

# Studies on the flora of Jordan : 3. On the flora of the vicinity of the Aqaba gulf

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## Studies on the flora of Jordan

### 3. On the flora of the vicinity of the Aqaba gulf

LOUTFY BOULOS & JAMIL LAHHAM

#### Résumé

Boulos, L. & J. Lahham (1977). Etude de la flore de Jordanie 3. Flore des environs du golfe d'Aqaba. *Candollea* 32: 73-80. En anglais.

Les auteurs énumèrent 91 espèces d'Angiospermes (dont quelques rudérales et 3 espèces marines) qu'ils ont récoltées au sud du port d'Aqaba en 1973, 1975 et 1976, en y joignant à l'occasion des remarques d'écologie, de phénologie et de répartition.

#### Abstract

Boulos, L. & J. Lahham (1977). Studies on the flora of Jordan 3. On the flora of the vicinity of the Aqaba Gulf. *Candollea* 32: 73-80. French abstract.

The authors enumerate 91 Angiosperm species (including a few weeds and 3 marine species) mostly collected by themselves in the area S. of Aqaba Port in the years 1973, 1975 and 1976. Occasional notes on ecology, phenology and distribution are added.

This study is based on collections made during three visits to the region bordering the Gulf of Aqaba within Jordan, which stretches about 22 km S. of Aqaba Port to the Saudi Arabian frontier. The area covered comprises the wadis and their tributaries up to about 2 km eastward from the shore. These wadis cross Precambrian granitic rocks that are a part of the Arabian Shield. The wadis narrow as they penetrate eastward and widen broadly toward the Gulf.

The mean annual rainfall in Aqaba Port is 42 mm, and is most erratic. For example, in 1975 there were 65.7 mm in 24 hours during February, and only 10 mm from September 1974 through September 1975, excluding February 1975. The rain was scarce during January-April 1976, which was directly reflected in the ephemeral vegetation, and consequently very few annuals were observed.

The mean maximum air temperature during July and August is 36.7°C, while the mean minimum air temperature is 11.8°C during January.

The prevailing winds are northeast (95%), and are dry; south winds (5%) are humid.

Weeds in the cultivated and waste ground in the town of Aqaba were not studied, with the exception of a few species around the Aqaba Hotel. The present list is

subject to extension through further studies, and the authors are not pretending to give a full account here of the flora of the above-mentioned region. Specimens of all the numbered collections, as well as those without numbers, collected by Dr. Neil Hulings, Dr. Richard Hauke, and Mr. James Hemsley, are deposited in the Herbarium, Faculty of Science, University of Jordan, Amman. Duplicates were distributed to the following herbaria: AAU, ATH, ATHU, BM, C, CAI, E, ELVE, G, H, LD, RNG, S and ZT.

The following is a list of the localities from which collections were made:<sup>1</sup>

- 5375-5388: Aqaba, near Aqaba Hotel, 22.3.1973, *B.*  
 5389-5420: c. 5 km S.E. of Aqaba, 22.3.1973, *B.*  
 7379-7407: wadi close to Saudi Arabian frontier, 22 km S. of Aqaba, 20.3.1975, *B. & J.*  
 7408-7436: wadi facing site of Marine Biological Station, c. 8 km S. of Aqaba, 20.3.1975, *B. & J.*  
 7437-7444: 11 km S. of Aqaba, midway Aqaba—Saudi Arabian frontier, 20.3.-1975, *B. & J.*  
 8512-8544: wadi facing Marine Biological Station, 8 km S. of Aqaba, 30.4.1976, *B. & L.*

The species are arranged alphabetically after their related genera and families. The numbers refer to the localities from which the specimens were collected. The abbreviations used in the text are:

- fl. = flowering specimen  
 fr. = fruiting specimen  
 ster. = sterile specimen, without flowers or fruits  
 s.n. = without number.

#### *Acanthaceae*

**Blepharis ciliaris** (L.) B. L. Burtt  
 = *B. edulis* (Forsskål) Pers.

8541 (fl.). Dominant in small patches in wadis and on cliffs.

#### *Aizoaceae*

**Aizoon canariense** L.

5389 (fr.) – 7391 (seedling, fl.).

**Mesembryanthemum forskalii** Hochst.  
 ex Boiss.

5405 (fl.).

#### **Trianthema pentandra** L.

5408 (fl., fr.).

#### *Amaranthaceae*

**Aerva persica** (Burm. fil.) Merr.

5407 (fl.). A Sudanian element apparently known from the hot deserts of Jordan. Zohary (1973: 241), lists this and other species among the Sudanian shrubs represented in the flora of Egypt.

