).
- Trichodesma hildebrandtii** Gürke - CP(4b, 8b); M23b; sW1d; nW(6d, 14o, 18e, 18b).
- BRASSICACEAE
- Diplotaxis harra** (Forssk.) Boiss. - CP(2b, 2c, 6a, 6b); sW(1a, 1d, 2b); nW(10, 18a, 18b, 18c, 18e, 19b, 19c, 25b).
- Farsetia dhofarica** Jonsell & A.G.Mill. - nW(26, 27) - Regional endemic: Oman & S Yemen (Miller, 1996).
- Farsetia latifolia** Jonsell & A.G.Mill. - CP4b; LH(2, 15); HH4b; M3; sW(1a, 2b, 6b, 12a, 5, 9); nW(14d, 14e, 18a, 18c, 18d, 20a).
- Farsetia longisiliqua** Decne. - nW14e.
- Farsetia** sp. plur. - CP2c; LH(2, 15); M11b; sW(1d, 6b, 6c); nW(14o, 26, 27) - Incomplete specimens.
- Moricandia sinaica** (Boiss.) Boiss. - nW(14e, 19b, 19c).
- BURSERACEAE
- Boswellia sacra** Flueck. - HH(4c, 4e, 11); sW(1a, 1f, 1i, 1g, 1h, 2a, 2b, 6a, 6b, 6c, 6d, 6e, 6f); nW(1, 6b, 6c, 6d, 9, 14a, 14b, 14c, 14d, 14e, 14f, 14g, 14h, 14i, 14l, 14m, 14n, 14o, 15, 16, 21); Ha(1a, 1b, 1c, 2) - The localities in *italics* refer to specimens observed in the field but not collected. - cf. Raffaelli et al. (2003, 2006); Raffaelli, Tardelli et al. (2003). - (Fig. 3h).
- Commiphora foliacea** Sprague - CP(2a, 14, 15c, 17); LH(15, 16); HH(4b, 4c); M22; sW(1c, 6a, 6b, 6c, 17, 19, 20, 21); Ha1a.
- Commiphora gileadensis** (L.) C.Chr. - CP(6b, 6c); LH(1, 3a, 7c, 8a, 8b, 16, 24); HH14; M(2, 3, 6, 22).
- Commiphora kua** (Royle) Vollesen - CP(4b, 6a, 6b, 8a, 11); LH(1, 6, 7b, 7c, 8a, 9); HH5b; M(20, 23a); sW(13a, 16a); nW(17, 19b, 19c); Ha1a - Syn.: *C. habessinica* (O.Berg) Engl.
- Commiphora wightii** (Arn.) Bhandari - CP14; sW(1d, 6c).
- CAPPARACEAE
- Boscia arabica** Pestal. - CP(6d, 9); LH1; sW(1a, 3, 13a).
- Cadaba baccarinii** Chiov. - sW6f.

**Cadaba farinosa** Forssk. - CP(5b, 8b, 8d, 10a, 10b); sW6f; nW6b; Ha1c; Wa6.

**Cadaba heterotricha** Stocks ex Hook. - sW(4, 6a); Ha(1a, 1c, 2).

**Capparis cartilaginea** Decne. - CP(16, 20); HH11; M8; sW(3, 20); nW(19a, 22).

**Cleome albescens** Franch. subsp. **omanensis** D.F.Chamb. & Lamond - sW6b; nW(18e, 26) - Regional endemic: Dhofar & SE Yemen (Thulin et al., 2001).

**Cleome amblyocarpa** Barratte & Murb. - CP2c.

**Cleome austroarabica** Chamb. & Lam. subsp. **austroarabica** - L3b; CP(8b, 15a, 16); LH15; HH11; sW(1a, 1d, 6a, 6d, 9, 12b, 13a, 18a, 18c, 19, 20); nW(14a, 14c, 14d, 14e, 15, 18e, 25a, 25b, 26, 27, 28); Ha2.

**Cleome austroarabica** Chamb. & Lam. subsp. **muscatensis** Chamb. & Lam. - nW25 - First record from Dhofar.

**Cleome brachycarpa** Vahl ex DC. - L5a; CP(4b, 8a, 8b, 10a, 10b, 16); LH15; HH4c; sW(1e, 1d, 2b, 3, 5, 6b, 12a, 19, 20, 21); nW(7, 10, 14d, 14e, 25a, 25b, 26, 28); Ha1a.

**Cleome brevipetiolata** Chamb. & Lam. - nW(2, 14c).

**Cleome gynandra** L. - CP2c - Syn.: *Gynandropsis gynandra* (L.) Briq.

**Cleome noeana** Boiss. subsp. **noeana** - sW(2b, 6a); nW1.

**Cleome scaposa** DC. - nW2 - First record from Dhofar.

**Dhofaria macleishii** A.G.Mill. - M(22, 23a); nW(19a, 19c) - Regional endemic: Dhofar & SE Yemen (Thulin et al., 2001).

**Dipterygium glaucum** Decne. - nW(4, 7).

**Maerua crassifolia** Forssk. - LH17; sW1f; nW(6b, 6d, 9, 25a, 26, 28).

#### CARYOPHYLLACEAE

**Cometes abyssinica** R.Br. ex Wall. - L5a; CP(8b, 14, 15d); LH(15, 16); HH11; sW(13a, 21a); nW(14l, 25b); Ha1a.

**Gymnocarpus dhofarensis** Petrus. & Thulin - nW(10, 14a, 14c, 14d, 20b) - Regional endemic: Dhofar & S Yemen (Petrusson & Thulin, 1996).

**Gypsophila montana** Balf. f. subsp. **somalensis** (Franch.) M.G.Gilbert - CP2b; HH(4b, 11); sW(1a, 1b, 1d, 1f, 8, 9, 13a, 18a, 18c); nW(18a, 25b); Wa6.

**Herniaria maskatensis** Bornm. - nW(3, 14d, 14h, 14i, 14n, 26) - Regional endemic: Oman & S Yemen (Miller, 1996).

**Polycarpha repens** (Forssk.) Asch. & Schweinf. - nW(2, 25b).

**Polycarpha robbairea** (Kuntze) Greuter & Burdet - nW(18a, 18b, 18c, 18e).

**Polycarpha spicata** Wight ex Arn. - L(4, 5a); CP(2b, 10a, 12); sW(1a, 1c, 5); nW(14d, 18a).

#### CELASTRACEAE

**Maytenus dhofarensis** Sebsebe - LH(6, 7d, 13, 7f);

HH(5a, 5b, 5c, 11); M(8, 11b, 11d, 12, 13, 19); nW6d - Regional endemic: Dhofar & SE Yemen (Ghazanfar, 2007).

**Maytenus senegalensis** (Lam.) Exell - nW(21, 27).

#### CERATOPHYLLACEAE

**Ceratophyllum demersum** L. - CP8d; sW3; nW18e.

**Ceratophyllum submersum** L. - L3a; sW(1e, 13a) - First record from Dhofar.

#### CHENOPODIACEAE

**Arthrocnemum macrostachyum** (Moric.) K.Koch - CP5a.

**Atriplex farinosa** Forssk. - CP5a.

**Chenopodium murale** L. - CP6b; HH4e; M23a; sW13a; nW(18a, 18e).

**Cornulaca amblyacantha** Bunge - nW26.

**Halotamnus bottae** Jaub. & Spach - sW6f; nW(3, 14l, 21, 25b, 27).

**Salsola imbricata** Forssk. - CP(4a, 10a); LH15 - Syn.: *S. baryosoma* (Roem. & Schult.) Dandy.

**Salsola spinescens** Moq. - CP(9, 10b); LH17; sW11.

**Salsola rubescens** Franch. - nW(14l, 14o, 27).

**Suaeda aegyptiaca** (Hasselq.) Zohary - CP16; nW(20a, 26, 27).

**Suaeda vermiculata** Forssk. ex J.F.Gmel. - CP(2b, 4b, 5a, 8a, 8b, 9, 10a); sW11; nW(18a, 18b, 18c, 18e) - Syn.: *S. fruticosa* Forssk. ex J.F.Gmel.

#### CISTACEAE

**Helianthemum citrinum** Ghaz. - M6; sW1d; nW(14o, 18c, 18d, 18e, 19c, 25a, 28).

#### COMBRETACEAE

**Anogeissus dhofarica** A.J.Scott - LH(7a, 7b, 7c, 7d, 7e, 7f, 8a); HH(1, 2, 8, 10); M(1, 11a, 11b, 11d) - Regional endemic: Dhofar & SE Yemen (Thulin et al., 2001).

#### CONVOLVULACEAE

**Convolvulus glomeratus** Hochst. ex Choisy - CP(2b, 2c, 6a, 6b, 8c); LH(3a, 5, 11, 15); HH2; M1; sW(1d, 6a, 6b, 20); nW14d; Ha1a.

