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Studies on the flora of Jordan 6. On the flora of Ras en Naqb

LOUTFY BOULOS & DAWUD AL-EISAWI

Résumé

Boulos, L. & D. Al-Eisawi (1977). Etude de la flore de Jordanie 6. Flore de Ras en Naqb. *Candollea* 32: 111-120. En anglais.

Les auteurs énumèrent 137 espèces d'Angiospermes récoltées de 1974 à 1976 dans la région montagneuse de Ras en Naqb, dont les particularités floristiques et phytogéographiques sont soulignées.

Abstract

Boulos L. & D. Al-Eisawi (1977). Studies on the flora of Jordan 6. On the flora of Ras en Naqb. *Candollea* 32: 111-120. French abstract.

The authors enumerate 137 Angiosperm species collected in the years 1974-1976 in the mountain area of Ras en Naqb, whose particular floristic and phytogeographical interest is pointed out.

The present tentative study is based on several short visits to Ras en Naqb, and cannot be considered an extensive investigation. Collections were made along the Aqaba-Amman Highway, or from the slopes in its vicinity. The purpose of presenting this list is to encourage future study of this most interesting area. Floristic, ecological, and phytogeographical research on Ras en Naqb will no doubt reveal many stimulating results. Boulos & al. (1975) drew attention to the importance of the Ras en Naqb area through the discovery of *Thalictrum isopyroides* C. A. Meyer there. Other interesting elements such as *Biebersteinia multifida* DC., *Tulipa polychroma* Stapf, *Iris palaestina* Boiss., *Atraphaxis spinosa* L. var. *sinaica* (Jaub. & Spach) Boiss., *Scorzonera tortuosissima* Boiss., *Pyrethrum santolinoides* DC., etc., are found almost nowhere in Jordan except at Ras en Naqb.

Ras en Naqb lies at latitude 30°N and longitude 35°30'E. The highest point is 1650 m above sea level, near Ras en Naqb Rest House. The mean annual rainfall is 146.5 mm. In addition to this adequate rainfall (in the middle of a more arid zone), numerous seepages from different exposed rocks contribute further to the luxuriant and variable vegetation characterizing our area.

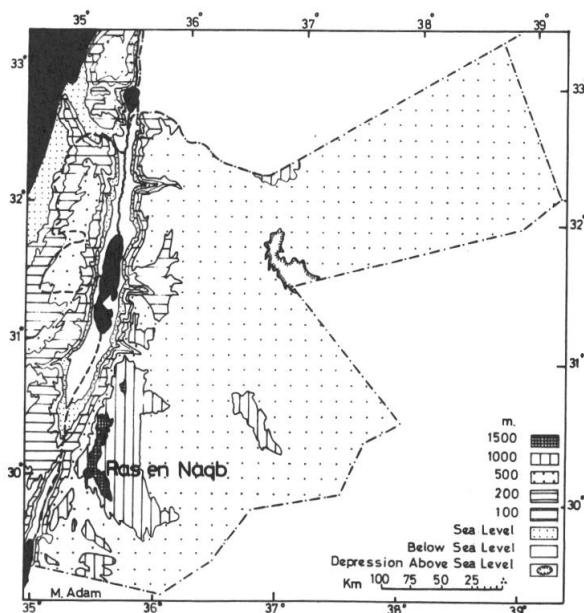


Fig. 1. — Map of Jordan showing Ras en Naqb.

The mean maximum air temperature is 26.8°C, in July; while the mean minimum air temperature is 1.9°C, in January.

The geomorphic pattern of the area is mainly sculptured by landslides and rill wash. Generally speaking, the rock units belong to the Lower and Upper Cretaceous ages. They consist of sandstones, limestones, dolomites, marls, chalks, and shales.

The area is a part of the Ras en Naqb tectonic escarpment which exposes the present Cretaceous sedimentary sequence in stripes striking N.W.—S.E. Due to its hydrological and topographical nature, Ras en Naqb functions as a watershed area for El Jafr Basin in the N.E. and for Wadi 'Araba to the W. The groundwater is deep, exceeding 100 m. The soil is yellow-Mediterranean to yellow-steppe, and the parent rock lies at an average of 50 cm below the soil.