<sup>1</sup>Collectors' names are abbreviated as follows: *B.* = L. Boulos; *J.* = W. Jallad; *L.* = J. Lahham.

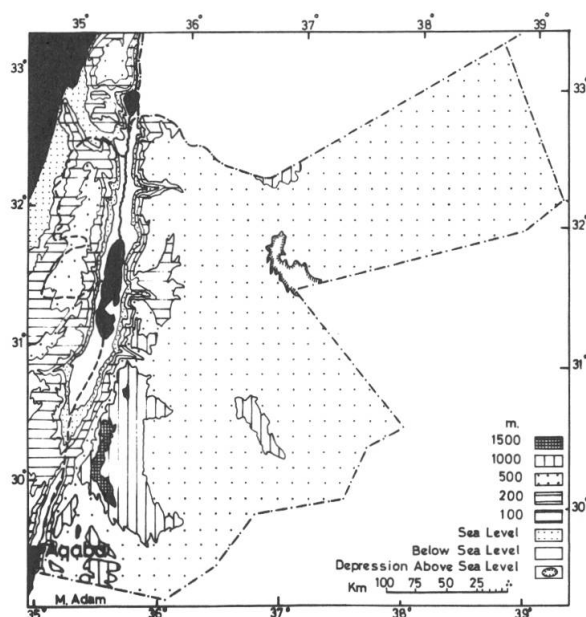


Fig. 1. – Map of Jordan showing Aqaba Port.

*Asclepiadaceae*

*Pergularia tomentosa* L.

5392 (fl., fr.) – 8536 (fl.).

*Boraginaceae*

*Echium judaeum* Lacaita

5418 (fl.).

*Heliotropium arbainense* Fresen.

7419A (fl.) – 8523 (fl.). Flowers yellow, fading white.

*Heliotropium ramosissimum* (Lehm.) DC.

7386 (fl., fr.) – 7419B (fl.) – 8527 (fl., fr.). Flowers white.

*Trichodesma africanum* (L.) R. Br. var. *heterotrichum* Bornm. & Kn.

Wadi facing Marine Biological Station, 8 km S. of Aqaba, 20.4.1976, *Hemsley, s.n.* (fl.).

*Caryophyllaceae*

*Polycarpha repens* (Forsskål) Ascher-son & Schweinf.

5413 (fl., fr.) – 8520 (fl., fr.). Common in the wadi beds.

*Robbireia delileana* Milne-Redhead

8530 (fl.). Common in sandy soils and wadi beds.

*Chenopodiaceae*

*Bassia muricata* (L.) Murr.

5375 (fl., fr.).

**Chenopodium murale** L.

5376 (fl., fr.) – 7434 (fl., fr.)

**Haloxylon salicornicum** (Moq.) Bunge  
ex Boiss.= *Hammada salicornica* (Moq.) Iljin5380 (ster.) – 7404 (ster.) – 8544  
(ster.). Dominant shrub in the wadis,  
often with insect galls.**Suaeda monoica** Forsskål ex J. F.  
Gmelin

5386 (ster.).

*Cleomaceae***Cleome amblyocarpa** Barratte & Murb.  
= *C. africana* Botsch.

8532 (fl., fr.).

**Cleome arabica** L.= *C. trinervia* Fresen.

8513 (fl., fr.).

**Cleome droserifolia** (Forsskål) Delile5393 (fr.) – 7435 (ster.). The  
plant was observed in flower, 30.4.-  
1976, but was not collected.

The genus *Cleome* L. is represented in Jordan by the above three species. Zohary (1966), applied different specific names to the first two species. Täckholm & Boulos (1974), Täckholm (1974), followed the nomenclature introduced by Bočancev (1964). Kers (1966), also deals with the nomenclature of this group. However, Hedge & Lamond (1970) apply a different nomenclature to the first species, which is followed here.

*Compositae***Aaronsohnia faktorovskyi** Warburg &  
Eig

5397 (fl., fr.).

**Asteriscus graveolens** Less.

8522 (fl.).

**Atractylis carduus** (Forsskål) Christen-  
sen

8533 (fl., fr.).

**Centaurea pallescens** Delile

5419 (fl.).

**Filago** sp.

5396 (fl.).

**Iphiona scabra** DC.

8514 (fl., fr.).

**Launaea capitata** (Sprengel) Dandy

7409 (fl., fr.).

**Launaea mucronata** (Forsskål) Musch-  
ler

8537 (fl., fr.).