**Convolvulus hystrix** Vahl - nW(6a, 6d, 7, 14c, 14d, 14e, 14o, 15, 22).

**Convolvulus prostratus** Forssk. - sW(6e, 18b); nW(6b, 14c, 14d).

**Convolvulus ulicinus** Boiss. - CP15b; sW18a; nW27; Ha(1a, 2) - cf. Raffaelli et al. (2006).

**Cressa cretica** L. - L(2c, 3a); CP(8a, 8b, 8d, 12); sW(11, 13a).

**Hildebrandtia africana** Vatke - nW(17, 19c).

**Hildebrandtia somalensis** Engl. ex Peter - sW1g - First record from Oman.

**Ipomoea aitonii** Lindley - CP6a; LH14b; HH(4b, 8).

- Ipomoea cairica** (L.) Sweet - CP(2b, 2c); LH(3a, 5, 7f); HH(1, 5a).  
**Ipomoea nil** (L.) Roth - CP6a; LH(3a, 8a, 14).  
**Ipomoea pes-caprae** (L.) R.Br. - L(1, 2c); CP(5a, 11); LH9; HH7.  
**Ipomoea obscura** (L.) Ker.-Gawl. - LH3a; HH1; M21; nW19a.  
**Ipomoea sinensis** (Desr.) Choisy - CP(2c, 6a); LH(3a, 11, 14); M1; sW16.  
**Ipomoea turbinata** Lag. - HH8.  
**Merremia somalensis** (Vatke) Hallier f. - sW(1d, 6a, 6b, 6e, 6f); nW(6a, 6b, 10).  
**Seddera glomerata** (Balf. f.) O.Schwartz - LH15; M3; sW(1c, 1e); nW(18a, 18b).  
**Seddera latifolia** Steud. & Hochst. - CP(8b, 10a).
- CUCURBITACEAE  
**Citrullus colocynthis** (L.) Schrad. - L5a; CP(7, 18).  
**Corallocarpus epigaeus** (Rottler) Hook f. ex C.B. Clarke - CP(4a, 4b); LH(6, 8b); M(11b, 17).  
**Corallocarpus cf. glomeruliflorus** (Deflers) Cogn. - LH16; sW6d - Insufficient materials: flowers and fruits lacking.  
**Cucumis prophetarum** L. subsp. **prophetarum** - CP14; LH(15, 17); M23a; sW(2b, 6e, 13a); nW(14a, 14c, 25b, 26); Wa6.  
**Cucumis prophetarum** L. cf. subsp. **dissectus** (Naudin) C.Jeffrey - nW(18c, 18d); M17 - Unripe fruits.  
**Cucumis pustulatus** Hook. f. - M11a.  
**Cucumis sativus** L. - LH(3a, 7b).  
**Luffa acutangula** (L.) Roxb. - CP6a; LH(6, 7b, 8a, 10, 11); HH(2, 5a, 7, 10).  
**Mukia maderaspatana** (L.) M.Roem. - LH3a; HH10; sW(12a, 16a).
- EBENACEAE  
**Euclea racemosa** Murray subsp. **schimperii** (A.DC.) F. White - LH7d; HH(1, 3); M11a.
- EUPHORBIACEAE  
**Acalypha indica** L. - CP(4b, 6a); LH(11, 15); sW(5, 12a); Wa8.  
**Andrachne aspera** Spreng. var. **aspera** - CP(6a, 6b); M11b; sW(1e, 5); nW27.  
**Andrachne aspera** Spreng. var. **glandulosa** A.Rich. - CP8b; sW(6a, 6f); nW(14a, 14c, 14e, 14o, 20a).  
**Andrachne telephioides** L. - sW(1d, 1f, 2b, 6b, 18c); nW(6b, 14d, 14l, 18c).  
**Chrozophora oblongifolia** (Delile) A.Juss. ex Spreng. - CP14; LH15; HH11; sW(1b, 1d, 2b, 6b, 8, 9, 13a); nW(14d, 14e, 18c, 25b).  
**Croton confertus** Baker - LH7e; M13 - Endemic to Dhofar, SE Yemen and N Somalia (Thulin et al., 2001).  
**Dalechampia scandens** L. var. **cordofana** (Hochst. ex Rich.) Müll.-Arg. - CP6b; LH5; HH(4b, 4c, 11); sW(1b, 1c, 1d, 16d).  
**Euphorbia arabica** Hochst. & Steud. ex Boiss. - sW(1d, 6b, 19).  
**Euphorbia balsamifera** Ait. subsp. **adenensis** (Deflers) Bally - M(1, 3, 14, 16, 22, 23b, 23c); nW17.  
**Euphorbia cactus** Ehrenb. ex Boiss. - CP(2a, 2b, 2c, 6a, 6b, 6c); LH(13, 14); HH(3, 4b, 4c, 4e); M(22, 23b); sW6f; nW(17, 18a, 18b, 18c, 18d, 18e, 19a, 19b, 19c) - The localities in *italics* refer to specimens observed in the field but not collected.  
**Euphorbia dhofarensis** S.Carter - CP9; M5; nW14d; Ha1a - Regional endemic: Dhofar & SE Yemen (Ghazanfar, 2007).  
**Euphorbia granulata** Forssk. var. **granulata** - sW6b; nW14d - First record from Oman.  
**Euphorbia granulata** Forssk. var. **glabrata** (Gay) Boiss. - M17; sW(12a, 16); Wa7.  
**Euphorbia hadramautica** Baker - CP(3, 4a, 4b); nW(18a, 18c); M20; sW(5, 6b, 6f, 9) - A very variable species in Dhofar, see Mosti et al. (2005).  
**Euphorbia hirta** L. - CP8c; HH(4b, 4e); M1; sW(1d, 9); nW18c - (cf. Raffaelli et al., 2003).  
**Euphorbia larica** Boiss. - CP9; M5; nW14d; Ha1a.  
**Euphorbia orbiculifolia** S.Carter - HH(4b, 4c); M23c - Regional endemic: Dhofar & SE Yemen (Ghazanfar, 2007).  
**Euphorbia schimperii** C.Presl - HH(4b, 4c, 7c, 9); M(3, 8, 23b); nW14l.  
**Euphorbia serpens** Kunth - Wa2 - First record from Dhofar.  
**Euphorbia smithii** S.Carter - CP(2c, 6a, 6b); LH(3a, 6, 7b, 7e, 8b) - Regional endemic: Dhofar & SE Yemen (Thulin et al., 2001).  
**Euphorbia aff. uzmuk** S.Carter & J.R.I.Wood - CP(2a, 14); HH4e; M11b; sW1i - (cf. Miller & Morris, 1988).  
**Jatropha dhofarica** Radcl.-Sm. - CP(2a, 4b, 6a, 6b, 11); LH(6, 7e, 9, 11); HH(1, 5c); M13; sW16a - Regional endemic: Dhofar & SE Yemen (Thulin et al., 2001).  
**Jatropha pelargonifolia** Courbon var. **sublobata** (O. Schwartz) Radcl.-Sm. - CP3; M7; sW(1h, 2b, 6b, 6c, 6e).  
**Meineckia phyllanthoides** Baill. - CP6b; LH3a.  
**Phyllanthus maderaspatensis** L. - M3; sW(1d, 1e).  
**Phyllanthus rotundifolius** Willd. - CP6a; LH(7b, 8a).  
**Ricinus communis** L. var. **africana** Müll.-Arg. - M23b; sW6b.
- FABACEAE (CESALPINIOIDEAE)  
**Cesalpinia erianthera** Chiov. - sW(1i, 3, 6f).  
**Cesalpinia bonduc** (L.) Roxb. - Culta in Al Balid Botanical Garden (Salalah).  
**Delonix elata** (L.) Gamble - CP(6a, 12); LH(3a, 13); sW(14, 16a).



*Senna holosericea* (Fresen.) Greuter - CP(8a, 10a); LH(15, 17); sW(1c, 1d, 2a, 6b, 8, 13a, 24); nW(14d, 14e, 25b, 26).

*Senna italica* Mill. - nW7.

*Senna sophera* (L.) Roxb. - nW19a - First record from Dhofar.

*Tamarindus indica* L. - HH1; M20.

#### FABACEAE (FABOIDEAE)

*Alysicarpus glumaceus* (Vahl) DC. - LH6; HH10.

*Alysicarpus longifolius* (Rottl. ex Spreng.) Wight & Arn. - CP6b.

*Alysicarpus* sp. - LH10 - Pods lacking.

*Crotalaria aegyptiaca* Benth. - CP15a; sW(19, 20); nW(6a, 20a, 20b, 21, 27).

*Crotalaria leptocarpa* Balf. f. - nW14d.

*Crotalaria medicaginea* Lam. - LH(7b, 8b, 12); HH10; Wa7.

*Crotalaria persica* (Burm. f.) Merr. - L5a; CP12; sW(10b, 13a, 13b); nW(7, 14d, 27).

*Crotalaria retusa* L. - LH7f; HH(2, 10); Wa7.

*Indigofera articulata* Gouan - M11c; sW(3, 6b, 13a, 18a); nW(19a, 19b, 25b).

*Indigofera coerulea* Roxb. var. *coerulea* - CP(4b, 6a); sW(8, 12b, 13a).

*Indigofera coerulea* Roxb. var. *occidentalis* J.B.Gillett & Ali - CP6b; sW16a.

*Indigofera nephrocarpa* Balf. f. - CP2b; sW(1c, 20); nW(14a, 14c).

*Indigofera oblongifolia* Forssk. - CP(4a, 5a, 17, 20); nW(1, 6a, 6b, 6d, 25a, 28).

*Indigofera rubromarginata* Thulin - L5a; sW(19, 21).

*Indigofera semitrijuga* Forssk. - sW 21; nW(7, 14a, 14d, 14e, 14o, 26).

*Indigofera trita* L. f. var. *maffeii* (Chiov.) Ali - HH(5a, 10).

*Indigofera volkensii* Taub. - CP(2a, 2c, 4b, 8b); LH2; HH4e; M1; sW(1d, 6b, 12a, 13b); nW18c.

*Ormocarpum dhofarense* Hillc. & J.B.Gillett - CP(6a, 6b); LH(3a, 8b, 14); HH(8, 10, 11); M14 - Regional endemic: Dhofar & E Yemen (Thulin et al., 2001).

*Psoralea corylifolia* L. - M20l.

*Rhynchosia minima* (L.) DC. - CP(2c, 6b); LH(11, 14); HH(4b, 4c, 9); M(11b, 14, 17).

*Rhynchosia pulverulenta* Stocks - CP8b; sW(1d, 5, 6b, 8, 20); Ha1a.

*Rhynchosia schimperii* Boiss. - CP6d.

*Taverniera brevisalata* Thulin - CP(15d, 20); Ha1b.

*Taverniera multinoda* Thulin - CP(15a, 15d); nW(10, 14o).

*Tephrosia pentaphylla* (Roxb.) G.Don - Ha(1a, 1c) - First record from Dhofar. - (Fig. 3g).

*Tephrosia purpurea* (L.) Pers. - CP(14, 17, 20); sW(3, 19,

20); nW(1, 14d, 25b, 27).

*Tephrosia subtriflora* Hochst. ex Baker - L5a; CP(2c, 6a); LH(7b, 8a, 14, 15); HH(9, 11); M(14, 17); sW16; nW(18c, 18d) - cf. Raffaelli et al. (2006).