206 numbers were collected by the authors and others from Ras en Naqb during the springs of 1974-1976. The species recorded number 137 and are related to 31 families, of which the largest are: *Compositae*, represented by 24 species; *Cruciferae*, 18 species and *Leguminosae*, 10 species.

The following is a list of the localities from which collections were made:

5991-6004: 1-3 km S. of Ras en Naqb, 12.3.1974, *B., A-E. & J.*¹

149-151: *idem, J.*

¹Collectors' names are abbreviated as follows: *A-E.* = D. Al-Eisawi; *A-H.* = M. A. Abu-Hmaidan; *B.* = L. Boulos; *J.* = W. Jallad; *L.* = J. Lahham; *Q.* = M. Qumsiyeh; *T.* = M. Z. Tarabeih.

- 6219-6238: 5 km S. of Ras en Naqb, in white sand, 14.3.1974, *B., A-E. & J.*
 182-188: idem, *J.*
 6534-6566: slopes 1 km S.E. of Ras en Naqb, 4.4.1974, *B., J. & L.*
 113-114: idem, *L.*
 294-300: idem, *J.*
 7335-7347: Ras en Naqb, 19.3.1975, *B. & J.*
 7348-7378: 1-4 km S. of Ras en Naqb, 19.3.1975, *B. & J.*
 37-41: idem, *T.*
 7795: 5 km N. of Ras en Naqb, 25.3.1975, *B. & L.*
 7796-7801: 5 km S. of Ras en Naqb, 25.3.1975, *B., L. & A-H.*
 7803-7805: 1-2 km S. of Ras en Naqb, 4.4.1975, *B. & J.*
 7806-7807: Ras en Naqb, near the Rest House, 4.4.1975, *B. & J.*
 8490-8511: c. 3 km S. of Ras en Naqb, 1350 m, 29.4.1976, *B.*
 8546-8583: 3-4 km S. of Ras en Naqb, 1300-1400 m, 1.5.1976, *B., A. & Q.*

Specimens of the above-mentioned collections are deposited in the Herbarium, Faculty of Science, University of Jordan, Amman, Jordan. Duplicates were distributed to the following herbaria: B, BR, CAI, G and K.

The following is an alphabetically arranged list of the families, with the genera and species related to them. 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.

<i>Amaryllidaceae</i>	<i>Anchusa aegyptiaca</i> (L.) DC.
<i>Ixiolirion tataricum</i> (Pallas) Herbert	6543 (fl., fr.). Flowers pale yellow.
8490 (fl.). Flowers blue.	
<i>Boraginaceae</i>	<i>Arnebia macrocalyx</i> (Cosson & Kralik) Boulos
<i>Alkanna orientalis</i> (L.) Boiss.	6540 (fl.). Flowers yellow.
7363 (fl., fr.) – 7805 (fl., fr.) – 8573 (fl., fr.). Flowers orange-yellow.	<i>Buglossoides arvensis</i> (L.) I. M. Johnston subsp. <i>gasparrinii</i> (Heldr. & Guss.) R. Fernandes = <i>Lithospermum incrassatum</i> Guss.
<i>Alkanna tinctoria</i> Tausch	6551A (fl.). Delicate small annual with blue flowers.
6226 (fl., fr.) – 7347 (fl.). Flowers with blue limb and yellow throat.	

Echiochilon fruticosum Desf.

6230 (fl.). Flowers blue.

Gastroctyle hispida (Forsskål) Bunge

6554 (fl., fr.). Flowers violet, small.

Nonea philistaea Boiss.6538 (fl., fr.) – 7345 (fl., fr.) –
7807 (fl., fr.). Flowers creamy-yellow.**Paracaryum rugulosum** (DC.) Boiss.6558 (fl.) – 7804 (fl., fr.). Peren-
nial herb with brownish-violet flowers.*Caryophyllaceae***Gymnocarpos decandrum** Forsskål

6000 (ster.) – 8579 (fl.).

Gypsophila arabica Barkoudah8552 (fl.). Flowers white with pink-
ish stripes.**Gypsophila viscosa** Murray

41 (fl.).