**Launaea nudicaulis** (L.) Hooker fil.

7385 (fl.) – 7411 (fl., fr.). Four species of *Launaea* Cass. are known from Jordan: the above-mentioned, and *L. spinosa* (Forsskål) Schultz Bip. The latter species is recorded from the desert N.E. of Aqaba (Boulos & Lahham 1977), and should be looked for in our area.

**Pulicaria undulata** (L.) Kostel.

7433 (fl., fr.).

**Senecio flavus** (Decne) Schultz Bip.

5394 (fl., fr.).

**Sonchus oleraceus** L.

5378 (fl., fr.).

*Convolvulaceae***Cressa cretica** L.

5382 (ster.).

*Cruciferae***Diplotaxis harra** (Forsskål) Boiss.

7427 (fl.) – 7379 (fl., fr.).

**Eremobium aegyptiacum** (Sprengel)  
Ascherson & Schweinf. ex Boiss.

7394 (fl.).

**Farsetia aegyptia** Turra

7389 (fl., fr.).

**Morettia parviflora** Boiss.7400 (fl., fr.) – 7420 (fl.) – 8518  
(fl.).**Zilla spinosa** (Turra) Prantl5411 (fl., fr.) – 7387 (fl., fr.) –  
7421 (fl., fr.). Common shrub.*Cucurbitaceae***Citrullus colocynthis** (L.) Schrader

7441 (fl., fr.) – 8531 (ster.).

**Cucumis prophetarum** L.5404 (fr.) – 7399 (fl.) – 7429  
(ster.) – 8529 (fl., fr.).*Cymodoceaceae***Halodule uninervis** (Forsskål) Ascher-  
son= *H. australis* Miq.= *Diplanthera uninervis* (Forsskål) Wil-  
liam6 km S. of Aqaba Port, in a reef  
lagoon, depth 50 cm, 21.3.1975,  
*Hulings s.n.* (ster.).*Cyperaceae***Cyperus conglomeratus** Rottb.

5189 (fl., fr.) – 7388 (fl.).

*Euphorbiaceae***Andrachne aspera** Sprengel

5395 (fl., fr.) – 7408 (fl., fr.).

**Chrozophora oblongifolia** (Delile) A.  
Juss.

5409 (fl.).

**Euphorbia chamaepeplus** Boiss. & Gaill.

8524 (fl., fr.).

*Geraniaceae***Erodium oxyrrhynchum** M.B.= *E. bryoniaefolium* Boiss.5415 (fl., fr.). Davis (1967: 477),  
treats the above two epithets as con-  
specific. Zohary (1972: 234), considers  
them as two different taxa.**Monsonia nivea** (Decne) Decne ex Webb7381 (fl., fr.) – 7436 (fl., fr.) –  
8517 (fl., fr.).*Gramineae***Astenatherum forsskalii** (Vahl) Nevski  
= *Danthonia forsskalii* (Vahl) R. Br.7440 (ster.) – 8521 (ster.). Over-  
grazed by sheep and goats.**Cynodon dactylon** (L.) Pers.

5377 (fl.).

**Imperata cylindrica** (L.) Beauv.

5385 (fl., fr.).

**Panicum turgidum** Forsskål

5410 (fl., fr.) – 7426 (fl., fr.) –  
7442 (fl., fr.) – 8543 (fl., fr.).

**Polypogon monspeliensis** (L.) Desf.

5381 (fl.).

**Schismus barbatus** (L.) Thell.

= *S. arabicus* Nees

7384 (fl.).

**Stipagrostis plumosa** (L.) Munro ex T. Anders.

= *Aristida plumosa* L.

7406 (fl.) – 7439 (fl.) – 8519 (fl.).

*Hydrocharitaceae***Halophila ovalis** (R. Br.) Hooker fil.

6 km S. of Aqaba Port, in a reef lagoon, depth 50 cm, 21.3.1975, *Hulings*, s.n. (ster.).

**Halophila stipulacea** (Forsskål) Ascher-son

Just offshore from Aqaba Hotel, sandy bottom, subtidal zone, 15.11.1973, *Hauke*, s.n. (ster.). – 6 km S. of Aqaba Port, in a reef lagoon, depth 50 cm, 21.3.1975, *Hulings*, s.n. (ster.).

*Labiatae***Lavandula pubescens** Decne

7403 (fl.).

**Lavandula stricta** Delile

8540 (fl.).

**Salvia aegyptiaca** L.

7382 (fl.) – 8516 (fl., fr.).