*Tephrosia uniflora* Pers. - CP4b; LH(16, 17); sW(1f, 2a, 3, 8, 9, 11).

*Tephrosia* sp. plur. - LH(11, 12, 15); sW(1f, 8, 20) - Incomplete specimens.

*Teramnus repens* (Taub.) Baker f. subsp. *gracilis* (Chiov.) Verdc. - LH8a; HH10; sW12a.

#### FABACEAE (MIMOSOIDEAE)

*Acacia ehrenbergiana* Hayne - sW2a.

*Acacia etbaica* Schweinf. subsp. *uncinata* Brenan - CP1; HH11.

*Acacia gerrardii* Benth. subsp. *gerrardii* - M21.

*Acacia hamulosa* Benth. - nW3.

*Acacia laeta* R.Br. ex Benth. - sW(3, 4, 6d).

*Acacia nilotica* (L.) Delile subsp. *kraussiana* (Benth.) Brenan - CP(8a, 11); LH(7d, 9, 13); HH10; M(11b, 20); sW(12b, 16d); Wa8.

*Acacia senegal* (L.) Willd. - CP(1, 6a, 6c, 11); LH(3a, 3b, 7c, 7e, 15); HH11; M(10a, 13, 14); sW(12b, 16d, 17, 20); nW(19a, 27); Ha1c; Wa7.

*Acacia tortilis* (Forssk.) Hayne - CP(6c, 8a, 8d, 15b); LH(15, 17); nW(6b, 7, 14c, 14o); Ha2.

*Acacia* sp. plur. - CP2b; sW1b; nW(4, 11) - Incomplete specimens: flowers and pods lacking.

*Prosopis cineraria* (L.) Druce - sW16d.

*Prosopis juliflora* (Swartz) DC. - CP(6a, 8d).

#### GENTIANACEAE

*Canscora concanensis* C.B.Clarke - HH5a.

*Enicostema axillare* (Lam.) A.Raynal - L8a.

*Exacum affine* Balf. f. ex Regel - L8a - Syn.: *E. gracilipes* Balf. f. - Endemic to Dhofar and Socotra (Thulin, 2001).

*Exacum arabicum* Thulin - CP2c; LH14b; HH(4b, 15); M17 - Regional endemic: Dhofar & S Yemen (Thulin, 2001).

#### GERANIACEAE

*Geranium biuncinatum* Kokwaro - M19.

*Geranium mascatense* Boiss. - CP6b; HH10; M(14, 18, 19).

*Geranium trilophum* Boiss. - M14 - Syn.: *G. yemensense* Defflers s. str.

*Monsonia heliotropoides* (Cav.) Boiss. - sW6b; nW(14d, 14e, 25b, 26).

#### LAMIACEAE (LABIATAE)

*Becium dhofarense* Sebald - LH8b; HH(1, 4b, 4c, 9); M19 - Regional endemic: Dhofar & SE Yemen (Thulin et al., 2001).

- Endostemon tenuiflorus** (Benth.) M.Ashby - CP(2b, 6a, 6b, 8b); LH2; HH(4c, 11); M14; sW(1d, 5, 6b).
- Lavandula dhofarensis** A.G.Mill. subsp. **dhofarensis** - CP(2b, 2c, 6a, 6b, 6c); LH(15, 16); M23b; sW(6f, 8, 16f); Wa6 - Regional endemic: Dhofar & SE Yemen (Thulin et al., 2001).
- Lavandula dhofarensis** A.G.Mill. subsp. **ayunensis** A.G.Mill. - HH4e; sW(1d, 2b, 9); nW(6d, 19c, 20a) - Endemic to Dhofar (Miller & Morris, 1988; Ghazanfar, 1992a).
- Lavandula dhofarensis** A.G.Mill. subsp. **dhofarensis/ayunensis** - M23b; nW1 - Specimens with intermediate characters between the two subspecies.
- Lavandula macra** Baker - CP15a; sW(1a, 1f, 1i, 2a, 2b, 3, 4, 6a, 6e, 6f, 17, 18a, 21); nW27; Ha1a.
- Leucas dhofarensis** Hedge & Sebald - LH(2,14); HH4b; M14; nW(17, 18a, 18d) - Regional endemic: Dhofar & SE Yemen (Thulin et al., 2001).
- Leucas urticifolia** (Vahl) R.Br. - CP(2a, 2c, 4b, 6a, 6b); LH11; sW12a.
- Leucas inflata** Benth. - sW(1d, 1e).
- Ocimum forskoalii** Benth. - CP(2c, 6a, 6b, 8c); LH(3a, 5); HH(1, 4a, 4b, 4e); M11a; sW(1d, 9, 16a, 16d); nW(17, 18c, 18d).
- Orthosiphon pallidus** Royle ex Benth. - CP(2c, 4b, 6a, 6b); LH(3a, 8a, 11); M11a; sW(5, 9, 12a).
- Orthosiphon** sp. plur. - HH4b; sW8; Wa6 - Leaves hairy; flowers lacking.
- Plectranthus barbatus** Andrews - LH7b; HH(5a, 5b); M14.
- Plectranthus cylindraceus** Hochst. ex Benth. - sW1f; nW(17, 18a).
- Salvia macilenta** Boiss. - nW(14c, 14h, 14o) - First record from Dhofar.
- Salvia** sp. plur. - M(23a, 23b); nW18c - Insufficient and incomplete materials.
- Teucrium nummularifolium** Baker - LH10; HH(4c, 9); M(11b, 17, 18, 19); sW(1c, 1d, 12a, 8, 16a); nW17.
- Teucrium** sp. plur. - CP(3, 11); LH15; HH4b; M(2b, 3, 11a, 23b); sW(1c, 1f, 8, 9); nW19c - Incomplete specimens.

## LORANTHACEAE

- Plicosepalus acaciae** (Zucc.) Wiens & Polhill - Wa6 - Syn.: *Loranthus acaciae* Zucc.

## LYTRACEAE

- Lawsonia inermis** L. - CP5b; sW(16b, 16d).
- Woodfordia uniflora** (A.Rich.) Koehne - HH11; sW1a; nW(6a, 6d).

## MALPIGHIACEAE

- Acridocarpus orientalis** A.Juss. - sW(1a, 1f, 2a).

## MALVACEAE

- Abelmoschus esculentus** (L.) Moench - M20.
- Abelmoschus manihot** (L.) Medik. - M(11a, 20).
- Abutilon bidentatum** A.Rich. - LH8b; HH(4b, 4e).
- Abutilon fruticosum** Guill. & Perr. - CP(2b, 2c, 3, 4b, 6b); LH14b; HH4b; sW(6f, 12a, 16a, 20); nW1; Ha(1a, 1b, 1c).
- Abutilon hirtum** (Lam.) Sweet - HH8.
- Abutilon mauritianum** (Jacq.) Medik. - Wa8.
- Abutilon pannosum** (G. Forst.) Schltdl. - CP4a; HH4b; sW(6b, 19, 20); nW6d.
- Cienfuegosia welshii** (T. Anders.) Garcke - sW1e.
- Gossypium hirsutum** L. - CP5a - Culta.
- Gossypium stocksii** Mast. - CP(2a, 2b, 2c, 3, 4a, 8b); sW(1a, 1b, 1d, 1g, 2b, 6a, 11, 13a).
- Hibiscus micranthus** L. f. - CP10b; HH11; M23b; sW(1c, 1d, 8, 17c) - First record from Dhofar.
- Hibiscus** cf. **scindicus** Stocks - CP8b; sW8 - Flowers lacking.
- Hibiscus vitifolius** L. - M14.
- Pavonia arabica** Hochst. ex Steudl. - CP(2b, 2c, 4b, 6a, 6b); LH(3a, 5, 11); HH4b; M11b; sW1d; nW18d.
- Pavonia pirottae** (A.Terracc.) Chiov. - sW(1d, 5, 6a).
- Pavonia schweinfurthii** Ulbr. - HH4b; sW1e.
- Pavonia** sp. plur. - M11b; nW18c - Incomplete specimens.
- Senra incana** Cav. - L2d; CP(2b, 2c, 3, 5a, 8a, 16); LH16; sW(11, 13a, 16a, 20, 21); Ha1a.
- Sida cordata** (Burm. f.) Borss.Waalk. - CP6a; LH(7a, 7f, 14); HH10.
- Sida ovata** Forssk. - CP(4b, 8b); LH(6, 15); HH(1, 2, 4b); M(1, 19); sW(1e, 6b, 12a, 9, 16a).
- Thespesia populnea** (L.) Sol. ex Correa - L(8a, 8b) - First record from Oman.

## MENISPERMACEAE

- Cocculus balfourii** Schweinf. ex Balf. f. - LH1; HH4e; M(3, 8); sW1a - Endemic to Dhofar, S Yemen and Socotra (Miller, 1996; Thulin et al., 2001).
- Cocculus pendulus** (J.B.Först. & G.Forst.) Diels - CP6c; nW(6b, 14o, 20a, 20b, 21, 26, 27).

## MORACEAE

- Dorstenia foetida** (Forssk.) Schweinf. - CP6a; LH(3a, 8b); HH(4c, 9); nW(17, 18d, 19b, 19c).
- Ficus cordata** Thunb. subsp. **salicifolia** (Vahl) C.C.Berg - CP(6a, 11, 20); LH9; sW(1b, 2a, 14, 15).
- Ficus ingens** (Miq.) Miq. - LH(4, 14); HH11; sW16a.
- Ficus sycomorus** L. - LH14b; Wa8.
- Ficus vasta** Forssk. - LH(6, 12, 13, 14); HH4c; Wa8.

## MORINGACEAE

- Moringa peregrina** (Forssk.) Fiori - sW(1a, 3, 6a); nW6a.