Holosteum glutinosum (M.B.) Fischer
& C. A. Meyer37 (fl., fr.) – 6545 (fl., fr.). Flowers
white.**Minuartia meyeri** (Boiss.) Bornm.

6553 (fr.).

Minuartia picta (Sibth. & Sm.) Bornm.39 (fl.). Small delicate annual with
pale mauve flowers.**Paronychia sinaica** Fresen.

40 (fl., fr.).

Silene conoidea L.

38 (fl.) – 6557 (fl.).

*Chenopodiaceae***Anabasis articulata** (Forsskål) Moq.

7358 (ster.).

Bassia muricata (L.) Murray6221 (fl.) – 7798 (fl.) – 8560
(fl., fr.).**Halogenon alopecuroides** (Delile) Moq.

8568 (ster.).

Noaea mucronata (Forsskål) Ascher-
son & Schweinf.

6238 (ster.).

Salsola vermiculata L. var. *villosa* (De-
lile ex Roemer & Schultes) Moq.

6001 (ster.).

*Cistaceae***Fumana thymifolia** (L.) Spach

6232 (ster.).

Helianthemum vesicarium Boiss.6549 (fl.) – 7806 (fl.) – 8503 (fl.).
Flowers mauve.*Compositae***Achillea santolina** L.

7359 (fl.) – 8504 (fl.).

Artemisia inculta Delile

8509 (ster.).

Artemisia monosperma Delile6229 (old fr.). This species is rare
in Jordan; see Boulos & Lahham
(1977).**Astropterys leyseroides** (Desf.) Rothm.

8582 (fl., fr.).

- Atractylis mutica** C. C. Townsend
6561 (fl.) – 8576 (fl., old fr.).
- Centaurea ammocyanus** Boiss.
8500 (fl.).
- Centaurea eryngioides** Lam.
6003 (fl., fr.) – 6234 (fl., fr.) –
8558 (fl.).
- Centaurea scoparia** Sieb.
8583 (old fr.).
- Centaurea** sp.
8548 (fl.).
- Echinops viscosus** DC.
8564 (fl.).
- Geropogon glabrum** L.
8574 (fl., fr.).
- Gymnarrhena micrantha** Desf.
7801 (fl., fr.) – 8495 (fl.).
- Jasonia montana** (Vahl) Botsch.
= *Varthemia montana* (Vahl) Boiss.
7376 (ster.) – 8547 (ster., old fr.).
- Koelpinia linearis** Pallas
8506 (fl., fr.).
- Lactuca undulata** Ledeb.
8502 (fl., fr.).
- Onopordum heteracanthum** C. A. Meyer
8580 (fl.).
- Pyrethrum santolinoides** DC.
5999 (ster.).
- Scorzonera mollis** M.B.
6544 (fl., fr.). Flowers yellow.
- Scorzonera papposa** DC.
7799 (fl.). Flowers mauve and smelling like *Vanilla*.
- Scorzonera pseudolanata** Grossh.
7343 (fl.) – 7797 (fl., fr.). Flowers yellow.
- Scrozonera tortuosissima** Boiss.
8554 (fl., fr.). Flowers yellow, stem leafless.
- Senecio coronopifolius** Desf.
6539 (fl., fr.).
- Tragopogon collinum** DC.
6542 (fl.). Flowers mauve, smelling like *Vanilla*.
- Tragopogon** sp.
7352 (fl.). Flowers mauve.
- Crassulaceae*
- Umbilicus intermedius** Boiss.
5998 (ster.).
- Cruciferae*
- Aethionema carneum** (Banks & Sol.) Fedtsch.
300 (fl., fr.).
- Alyssum damascenum** Boiss. & Gaill.
7365 (fr.).
- Alyssum linifolium** Stephan ex Willd.
7344 (fl., fr.).
- Alyssum marginatum** Steudel ex Boiss.
298 (fl., fr.).
- Biscutella didyma** L.
295 (fl., fr.).