*Leguminosae***Acacia raddiana** Savi

= *A. tortilis* (Forsskål) Hayne subsp. *raddiana* (Savi) Brenan

7424 (fr.) – 8539 (fr.). Tree, leaves and fruits glabrous.

**Acacia tortilis** (Forsskål) Hayne

= *A. spinocarpa* Hochst. ex A. Richard

7407 (fr.) – 8542 (fr.). Shrubby, leaves and fruits pubescent.

**Alhagi mannifera** Desv.

= *A. maurorum* Medicus, p.p.

5383 (fl.).

**Astragalus acinaciferus** Boiss.

7412 (fl.).

**Cassia italica** (Miller) Lam. ex Steudel  
= *C. obovata* Collad

5391 (fl., fr.) – 7425 (fl., fr.) –  
7443 (fl., fr.) – 8538 (fl., fr.). Shrub-  
let in wadi beds and open runoffs, com-  
mon.

**Lotononis platycarpa** (Viv.) Pichi-Ser-  
mulli

7416 (fl., fr.).

**Tephrosia apollinea** (Delile) Link

5417 (fl., fr.) – 7418 (fl., fr.) –  
8525 (fl., fr.). Shrub, especially com-  
mon in wadi mouths.

*Liliaceae***Asphodelus tenuifolius** Cav.

5416 (fl., fr.) – 7428 (fl., fr.). Fre-  
quent annual in alluvial soils and run-  
offs of wadis, usually abundant in  
small patches.

**Dipcadi erythraeum** Webb & Berth.

7398 (fl.).

*Neuradaceae***Neurada procumbens** L.

7292 (seedlings).

*Palmae***Hyphaene thebaica** (L.) Mart.

Recorded from Aqaba, near Aqaba Hotel, one grove in waste land.

**Phoenix dactylifera** L.

Recorded from Aqaba, common seminaturalized tree.

*Polygonaceae***Emex spinosa** (L.) Campd.

5387 (fl., fr.).

**Rumex cyprius** Murb. emend. Sam.

5398 (fl., fr.).

*Resedaceae***Caylusea hexagyna** (Forsskål) M. L.

Green

= *C. canescens* (L.) St-Hil.

7383 (fl., fr.).

**Ochradenus baccatus** Delile

5406 (fl., fr.) – 7402 (fl., fr.) – 7423 (fl., fr.).

**Reseda muricata** C. Presl

5414 (fl., fr.) – 7397 (fl., fr.).

*Rutaceae***Haplophyllum tuberculatum** (Forsskål) A. Juss.

5401 (ster.).

*Scrophulariaceae***Kickxia acerbiana** (Boiss.) Täckh. & Boulos

7414 (fl.)

**Kickxia spartioides** (Brouss. ex Buchenau) Janchen

7437 (fl.) – 8512 (fl.).

**Scrophularia deserti** Delile

5402 (fl.) – 7410 (fl.).

*Solanaceae***Lycium shawii** Roemer & Schultes = *L. arabicum* Schweinf. ex Boiss.

7422 (fl., fr.).

*Urticaceae***Forsskaolea tenacissima** L.

4503 (fl.) – 7380 (ster.) – 7431 (seedlings).

**Parietaria alsinifolia** Delile

5399 (fl.).

*Zygophyllaceae***Fagonia bruguieri** DC.

7401 (fl., fr.) – 7417 (fl.) – 7438 (fl.) – 8528 (fl., fr.). Common spiny shrublet in wadi beds.

**Fagonia glutinosa** Delile var. **grandiflora** Boiss.

7390 (ster.) – 7415 (fl.).

**Fagonia mollis** Delile var. **mollis**

5390 (fl., fr.) – 7395 (fl., fr.) – 8526 (fl., fr.) – 8535 (fl., fr.). The last two numbers represent two different forms of the same variety.



**Nitraria retusa** (Forsskål) Ascherson

5383 (fl., fr.).

**Seetzenia lanata** (Willd.) Bullock= *S. orientalis* Decne

7413 (fl., fr.) – 8515 (fl., fr.). According to El Hadidi (1972), this species was not previously recorded from Jordan. However, it was known from Arabia, and our locality is very close to the Saudi Arabian border.

**Tribulus longipetalus** Viv.

7405 (fl., fr.) – 8534 (fr.). Flowers creme-yellow.

**Zygophyllum album** L. fil.

5379 (fl., fr.).

**Zygophyllum simplex** L.

5400 (fl., fr.) – 7393 (ster.) – 7444 (seedlings).

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