## NYCTAGINACEAE

- Boerhavia diffusa** L. - CP8b.  
**Boerhavia elegans** Choisy subsp. **elegans** - LH17.  
**Boerhavia elegans** Choisy subsp. **stenophylla** (Boiss.) A.G.Mill. - nW(2, 25a, 28).  
**Commicarpus boissieri** (Heimerl) Cufod. - CP(2b, 5a, 6a, 8b, 10a); LH14b; M(1, 18); sW(1a, 1c, 13a, 14, 16a, 20); nW(18b, 18d, 18e).  
**Commicarpus stenocarpus** (Chiov.) Cufod. - CP10b; LH17; sW(2, 6a, 9, 17, 20); nW(14d, 14e).  
**Commicarpus** sp. plur. - CP6a; M(23b, 23c); sW1b - Incomplete specimens.

## NYMPHAEACEAE

- Nymphaea nouchali** Burm. f. var. **caerulea** (Savigny) Verdc. - CP6a - According to McKean (1996) probably introduced in Yemen - First record from Oman.

## OLEACEAE

- Jasminum grandiflorum** L. subsp. **floribundum** (R.Br. ex Fresen.) P.S.Green - LH7f; HH(1, 9, 10); M(1, 10a, 11a, 19).  
**Olea europaea** L. subsp. **cuspidata** (Wall. ex G.Don) Cif. - M(11a, 11b, 12, 13, 14, 23b).

## OROBANCHACEAE

- Cistanche tubulosa** (Schenk) Hook. f. - CP(2a, 5a); sW1b.  
**Cistanche rosea** Baker - sW1e; nW(20a, 27).  
**Orobanche cernua** Loeff. - M11b; nW(18a, 18e).  
**Orobanche dhofarensis** M.J.Y.Foley - HH(1, 9); M14.

## PAPAVERACEAE

- Argemone mexicana** L. - HH5a; sW(1b, 12a, 16) - Alien, native of W Indies and Mexico.

## PIPERACEAE

- Peperomia pellucida** (L.) Kunth - LH8a; HH9.

## PLANTAGINACEAE

- Plantago ovata** Forssk. - M(1, 18); sW(1d, 2b); nW(14d, 14h, 18c).

## PLUMBAGINACEAE

- Dyerophytum indicum** (Gibbs ex Wight) Kuntze - L8a; CP(4b, 6a, 6c, 15c); HH(4e, 11); sW(1a, 1b, 6a, 13a, 19, 20, 21); nW6b.  
**Limonium axillare** (Forssk.) Kuntze - L8a; CP(2a, 8a, 8d, 10a); LH16; sW(1b, 6c, 13a); nW(1, 14d, 20a, 26); Ha1c.  
**Limonium milleri** Ghaz. & J.R.Edm. - nW(18a, 18b).  
**Limonium sarcophyllum** Ghaz. & J.R.Edm. - Ha1a - cf. Raffaelli et al., (2006).  
**Plumbago zeylanica** L. - LH(6, 14); HH(5b, 8, 9).

## POLYGALACEAE

- Polygala dhofarica** Baker - nW(18a, 18d) - Regional endemic: Dhofar & Yemen (Wood, 1997).  
**Polygala erioptera** DC. - CP10a; sW1d; nW(14e, 25b).  
**Polygala mascatensis** Boiss. - sW(1b, 1c, 1i, 2b); Ha(1c, 2).  
**Polygala moggii** Raffaelli, Mosti & Tardelli - sW(18a, 18b, 18c) - Endemic to Dhofar (Raffaelli et al., 2007).  
**Polygala senensis** Klotzsch - CP6a; LH6; HH4b; M14, sW1e.  
**Polygala** sp. plur. - HH(4c, 4e); M3; sW1d - Incomplete specimens.

## POLYGONACEAE

- Persicaria glabra** (Willd.) M.Gómez - LH9.  
**Rumex vesicarius** L. - sW(1c, 1d); sW(14e, 17b).

## PORTULACACEAE

- Portulaca dhofarica** M.G.Gilbert - CP(4a, 4b, 10a); sW(6b, 6f); nW18a - Endemic to Dhofar.  
**Portulaca oleracea** L. - sW1e.  
**Portulaca quadrifida** L. - sW1e.  
**Talinum portulacifolium** (Forssk.) Asch. ex Schweinf. - sW11.

## PRIMULACEAE

- Anagallis arvensis** L. - HH5a; M(11b, 14, 17); sW12a; nW(18a, 18c).

## RESEDACEAE

- Ochradenus arabicus** Chaudhary, Hillc. & A.G.Mill. - CP(8a, 8c, 8d, 11); LH13; sW(1f, 12b, 8).  
**Ochradenus gifrii** Thulin - nW11 - Regional endemic: Dhofar & SE Yemen (Miller, 1996; Ghazanfar, 2003). - (Fig. 3e).  
**Ochradenus** sp. plur. - CP(8a, 8b); sW(9, 18a) - Incomplete specimens: fruits lacking.  
**Reseda sphenocleoides** Defflers - CP(2a, 2b, 2c); LH2; sW(1a, 2b, 6b, 12b, 20); nW(6a, 14d, 14e); Ha1a; Wa6.

## RHAMNACEAE

- Rhamnus staddo** A.Rich. - HH4c; M(13, 23c).  
**Ziziphus leucodermis** (Baker) O.Schwartz - sW(1b, 2a, 13a); nW(6b, 25b, 27) - Regional endemic: Dhofar & S Yemen (Miller & Morris, 1988).  
**Ziziphus spina-christi** (L.) Desf. - CP(1, 11); HH7.

## RUBIACEAE

- Gaillonia aucheri** (Guill.) Jaub. & Spach - M11c; nW(2, 3, 14e, 14o, 20a, 20b, 25a, 26, 27, 28); Ha2.  
**Kohautia caespitosa** Schnizl. - CP(2c, 6a, 6b); LH(5, 8a); M(1, 3, 11a, 14); sW(1d, 1e, 6b); nW18c.  
**Kohautia retrorsa** (Boiss.) Bremek. - LH16; M6; sW(1c, 6a); nW(14a, 14b, 14i, 14o, 20a, 26).

**Oldenlandia corymbosa** L. var. **corymbosa** - HH5a.

**Oldenlandia corymbosa** L. var. **caespitosa** (Benth.) Verdc. - CP6b; LH(8a, 10); HH1; sW12a.

#### RUTACEAE

**Haplophyllum tuberculatum** (Forssk.) A.Juss. - CP(7, 8c); sW(12a, 12b).

#### SALVADORACEAE

**Azima tetraantha** Lam. - LH4; HH(8, 11); M23c. - (Fig. 3f).

**Salvadora persica** L. var. **persica** - sW(11, 6a, 6f, 13a); nW19a; Wa6.

**Salvadora persica** L. var. **angustifolia** Verdc. - nW(6a, 6b) - First record from Oman - cf. Dahir (1999).

**Salvadora persica** L. var. **cyclophylla** (Chiov.) Verdc. - CP(9, 12); sW(13a, 14); nW6b - First record from Oman - cf. Dahir (1999).

#### SAPINDACEAE

**Allophylus rubifolius** (Hochst. ex A.Rich.) Engl. - LH(7a, 7c, 7e, 8b); M(11a, 13, 14).

**Dodonaea viscosa** (L.) Jacq. - LH13; HH(2, 4e, 8b); M(2, 11a, 19, 23a, 23b, 23c); sW(16a, 16d) - Syn.: *D. angustifolia* L. f.

#### SCROPHULARIACEAE

**Alectra parasitica** Hochst. ex A.Rich. - HH5b.

**Anticharis arabica** Endl. - sW(2b, 6b).

**Anticharis glandulosa** Aschers. - CP15d; LH(15, 17); M11c; sW(18c, 20); nW(2, 25b).

**Bacopa monnieri** (L.) Pennell - CP(5a, 8a, 6a); LH9; sW(11, 13a, 13d).

**Campylanthus chascaniflorus** A.G.Mill. - CP(3, 12); HH4d; sW(8, 13a, 13d); nW(14a, 14e, 14g, 20a).

**Campylanthus pungens** O.Schwartz - CP2a; sW(1i, 6e, 6f); nW(14f, 14l, 20a, 20b).

**Camptoloma villosa** Balf. f. - CP21; sW19.

**Lindenbergia indica** (L.) Vatke - CP(3, 4a, 8c, 10a); HH11; M(11a, 11b); sW(1d, 12a, 12b, 8); nW(14d, 14e, 14l, 14o, 17, 18c, 19c, 25b); Wa6.

**Lindenbergia muraria** (Roxb ex D.Don) Brühl - CP(2b, 2c, 6b); LH3a; HH9; sW16a; Wa(7, 8).

**Nanorrhinum hastatum** (R.Br. ex Benth.) Ghebr. - CP2c; LH(11, 12); HH4b; sW1d.

**Nanorrhinum heterophyllum** (Schousb.) Ghebr. - LH8b; M11b; sW(2b, 8, 9, 12a); nW(14d, 14o, 18a, 18c, 19a, 19b); Wa6 - Syn.: *Kickxia qaraiica* D.A.Sutton.

**Nanorrhinum roseiflorum** Mosti, Raffaelli & Tardelli - M(5, 7); nW28 - Endemic to Dhofar (Mosti et al., 2008).

**Schweinfurthia latifolia** Baker ex Oliv. - nW(25a, 27) - Regional endemic: Dhofar & S Yemen (Mosti et al., 2006).

**Schweinfurthia papilionacea** (L.) Boiss. - sW19; nW(25a, 27).

**Schweinfurthia pedicellata** (T.Anderson) Balf. - sW(18b, 20) - cf. Raffaelli et al. (2006).

**Schweinfurthia spinosa** A.G.Mill., M.Short & D.A.Sutton - CP4b; nW(14d, 14i, 14l, 14o) - Regional endemic: Dhofar & SE Yemen (Thulin et al., 2001).