Brassica tournefortii Gouan		<i>Cuscutaceae</i>
184 (fl., fr.).		
Cardaria draba (L.) Desv.		Cuscuta planiflora Ten.
7364 (fl., fr.).	6562 (ster.).	
Clypeola aspera (Grauer) Turril		<i>Cyperaceae</i>
297 (fl., fr.) – 7367 (fl., fr.).		
Descurainia sophia (L.) Webb ex Prantl		Carex stenophylla Wahlenb.
7341 (fl., fr.).	6566 (fl., fr.) – 7354 (fl.).	
Diplotaxis harra (Forsskål) Boiss.		<i>Dipsacaceae</i>
150 (fl., fr.) – 187 (fl., fr.) – 294 (fl., fr.) – 7348 (fl., fr.) – 8508 (fl., fr.) – 8566 (fr.).	8563 (fl.).	Pterocephalus pulverulentus Boiss.
Erucaria boveana Cossion		
296 (fl., fr.).		Scabiosa porphyroneura Blakelock
Farsetia aegyptia Turra		8561 (fl., fr.).
185 (fl.) – 188 (fl.).		<i>Euphorbiaceae</i>
Leptaleum filifolium (Willd.) DC.		Euphorbia chamaepeplus Boiss. & Gaill.
7366 (fl., fr.).	113 (fl., fr.).	
Lobularia libyca (Viv.) Webb & Berth.		Euphorbia hierosolymitana Boiss.
299 (fl., fr.).	114 (fl.).	
Malcolmia africana (L.) R. Br.		<i>Geraniaceae</i>
151 (fl.) – 7346 (fl., fr.) – 7357 (fl., fr.) – 8569 (fl., fr.).		Biebersteinia multifida DC.
Schimpera arabica Hochst. & Steudel ex Boiss.		7377 (fl.).
182 (fl.) – 7368 (fl., fr.).		Erodium ciconium (L.) L'Hér.
Stigmella longistyla Eig		8505 (fl., fr.).
183 (fl., fr.).		Erodium hirtum Willd.
Zilla spinosa (Turra) Prantl		5994 (fl.) – 7800 (fl., fr.) – 8546 (fl., fr.).
149 (fr.) – 186 (fl., fr., seedlings).		Erodium laciniatum (Cav.) Willd. var. <i>laciniatum</i>
		8572 (fl., fr.).
		Geranium tuberosum L.
	7349 (fl.).	

- Gramineae*
- Ammochloa palaestina** Boiss.
7371 (fl.).
- Boissiera squarrosa** (Banks & Sol.) Nevski
8489 (fl., fr.).
- Bromus danthoniae** Trin.
8491 (fl., fr.).
- Cutandia dichotoma** (Forsskål) Trabut
8565 (fl.).
- Eremopyrum distans** (C. Koch) Nevski
8493 (fl.).
- Parapholis marginata** Runemark
6220 (fl.).
- Poa bulbosa** L.
7336 (fl.) – 7374 (fl.).
- Stipa hohenackerana** Trin. & Rupr.
8577 (fl., fr.).
- Iridaceae*
- Iris palaestina** Boiss.
5991 (fl.) – 7337 (fl.) – 7375 (fl.)
– 8571 (fr.). Flowers greenish-yellow.
- Labiatae*
- Ajuga chia** (Poiret) Schreber
7351 (fl.).
- Lallemandia iberica** (M.B.) Fischer &
C. A. Meyer
6563 (fl.) – 7796 (fl., fr.).
- Phlomis brachyodon** (Boiss.) Zoh.
8553 (fl.).
- Salvia lanigera** Poiret
6228 (fl.) – 7356 (fl.).
- Salvia palaestina** Bentham
8549 (fl., fr.).
- Salvia pinardii** Boiss.
8494 (fl., fr.).
- Ziziphora tenuior** L.
7369 (fl.). Flowers pink.
- Leguminosae*
- Astragalus ancistrocarpus** Boiss. &
Hausskn.
6002 (fl.) – 7340 (fl.) – 7360 (fl.).
Flowers purple-red.
- Astragalus caprinus** L. subsp. *lanigerus*
(Desf.) Maire
7338 (fl.). Flower with greenish-yellow petals and reddish calyx.
- Astragalus sanctus** Boiss.
7355 (fl.) – 8575 (fr.).
- Astragalus cf. sieberi** DC.
6219 (fl.). Flowers greenish-yellow.
- Astragalus tribuloides** Delile var. *tribuloides*
8581 (fr.).
- Astragalus** sp.
8550 (fr.).
- Ononis natrix** L.
6235 (fl.) – 8551 (fl., fr.).
- Onobrychis ptolemaica** (Delile) DC.
6237 (fl.) – 7373 (fl.). Petals yellow, with reddish-brown stripes.