**Striga gesnerioides** (Willd.) Vatke - CP6a.

#### SOLANACEAE

**Datura metel** L. - CP(2a, 6a); LH8a - Syn.: *D. fastuosa* L.

**Hyoscyamus gallagheri** A.G.Mill. & Biagi - CP19; HH11.

**Lycium shawii** Roem. & Schult. - nW25b; Ha1a; nW(6b, 6c, 6d); Wa6.

**Nicandra physalodes** (L.) Gaertn. - LH(7a, 7b); HH1; sW12a.

**Nicotiana tabacum** L. var. **tabacum** - CP6b.

**Nicotiana tabacum** L. var. **lancifolia** (Willd. ex Lehm.) Comes - CP11; LH8b; M21; nW19a

**Physalis minima** L. - L1; LH(8a, 10); sW(6b, 12a).

**Solanum incanum** L. - CP(2a, 6b); LH(3a, 8a); HH7; M(11a, 11b).

**Solanum luteum** Mill. - nW15.

**Solanum nigrum** L. - CP6b; LH8a; HH5a; M11b; nW18c.

**Withania qaraitica** A.G.Mill. & Biagi - HH(4a, 4b); M11b; sW1d - Regional endemic: Dhofar & SE Yemen (Thulin et al., 2001).

**Withania somnifera** (L.) Dunal - CP2a; LH8a; HH4e; M1; sW(1b, 12a); nW14g.

#### STERCULIACEAE

**Hermannia paniculata** Franch. - CP8b; Ha2; sW(1e, 6b); nW14e.

**Hermannia testacea** Vollesen - M18; sW1d.

**Melhanian muricata** Balf. f. - CP8b; M23b; sW(1d, 5, 6b); Ha1a.

**Melhanian ovata** (Cav.) Spreng. - LH5.

**Sterculia africana** (Lour.) Fiori - LH(7e, 12); HH10.

#### TAMARICACEAE

**Tamarix aphylla** (L.) H.Karst. - HH11; sW2a.

**Tamarix arabica** Bunge - sW21.

**Tamarix mascatensis** Bunge - nW6a; Ha1c.

#### TILIACEAE

**Corchorus aestuans** L. - sW12a.

**Corchorus depressus** (L.) C.Chr. - L5a; CP4b; sW(5, 6b, 8).

**Corchorus olitorius** L. - LH10; HH9; sW1d.

**Corchorus trilocularis** L. - CP(2c, 4b, 6b, 8b); LH(7b, 11); sW12a.

**Grewia damine** Gaertn. - sW(1b, 1c, 1d, 1f, 1i) - Syn.: *G. bicolor* Juss.

**Grewia erythraea** Schweinf. - M(23b, 23c); sW(c, 1f, 1i, 6b); nW(17, 18a).



Fig. 3 – a) *Iphiona teretifolia* Anderb.; b) *Pulicaria nobilis* Gamal-Eldin; c) *Trichodesma cinereum* Mosti & Selvi; d) *Barleria almughsaylensis* Mosti, Raffaelli & Tardelli; e) *Ochradenus giffii* Thulin; f) *Azima tetracantha* Lam.; g) *Tephrosia pentaphylla* (Roxb.) G. Don; h) *Boswellia sacra* Flueck. (Wadi Dowkah, sito UNESCO).

*Grewia mollis* A.Juss. - HH11.

*Grewia tenax* (Forssk.) Fiori - HH11; sW5.

*Grewia villosa* Willd. - LH8b; sW(1b, 1c).

*Triumfetta pentandra* A.Rich. ex Guill. - CP6a; LH(8a, 11, 14); HH(1, 4b, 5a, 9, 10).

#### URTICACEAE

*Forsskaolea tenacissima* L. - sW(1a, 1b, 1c, 1d, 2b, 20); nW(6a, 6d, 25a, 25b, 28); Ha1a.

*Forsskaolea viridis* Ehrenb. - CP(6a, 6b); sW(1d, 16a, 18b).

*Laportea interrupta* (L.) Chew - LH14b; HH10; Wa7.

*Parietaria alsinifolia* Delile - nW(14d, 14e) - First record from Dhofar.

#### VERBENACEAE

*Avicenna marina* (Forssk.) Vierh. - Wa(1a, 1b, 5).

*Chascanum sessilifolium* (Vatke) Moldenke - CP6a; HH4b.

*Lantana cf. rugosa* Thunb. - M11b - Incomplete specimen.

*Lantana viburnoides* (Forssk.) Vahl - HH9; M(1,14, 17).

*Phyla nodiflora* (L.) Greene - L8a; LH9; sW12a; nW20.

*Premna resinosa* (Hochst.) Schauer - CP(6a, 6b).

*Priva cordifolia* (L. f.) Druce - HH11.

#### VIOLACEAE

*Viola cinerea* Boiss. var. *cinerea* - sW(1d, 5, 6b); nW(12, 14d, 14f, 14e) - Leaves hairy.

*Viola cinerea* Boiss. var. *stocksii* (Boiss.) W.Becker - CP(a, 6b); LH6; HH(5a, 6); M(11b, 14, 17) - Leaves glabrous or hairy only near the base.

*Viola cinerea* var. *cinerea*/var. *stocksii* - sW(2b, 15) - Hairiness intermediate between the two taxa.

#### VITACEAE

*Cissus quadrangularis* L. - CP(6a, 11); LH(6, 9, 13); HH10; sW(13a, 16f).

*Cyphostemma ternatum* (Forssk.) Desc. - LH14b; HH8; M14; nW(14d, 18d).

#### ZYGOPHYLLACEAE

*Fagonia bruguieri* DC. - CP4a; sW(1f, 6a, 6c, 20); nW(1, 14d, 25b, 26).

*Fagonia cf. bruguieri/schweinfurtii* - CP(14, 15a, 15d); nW(1, 26); Ha1a - Intermediate characters (leaves, spines, etc.) between the two taxa.

*Fagonia indica* Burm. f. - sW1e; nW3 - See also *F. paulayana*.

*Fagonia luntii* Baker - CP(8b, 8d, 4a, 4b); LH(2, 15); HH4e; sW(1f, 2b, 6b, 9, 12a, 16a, 16d); nW(18a, 18c, 20a).

*Fagonia mahrana* Beier - sW(1b, 1c, 1i, 6c, 6e) - Regional endemic: Dhofar & SE Yemen (Beier, 2002; Ghazanfar, 2007).

*Fagonia ovalifolia* Hadidi - nW(2, 4, 7, 13, 26).

*Fagonia paulayana* Wagner & Vierh. - LH15 - Probably no more than a glabrous form of *F. indica* (cf. Thulin, 1993;

Ghazanfar, 2007).

*Fagonia schweinfurtii* (Hadidi) Hadidi - CP(2b, 2c, 4b, 8b); sW(1d, 12a, 13a).

*Fagonia* sp. plur. - nW(7, 14c, 27); Ha2 - Incomplete specimens.

*Kelleronia revoilii* (Franch.) Chiov. - LH15; HH7a; sW(1d, 2a, 2b) - According to Thulin (1993) the previous records of *K. gillettii* from Arabia are actually based on material of *K. revoilii*.

*Melocarpum robecchii* (Engl.) Beier & Thulin - sW(2a, 2b); nW1.

*Tetraena alba* (L. f.) Beier & Thulin - L8c; sW(1f, 1i, 2a, 3, 6f); Ha2 - Syn.: *Zygophyllum album* L. f.

*Tetraena decumbens* (Delile) Beier & Thulin - M(5, 8); nW(6b, 11, 14d, 14o, 18a, 18c, 20a) - Syn.: *Zygophyllum decumbens* Delile.

*Tetraena hamiensis* (Schweinf.) Beier & Thulin - nW(13, 14d, 14o, 18a, 19b, 20a, 20b); Wa2 - Syn.: *Zygophyllum hamiense* Schweinf.

*Tetraena qatarensis* (Hadidi) Beier & Thulin - nW(25b, 26, 27) - Syn.: *Zygophyllum qatarense* Hadidi.

*Tetraena simplex* (L.) Beier & Thulin - L(5a, 7, 8a); CP(4a, 4b, 8c, 8d, 10a, 12, 13, 15b); LH15; sW(11, 16a, 18c); nW(7, 25b, 26); Ha1a - Syn.: *Zygophyllum simplex* L.

*Tribulus terrestris* L. - CP4b; M(1, 23a); sW(1d, 5, 6b, 12a); nW(14d, 18c, 25b).

*Tribulus pentandrus* Forssk. - nW2.

#### ANGIOSPERMAE (MONOCOTYLEDONES-LILIOPSIDA)

##### AGAVACEAE

*Dracaena serrulata* Baker - HH3; M3.

*Sansevieria eherenbergii* Schweinf. - CP12; sW(10, 13).

##### ALOACEAE

*Aloe dhufarensis* Lavranos - CP8a; LH17; Ha(1a, 1b, 2); sW(1b, 4, 6a) - Endemic to Dhofar (Miller & Morris, 1988).

*Aloe praetermissa* T.A.McCoy & Lavranos - CP2a; HH4b; M3 - (Miller & Morris, 1988: sub *A. inermis* Forssk.) - Endemic to Dhofar, but probably present also beyond the Oman-Yemen border (Carter et al., 2011).

##### ARACEAE

*Arisaema flavum* (Forssk.) Schott - M14.

*Remusatia vivipara* (Roxb.) Schott - CP6a; HH(5b, 9); M14.

##### ARECACEAE (PALMAE)

*Nannorrhops ritchieana* (Griff.) Aitch. - nW(2, 14b, 20a, 20b, 21); Wa3 - Regional endemic: Dhofar & SE Yemen (Miller & Morris, 1988; Thulin et al., 2001) - The localities in *italics* refer to plants observed in the field, of which we have some photos.

**Phoenix caespitosa** Chiov. - sW1b; nW3; Ha(1b, 1c); Wa8  
- First record from Oman.

ASPARAGACEAE

**Asparagus africanus** Lam. - sW(1a, 1b).

**Asparagus racemosus** Willd. - CP(2c, 6a); LH(3a, 8a, 14);  
HH(1, 4b, 9); M(2, 10a, 10b).

COMMELINACEAE

**Aneilema forskaolei** Kunth - CP(6a, 6b); LH(3a, 6, 7b, 8a);  
HH(9, 10); Wa7.

**Commelina albescens** Hassk. - CP6a.

**Commelina forskaoii** Vahl - CP(2c, 6a, 6b, 8b); LH(5, 8a);  
sW12a.

**Commelina ussilensis** Schweinf. - CP2c; nW(18c, 18d).

**Commelina** sp. plur - CP2c; LH15a - Incomplete speci-  
mens.

CYPERACEAE

**Cyperus bulbosus** Vahl - CP4b; Wa1b - First record from  
Dhofar.

**Cyperus conglomeratus** Rottb. - L(2a, 2c, 5a); CP(5a, 20);  
sW(1c, 2b, 6a, 6b, 8, 13a, 13b); nW(14d, 14f).

**Cyperus iria** L. - CP6b; HH5a; sW12a.

**Cyperus laevigatus** L. - CP(8a, 8b); sW(11, 13a, 13d);  
nW14c; Wa2 - Syn.: *Juncellus laevigatus* (L.) C.B.Clark.

**Cyperus longus** L. - LH8a; HH(5a, 5b, 10); M11b.

**Cyperus nutans** Vahl var. **eleusinoides** (Kunth) R.W. Haines  
- CP6b.

**Cyperus rotundus** L. - nW25b.

**Cyperus squarrosus** L. - CP6b.

**Cyperus wissmannii** O.Schwartz - HH4b.

**Cyperus** sp. - CP8b.

**Eleocharis geniculata** (L.) Roem. & Schult. - nW25a.

**Fimbristylis cymosa** R.Br. subsp. **spathacea** (Roth) Kojama  
- CP(6a, 6b).

**Fimbristylis ferruginea** (L.) Vahl. subsp. **sieberiana** (Kunth)  
Lye - CP6a; Wa6.

**Schoenoplectus subulatus** (Vahl) Lye - CP8b; LH8a; sW(3,  
11, 13a); nW25b - Syn.: *S. litoralis* (Shrad.) Palla.

IRIDACEAE

**Gladiolus candidus** (Rendle) Goldblatt - CP(4b, 6a);  
LH(8d, 14b); HH(5a, 5b, 6, 9, 10); M(14, 17) - Syn. *G.*  
*ukambanensis* (Baker) Marais.

JUNCACEAE

**Juncus rigidus** Desf. - CP8a; sW11; nW(25a, 25b); Wa6.

ORCHIDACEAE

**Epipactis veratrifolia** Boiss. & Hohen. - HH11.

**Eulophia guineensis** Lindl. var. **purpurata** Kotschy - LH14;  
M8a.

**Eulophia petersii** (Rchb. f.) Rchb. f. - LH1; nW19a.

LILIACEAE

**Asphodelus fistulosus** L. - M23b; sW1d; nW(14d, 18a, 18c,  
19c).

**Chlorophytum laxum** R.Br. - CP(4b, 6a); LH11.

**Dipcadi** sp. - CP10a - Incomplete specimen: flowers and  
fruits lacking.

POACEAE (GRAMINEAE)

**Acrachne racemosa** (B. Heyne ex Roem. & Schult.) Ohwi  
- CP(1, 6a).

**Aeluropus lagopoides** (L.) Trin. ex Thwaites - L8a; CP(4a,  
5a); sW(1a, 6a, 11); Wa2.

**Apluda mutica** L. - CP(6a, 6b); LH(3a, 7a, 7b, 8a, 10, 14);  
HH(5a, 5b, 8, 9, 10); Wa7.

**Aristida abnormis** Chiov. - sW(1e, 2b, 6b).

**Aristida adscensionis** L. - CP(6a, 6b); LH2; sW(1d, 5, 6b,  
9); nW14e.

**Aristida adscensionis** L. var. **pumila** (Decne.) Coss. & Du-  
rieu - nW(14d, 18c).

**Aristida funiculata** Trin. & Rupr. - CP6a.

**Aristida mutabilis** Trin. & Rupr. - nW1.

**Aristida triticoides** Henrard - LH15; sW(1c, 2b, 6f).

**Arthraxon cuspidatus** (Hochst. ex A.Rich.) Hochst. ex  
Hack. - HH(5a, 5b); M14.

**Arthraxon hispidus** (Thunb.) Makino - HH5a - Racemes  
completely glabrous.

**Arthraxon lancifolius** (Trin.) Hochst. - CP6b; HH(2, 10);  
sW1d.

**Arthraxon pusillus** Bor - CP6b; LH8b; HH(4b, 5a, 10);  
sW12a.

**Arthraxon prionodes** (Steud.) Dandy - M(11b, 17).

**Arundinella pumila** (Hochst. ex A.Rich.) Steud. - LH7b;  
HH(5b, 5c, 9, 10); M(11b, 14).

**Brachiaria deflexa** (Schumach.) C.E.Hubb. ex Robyns -  
LH8a.

**Brachiaria eruciformis** (Sm.) Griseb. - M(1, 11b, 14).

**Brachiaria ovalis** Stapf - CP(2c, 6b); sW6a.

**Capillipedium parviflorum** (R.Br.) Stapf - M14.

**Cenchrus pennisetiformis** Hochst. & Steud. - CP(2c, 4b,  
6a, 6b, 8b); LH(2, 11, 15, 17); HH9; sW(1a, 1d, 5, 6a,  
6b, 9, 11, 12a, 13a, 19, 20); nW(6a, 18a, 18c, 18d, 25b);  
Ha1a.

**Cenchrus setigerus** Vahl - CP(2b, 8b); LH2; HH4b; sW12a.

**Chloris virgata** Sw. - LH2; sW1d.

**Chrysopogon macleishii** Cope - nW27.

**Chrysopogon plumulosus** Hochst. - LH16, M23b; sW2b;  
nW(12, 14a, 14d, 20a).

**Cymbopogon commutatus** (Steud.) Stapf - HH4b - Syn.:  
*C. schoenanthus* (L.) Spreng. subsp. *velutinus* Cope (Cope,  
2007).

**Cymbopogon schoenanthus** (L.) Spreng. - nW(9, 10, 14a).

- Cynodon dactylon* (L.) Pers. - CP8a.  
*Dactyloctenium aegyptium* (L.) Willd. - LH(2, 10); HH(5a, 9); sW9; nW14d.  
*Dactyloctenium aristatum* Link - L2d; CP(4b, 8b, 10a, 12); sW(12a, 13b).  
*Dactyloctenium robecchii* (Chiov.) Chiov. - sW(1e, 2b).  
*Dactyloctenium scindicum* Boiss. - LH2; M(11a, 11b); sW1d; nW(14d, 17, 18a, 18d).  
*Dichanthium annulatum* (Forssk.) Stapf - HH(2, 5a); M11a.  
*Dichanthium foveolatum* (Delile) Roberty - CP14; sW(1d, 6a, 6f); nW(14d, 25b).  
*Dichanthium micranthum* Cope - CP(2b, 4b, 6a, 8b, 10a); M3; sW9.  
*Digitaria ciliaris* (Retz.) Koeler - CP6b; LH8a; HH11; sW12a; nW18d.  
*Digitaria nodosa* Parl. - CP2c; sW1d.  
*Digitaria stricta* Roth ex Roem. & Schult. - HH5a.  
*Digitaria velutina* (Forssk.) P.Beauv. - HH(9, 10).  
*Dimeria ornithopoda* Trin. - HH5a.  
*Echinochloa colona* (L.) Link - CP6b; LH8a; HH(5a, 5b).  
*Echinochloa pyramidalis* (Lam.) Hitchc. & Chase - LH8a - First record from Oman.  
*Enneapogon cenchroides* (Roem. & Schult.) C.E.Hubb. - HH11.  
*Eragrostis aspera* (Jacq.) Nees - CP6b; HH11; sW12a.  
*Eragrostis barrelieri* Daveau - sW1d; nW(14d, 18d)  
*Eragrostis cilianensis* (All.) Vignolo ex Janch. - M14 - Specimens with contracted panicles and short spikelets. Leaf-blades with crateriform glands.  
*Eragrostis ciliaris* (L.) R.Br. - CP6a; LH2; M11b.  
*Eragrostis minor* Host - nW(2, 14d).  
*Eragrostis tenella* (L.) P.Beauv. ex Roem. & Schult. - CP6b; HH9; sW12a.  
*Eustachys paspaloides* (Vahl) Lanza & Mattei - LH8a; HH(9, 10); M11b.  
*Halopyrum mucronatum* (L.) Stapf - L(5a, 5b).  
*Heteropogon contortus* (L.) P.Beauv. ex Roem. & Schult. - HH9; M14; sW1d.  
*Isachne globosa* (Thunb. ex Murray) Kuntze - LH9.  
*Lasiurus scindicus* Henrard - nW(2, 7, 26).  
*Leptothrium senegalense* (Kunth) Clayton - CP10a; sW(1d, 2b, 6b).  
*Loudetia flavida* (Stapf) C.E.Hubb. - HH(9, 11); M14; sW1e - Glumes completely glabrous.  
*Oplismenus burmannii* (Retz.) P.Beauv. - LH(7b, 14); HH(9, 10); M14.  
*Panicum trichoides* Sw. - LH(7b, 8a); HH9.  
*Panicum atrosanguineum* Hochst. ex A.Rich. - CP(2c, 6b); LH8a; sW6a.  
*Pennisetum divisum* (J.F.Gmel.) Henrard - CP20; HH11; nW(2, 25b).  
*Pennisetum setaceum* (Forssk.) Chiov. - HH11.  
*Phragmites australis* (Cav.) Trin. ex Steud. subsp. *australis* - nW(6a, 6d).  
*Phragmites karka* (Retz.) Trin. ex Steud. - CP20; nW25b; Wa(2, 6) - First record from Oman.  
*Poa bulbosa* L. var. *vivipara* Koeler - HH4c - First record from Oman.  
*Rottboellia cochinchinensis* (Lour.) Clayton - HH9.  
*Setaria intermedia* Roem. & Schult. - LH7b; HH(5a, 9, 10).  
*Setaria pumila* (Poir.) Roem. & Schult. - CP6b; LH(8a, 10); HH(5a, 5b, 9); M14.  
*Setaria verticillata* (L.) P.Beauv. - HH(9, 10); nW(17, 18d, 18e).  
*Setaria viridis* (L.) P.Beauv. - CP(6a, 6b); HH5a; nW(14d, 18a, 18c).  
*Setaria cf. italica* (L.) P.Beauv. - CP6b - Incomplete specimen.  
*Sorghum deccanense* Stapf ex Raizada - HH9.  
*Sporobolus consimilis* Fresen. - Wa6.  
*Sporobolus ioclados* (Nees ex Trin.) Nees - CP(2b, 5a, 8a, 10a, 12); sW(11, 13a).  
*Sporobolus minimus* Cope - sW(12a, 13b).  
*Sporobolus spicatus* (Vahl) Kunth - sW13a; nW25b; Wa2.  
*Sporobolus virginicus* (L.) Kunth - L(2c, 3a, 3b); CP(4a, 5a, 8a, 12); sW13a.  
*Stipagrostis hirtigluma* (Steud. ex Trin. & Rupr.) De Winter - HH11; sW1d.  
*Stipagrostis plumosa* (L.) Munro ex T.Anderson - sW9; nW14d.  
*Stipagrostis sokotrana* (Vierh.) De Winter - nW(14d, 14e).  
*Stipagrostis* sp. - nW14d - Incomplete specimen.  
*Tetrapogon tenellus* (J.König ex Roxb.) Chiov. - CP(6a, 6b); LH2.  
*Tetrapogon villosus* Desf. - sW(6f, 8).  
*Themeda quadrivalvis* (L.) Kuntze - CP6b; HH(2, 5a, 9).  
*Tragus berteronianus* Schult. - CP4b.  
*Tricholaena teneriffae* (L. f.) Link - CP8a.  
*Urochloa panicoides* P.Beauv. - LH8a; HH9; sW12a; nW18c.  
*Urochondra setulosa* (Trin.) C.E.Hubb. - L(2a, 2c, 3b); CP(2b, 4a, 5a, 10a); sW(13b, 13d).  
POTAMOGETONACEAE  
*Potamogeton nodosus* Poir. - LH9; sW12a.  
TYPHACEAE  
*Typha domingensis* Pers. - nW25b; Wa6 - Syn.: *T. angustata* Bory & Chaub.