Retama raetam (Forsskål) Webb & Berth.

5996 (fl., fr.) – 6231 (fl.) – 6535 (fl.) – 8501 (fr.).

Trigonella stellata Forsskål
8562 (fl., fr.).

Leonticaceae

Leontice leontopetalum L.

6536 (fl., fr.).

Liliaceae

Asparagus stipularis Forsskål

6227 (ster.) – 6564 (fl.).

Asphodeline lutea (L.) Reichenb.

5992 (fl.) – 6225 (fl.) – 6537 (fl., fr.) – 8494 (fl.) – 8557 (fr.).

Bellevalia stepporum Feinbrun
6559 (fl.).

Colchicum ritchii R. Br.

6233 (fl.).

Gagea reticulata (Pallas) A. & H. Schulthes

6224 (fl.) – 6565 (fl.) – 7342 (fl.).
Flowers yellow.

Leopoldia sp.

6534 (fl.).

Ornithogalum umbellatum L.
7362 (fl.).

Tulipa polychroma Stapf
6552 (fr.) – 7361 (fl., fr.).

Linaceae

Linum mucronatum Bertol.

6546 (fl.) – 8497 (fl.). Flowers yellow.

Papaveraceae

Glaucium arabicum Fresen.

6556 (fl.) – 8499 (fl., fr.). Flowers orange-red.

Glaucium grandiflorum Boiss. & Huet
var. *judaicum* (Bornm.) Sam. ex Rech. fil.

7350 (fl., fr.).

Plantaginaceae

Plantago afra L.

6547 (fl., fr.).

Plantago albicans L.

7339 (old fr.).

Plantago cylindrica Forsskål

6223 (fr.).

Polygonaceae

Atraphaxis spinosa L. var. *sinaica* (Jaub. & Spach) Boiss.

8510 (fr.).

Rheum palaestinum Feinbrun

6550 (ster.) – 7378 (ster.).

Ranunculaceae

Adonis dentata Delile

6560 (fl.). Petals yellow with a basal black spot.

Thalictrum isopyroides C. A. Meyer

5997 (fl.) – 7353 (fl., fr.) – 7803 (fr.) – 8492 (fr.).

Rubiaceae

Callipeltis cucullaris (L.) Rothm. var.
aptera (Boiss. & Buhse) Rech. fil.
& Ehrend.

6555 (fl., fr.).

Crucianella herbacea Forsskål

6222 (ster.) – 7370 (ster.).

Rutaceae

Haplophyllum poorei C. C. Townsend

6236 (old fr.) – 8578 (fl., old fr.).

Scrophulariaceae

Anarrhinum orientale Bentham

8507 (fl. buds, old fr.) – 8570 (fl.,
old fr.).

Linaria simplex (Willd.) DC.

7372 (fl., fr.). Flowers yellow.

Linaria sp.

6548 (fl.). Flowers violet.

Scrophularia xanthoglossa Boiss.

5995 (fl.).

Solanaceae

Hyoscyamus aureus L.

8555 (fl., fr.).

Hyoscyamus reticulatus L.

7335 (fr.) – 7795 (fl.).

Umbelliferae

Ferula negevensis Zoh.

8511 (fl.) – 8556 (fl.).

Pituranthus tortuosus (Desf.) Bentham
& Hooker fil.

6004 (ster.).

Valerianaceae

Valerianella sp.

6541 (fl.). Flowers pale mauve.

Zygophyllaceae

Fagonia bruguieri DC.

8559 (fl., fr.). Flowers purple.

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