## Analysis of the flora

The amount of Families, Genera and Species of the present floristic contribution is reported below:

	<u>Families</u>	<u>Genera</u>	<u>Species</u>
Pteridophyta	5	6	7
Gymnospermae	1	1	1
Dicotyledones	63	256	476
Monocotyledones	14	66	122
<b>Total</b>	<b>83</b>	<b>323</b>	<b>606</b>

The collected species correspond about to 69% of the floristic richness of Dhofar (Ghazanfar, 2003). The twelve families with the highest number of species are: Poaceae (85 taxa), Fabaceae (45), Asteraceae (44), Euphorbiaceae (27), Apocynaceae incl. Asclepiadaceae (25), Acanthaceae (24), Boraginaceae (23), Malvaceae (20), Capparaceae (17), Convolvulaceae (17), Scrophulariaceae (17) and Zygophyllaceae (16).

The floristic list includes taxa found for the first time in Oman (17 taxa) or Dhofar (13 taxa) and 6 species new to science published in previous works: *Desmidorchis tardellii*, *Trichodesma cinereum*, *Nanorrhinum roseiflorum*, *Polygala moggii*, *Orbea nardii* and *Barleria almughsaylensis* (see references cited in the floristic list).

First records from Oman are: *Barleria parviflora*, *Blumea axillaris*, *Echinochloa pyramidalis*, *Euphorbia granulata* var. *granulata*, *Heliotropium steudneri*, *Hildebrandtia somalensis*, *Iphiaea teretifolia*, *Nymphaea nouchali* var. *coerulea*, *Phragmites karka*, *Phoenix caespitosa*, *Poa bulbosa* var. *vivipara*, *Pulicaria gamaledinae*, *Salvadora persica* var. *angustifolia* and var. *cyclophylla*, *Thespesia populnea*, *Tridax procumbens*, *Vernonia cinerascens*.

First records from Dhofar are: *Amaranthus dubius*, *Ceratophyllum submersum*, *Cleome austroarabica* subsp. *muscatensis*, *Cleome scaposa*, *Cyperus bulbosus*, *Echinops spinosissimus*, *Euphorbia serpens*, *Hibiscus micranthus*, *Parietaria alsinifolia*, *Pycnocycla aucheriana*, *Salvia macilenta*, *Senna sophora*, *Tephrosia pentaphylla*.

From the floristic point of view, the south slopes of the coastal mountains, influenced by the SW monsoon, are the most interesting environments in Centre-south Dhofar. Plant richness and endemic taxa are concentrated in this area. The local endemisms (endemisms of Dhofar) are represented by 14 taxa, while the regional endemisms (distributed in Oman/

Dhofar and Yemen) are 35 taxa; in all the percentage of endemisms is about 8,1% of the collected flora.

### Local endemics (Dhofar) - 2,3% of the total flora

*Aerva arthemisioides* subsp. *batharitica*  
*Aloe dhofarensis*  
*Aloe praetermissa* -  
*Barleria almughsaylensis*  
*Desmidorchis tardellii*  
*Dyschoriste dalyi*  
*Echidnopsis scutellata* subsp. *dhofarensis*  
*Kleinia saginata*  
*Lavandula dhofarensis* subsp. *ayunensis*  
*Nanorrhinum roseiflorum*  
*Orbea nardii*  
*Polygala moggii*  
*Portulaca dhofarica*  
*Trichodesma cinereum*

### Regional endemics (Oman/Dhofar & Yemen) - 5,8% of the total flora

*Anogeissus dhofarica* - Dhofar, Yemen (Mahrah region)  
*Becium dhofarensis* - Dhofar, SE Yemen (Mahrah region)  
*Bentia fruticulosa* - Dhofar, Yemen (Hadramaut)  
*Blepharis dhofarensis* - Dhofar, Yemen (Mahrah region)  
*Blepharispermum hirtum* - Dhofar, SE Yemen (Mahrah region)  
*Cleome albescens* subsp. *omanensis* - Dhofar, Yemen (Mahrah region)  
*Desmidorchis adenensis* - Oman, Yemen  
*Desmidorchis flavus* - Oman, Yemen  
*Dhofaria macleishii* - Dhofar, Yemen (Mahrah region)  
*Euphorbia dhofarensis* - Dhofar, SE Yemen  
*Euphorbia orbiculifolia* - Dhofar, SE Yemen  
*Euphorbia smithii* - Dhofar, Yemen (Mahrah region)  
*Exacum arabicum* - Dhofar, S Yemen  
*Fagonia mahrana* - Dhofar, SE Yemen  
*Farsetia dhofarica* - Oman, S Yemen

*Gymnocarpus dhofarensis* - Dhofar, S Yemen  
*Herniaria maskatensis* - Oman, S Yemen  
*Iphiona teretifolia* - Dhofar, Yemen  
*Jatropha dhofarica* - Dhofar, Yemen (Mahrah region)  
*Lavandula dhofarensis* subsp. *dhofarensis* - Dhofar, Yemen (Mahrah region)  
*Leucas dhofarensis* - Dhofar, Yemen (Mahrah region)  
*Maytenus dhofarensis* - Dhofar, SE Yemen  
*Nanorrhops ritchieana* - Dhofar, SE Yemen  
*Ochradenus gifrii* - Dhofar, SE Yemen  
*Orbea luntii* - Dhofar & SE Yemen  
*Ormocarpum dhofarensis* - Dhofar, Yemen (Mahrah region)  
*Pentatropis bentii* - Dhofar, Yemen  
*Polygala dhofarica* - Dhofar, Yemen  
*Pulicaria gamal-eldinae* - Dhofar, S Yemen  
*Pulicaria omanensis* subsp. *omanensis* - Dhofar, Yemen (Mahrah region)  
*Rhytidocaulon fulleri* - Oman, Yemen  
*Scheiwenfurthia latifolia* - Dhofar, S Yemen (Hadramaut)  
*Scheiwenfurthia spinosa* - Dhofar, S Yemen (Hadramaut)  
*Ziziphus leucodermis* - Dhofar, S Yemen  
*Whitania qaraitica* - Dhofar, Yemen (Mahrah region)

From the phytogeographical point of view, most of the plants found in Centre-south Dhofar belong to the Somalia-Masai regional centre of endemism, i.e. to the phytogeographical region (the Somalia-

Masai) that from East Africa spreads north-eastwards to embrace the whole south Dhofar including the coastal plain, the monsoon affected south mountain sides and also the drier mountain slopes facing north (see also Ghazanfar, 1992b, 2003). Only a few species come from the pre-desert and desert environments, which expand north of the coastal mountains. Here the soil is scattered with stones and pebbles and is cut by many wadis draining north towards the Saudi Arabian border. Those species belong to the Saharo-Sindian phytochorion which includes the Arabian-regional subzone that embraces the Centre-north Dhofar and Centre Oman. Here the soil is very dry, only a few species are present and the vegetation is poor and formed by xerophytes and psammophytes. Among the plants sampled in this area there are *Centaurea pseudo-sinaica*, *Lasiurus scindicus*, *Rhazia stricta*, *Suaeda aegyptiaca*, *Fagonia* sp.pl., *Polyacarpea repens*, *Stipagrostis* sp.pl., *Tamarix* sp.pl.

#### Acknowledgements

Thanks are due to the Office of the Adviser for Cultural Affairs, Sultanate of Oman, for the technical and logistic assistance during our missions to Dhofar.- Our thanks also to Dr. Milena Rizzotto who revised the English manuscript.

#### REFERENCES

- ANDERBERG A., 1985 – *The genus Iphiona (Compositae-Inuleae)*. Nordic. J. Bot. 5(2): 169-194.  
 BEENTJE H., 2006 – *Asteraceae*. In: Thulin M. (Ed.), *Flora Somalia*. 3. Royal Botanic Gardens, Kew.  
 BEIER B.-A., 2002 – *Two new unifoliate species of Fagonia (Zygophyllaceae) from the Horn of Africa region, and resurrection of Fagonia subinermis from Iran*. Nordic J. Bot. 21(5): 449-455. (2001)  
 BRUMMIT R.K., POWELL C.E., 1992 – *Authors of plant names*. Royal Botanic Gardens, Kew.  
 BRUYNS V., 1988 – *A revision of the genus Echidnopsis Hook. f. (Asclepiadaceae)*. Bradleya 6: 1-48.  
 CARTER S., LAVRANOS J.J., NEWTON L.E. & WALKER C.C., 2011 – *Aloes. The Definitive Guide*. Royal Botanic Gardens, Kew.  
 COPE T.A., 2007 – *Flora of the Arabian Peninsula and Socotra*. 5(1). Edinburgh University Press.  
 Dahir A.M., 1999 – *Salvadoraceae*. In: Thulin M. (Ed.), *Flora Somalia*. 2. Royal Botanic Gardens, Kew.  
 GAMAL-ELDIN E., 1981 – *Revision der Gattung Pulicaria (Compositae-Inuleae) für Africa, Makaronesien und Arabien*. Phanerogamarum Monographiae, Tomus XIV. J. Cramer Ed. Vaduz.  
 GHAZANFAR S.A., 1992a – *An annotated Catalogue of the Vascular Plants of Oman and their Vernacular Names*. Scripta Botanica Belgica 2: 1-153.  
 GHAZANFAR S.A., 1992b – *Quantitative and biogeographic analysis of the flora of the Sultanate of Oman*. Glob. Ecol. Biogeogr. Letters 2: 189-195.  
 GHAZANFAR S.A., 2003 – *Flora of the Sultanate of Oman. 1 Piperaceae-Primulaceae*. Meise. National Botanic Garden of Belgium. (Scripta Botanica Belgica 25, pp. 262).  
 GHAZANFAR S.A., 2007 – *Flora of the Sultanate of Oman. 2 Crassulaceae-Apiaceae*. Meise. National Botanic Garden of Belgium. (Scripta Botanica Belgica 36, pp. 220).  
 GHAZANFAR S.A., 2010 – *Trichodesma dhofaricum (Bor-*

- aginaceae*), a new species from the Sultanate of Oman. Kew Bulletin 65: 97-100.
- KILIAN N., 1999 – *Studies on the Compositae of the Arabian Peninsula and Socotra - 1. Pulicaria gamal-eldinae sp. nova (Inuleae) bridges the gap between Pulicaria and former Sclerostephane (now sect. Sclerostephane)*. Willdenowia 29: 167-185
- LAVRANOS J.J. & MORTIMER K.V., 1970 – *Rhytidiocaulon fullerii, a new Stapeliad from the Dhofar coast, Muscat and Oman, Southerb Arabia*. Nat. Cact. Succ. Journ. 25(1): 2-4.
- MCKEAN D.R., 1996 – *Nymphaeaceae*. In: MILLER A.G., COPE T.A. (Eds.), *Flora of the Arabian Peninsula and Socotra*. 1. Edinburgh University Press.
- MEVE U. & LIEDE S., 2002 – *A molecular phylogeny and generic rearrangement of the stapelioid Ceratopogonaceae (Apocynaceae-Asclepiadoideae)*. Plant Syst. Evol. 234: 171-209.
- MILLER A.G., 1996 – *Amaranthaceae*. In: MILLER A.G., COPE T.A. (Eds.), *Flora of the Arabian Peninsula and Socotra*. 1. Edinburgh University Press.
- MILLER A.G., 1996 – *Brassicaceae*. In: MILLER A.G., COPE T.A. (Eds.), *Flora of the Arabian Peninsula and Socotra*. 1. Edinburgh University Press.
- MILLER A.G., 1996 – *Menispermaceae*. In: MILLER A.G., COPE T.A. (Eds.), *Flora of the Arabian Peninsula and Socotra*. 1. Edinburgh University Press.
- MILLER A.G., 1996 – *Resedaceae*. In: MILLER A.G., COPE T.A. (Eds.), *Flora of the Arabian Peninsula and Socotra*. 1. Edinburgh University Press.
- MILLER A.G. & MORRIS M., 1988 – *Plants of Dhofar*. The Office of The Adviser for Conservation of the Environment, Diwan of Royal Court, Sultanate of Oman.
- MOSTI S. & RAFFAELLI M., 2004 – *Desmidorchis tardellii (Asclepiadaceae), a new species from Dhofar (Southern Oman)*. Webbia 59(2): 285-291.
- MOSTI S., RAFFAELLI M., 2011 – *Orbea nardii and O. wissmannii var. parviloba are different taxa. Nomenclatural rearrangement in Orbea wissmannii: subsp. wissmannii, stat. nov., subsp. parviloba, stat. nov. and subsp. eremastrum, stat. nov.* Asklepios 110: 13-15.
- MOSTI S., RAFFAELLI M. & TARDELLI M., 2005 – *Le Succulente del Dhofar (Oman meridionale)*. 1. Cactus & Co. vol. 9(4): 218-236.
- MOSTI S., RAFFAELLI M. & TARDELLI M., 2006 – *A contribution to the flora of Wadi Andur (Dhofar, Southern Oman)*. Webbia 61(2): 253-260.
- MOSTI S., RAFFAELLI M. & TARDELLI M., 2008 – *Nanorrhinum roseiflorum (Scrophulariaceae), a new species from Dhofar, Southern Oman*. Webbia 63(2): 49-54.
- MOSTI S., RAFFAELLI M. & TARDELLI M., 2011 – *Flora of Oman: Barleria almughsaylensis (Acanthaceae), a new species from Dhofar (Southern Oman)*. Candollea 66(1): 1-7.
- MOSTI S. & SELVI F., 2007 – *Trichodesma cinereum (Boraginaceae), a new species from Oman*. Candollea 62(2): 205-210.
- PETRUSSESON L. & THULIN M., 1996 – *Gymnocarpos*. In: MILLER A.G., COPE T.A. (Eds.), *Flora of the Arabian Peninsula and Socotra*. 1. Edinburgh University Press.
- PILBEAM J., 2010 – *Stapeliads. A gallery of 686 pictures of all 57 genera of this popular group of succulent plants*. Pp. 207. British Cact. Succ. Soc. Wakefield, UK.
- RADCLIFFE-SMITH A., 1980 – *The vegetation of Dhofar*. In: *Scientific Results of the Oman Flora and Fauna Survey 1977 (Dhofar)*. Jour. Oman Stud. special report no. 2: 58-86.
- RAFFAELLI M., MOSTI S. & TARDELLI M., 2003 – *The Frankincense Tree (Boswellia sacra Flueck., Burseraceae) in Dhofar, southern Oman: field-investigations on the natural population*. Webbia 58(1): 133-149.
- RAFFAELLI M., MOSTI S. & TARDELLI M., 2006 – *Boswellia sacra Flueck. (Burseraceae) in the Hasik area (Eastern Dhofar, Oman)*. Webbia 61(2): 245-251.
- RAFFAELLI M., MOSTI S. & TARDELLI M., 2007 – *Polygala moggii (Polygalaceae), a new species from Oman*. Webbia 62(2): 269-274.
- RAFFAELLI M., MOSTI S. & TARDELLI M., 2008 – *Apocynaceae from Oman: Orbea nardii, sp. nov.; Orbea luntii and Pentatropis bentii, first finding*. Webbia 63(2): 161-167.
- RAFFAELLI M., TARDELLI M. & MOSTI S., 2003 – *The Wadi Doka Frankincense Park in Dhofar, Oman. First steps towards the safeguard and improvement of Boswellia sacra (Burseraceae)*. Centro Studi Erbario Tropicale, Università di Firenze, pubbl. n. 93.
- THULIN M., 1993 – *Zygophyllaceae*. In: THULIN M. (Ed.), *Flora Somalia*. 1. Royal Botanic Gardens, Kew.
- THULIN M., 2001 – *Exacum (Gentianaceae) on the Arabian peninsula and Socotra*. Nordic J. Bot. 21: 243-247.
- THULIN M., AL.GIFRI A., HUSSEIN M.A. & GABALI S., 2001 – *Addition to the Yemen Flora - In: FRIIS IB, RYDING O. (Eds), Biodiversity Research in the Horn of Africa Region*. Proceedings of the Third International Symposium on the Flora of Ethiopia and Eritrea at the Carlsberg Academy, Copenhagen, August 25-27, 1999. (Biologiske Skrifter 54: 137-153).
- WARFA A.M., 1990 – *Taxonomy and distribution of Cordia sinensis and C. nevillii (Boraginaceae), a widespread species pair in Africa and Asia*. Nordic J. Bot. 9: 649-656.
- WOOD J.R.I., 1997 – *A handbook of the Yemen Flora*. Royal Botanic Garden, Kew.

**Summary:** From 2000 to 2009 we carried out 10 scientific missions to Central-Southern Dhofar with the aim of collecting plants. We explored several habitats, such as littorals and seashores, coastal plains and many wadis ending in the Arabian sea (from Rackhyt, Al Mughsayl, Salalah, Khor Rori, Mirbat, Hadbin up to Hasik). We paid particular attention to the floristic exploration of the monsoon slopes of the coastal mountains (with special reference to Jabal Qara) where plant richness and endemic taxa are mostly concentrated. Plants were also collected on the upper part of Jabal Samhan, the highest mountain of Dhofar, in the pre-desertic area of Wadi Andur, beyond Jabal Samhan and in several areas where, nowadays, large groups of *Boswellia sacra*, the frankincense tree, grow, i.e. Al Mughsayl, Adownib, Aluf, Uyun, Wadi Dowkah and Hasik. Sporadic explorations were carried out on the vast pre-desertic area that, from Thumrayt, spreads northward to the Saudi Arabia border, from Muddy, Al Mathafah, Ginan Bin Nawatish to Shisr (the ancient Ubar), Sayh al Kharyat and Dawkah.

The number of explored sites (233) was large enough to have exhaustive information on the local distribution of the species. The collected taxa are 606; 17 of them are first records from Oman, 13 are first record from Dhofar. As regards endemics, 14 taxa are endemic to Dhofar, while 35 are regional endemics, distributed in Oman/Dhofar & Yemen; most of these are concentrated on the monsoon slopes of the coastal mountains.

