# Contributions to the flora of Jordan 4. A new species of Pycnocycla (Apiaceae)

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# Contributions to the flora of Jordan 4. A new species of *Pycnocycla (Apiaceae)*

**Abstract**

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*Pycnocycla saxatilis* from SW Jordan and NW Saudi Arabia is described as a species new to science and illustrated. It is a stem-assimilant subshrub related to *P. tomentosa* and confined to crevices of smooth-faced sandstone and similar habitats. Attention is drawn to another undescribed and related *Pycnocycla* taxon from further south in Saudi Arabia.

***Pycnocycla saxatilis*** Danin, Hedge & Lamond, **sp. nova**
Holotype: Jordan, Edom, Rum area, 10 km SSE of Wadi Rum resthouse, 35°29'E 29°31'N, in crevices of hard sandstone outcrops, N facing, 1100 m, 12.10.1998, *Danin 981101* (HUJ; isotypes: B, E).

Affinis *P. tomentosae* quoad structuram et indumentum inflorescentiae sed habitu chasmophytico, foliis simplicibus vel segmentis 1-2 minutis praeditis, sepalis fructu longioribus recedit.

*Perennis* interdum aromatica, 30-100 cm alta et 50 cm diametro, caulibus numerosis ramosis glabris vel breviter pilosis vel glabris/glabrescentibus. *Folia* 2-7 cm longa, simpliciter acicularia vel pinnatifida pinnis usque ad 1-2 reductis, segmentis minutis 1-2 acicularibus, 1-4 mm longis. *Umbellae* laterales, 10-20 mm diametro, tomentosae. *Pedunculi* 1.5-4.5 mm longi, erecti vel erecto-patentes. *Bracteae* 5-8, inaequales, quam umbellae breviores, reflexae. *Bracteolae* 5, inaequales, reflexae vel uncatae, 1-2.5 mm longae. *Pedicelli* 6-8, 6-9 mm longi, dense tomentosi. *Sepala* 0.5 mm longa, aciculata, ± conspicua; fructu 1-1.8 mm longa. *Petala* alba vel albo-rosea, exteriora non vel vix radiantia. *Mericarpia* oblongo-cylindrica, curvata, dense tomentosa; styli c. 5 mm. Fl. 6(?)-11.

*Ascending subshrub*, 30-100 cm high and 50 cm in diameter, aromatic, branches many, glabrous to shortly pilose or glabrous/glabrescent. *Leaves* 2-7 cm long, simple, acicular, or with 1-2 acicular lobes 1-4 mm long. *Lateral umbels* 10-20 mm in diameter, tomentose. *Peduncles* 1.5-4.5 mm long, erect or spreading-erect. *Bracts* 5-8, unequal, shorter than umbels, reflexed. *Bracteols* 5, unequal, reflexed or hooked, 1-2.5 mm long. *Pedicels* 6-8, 6-9 mm long, densely to-

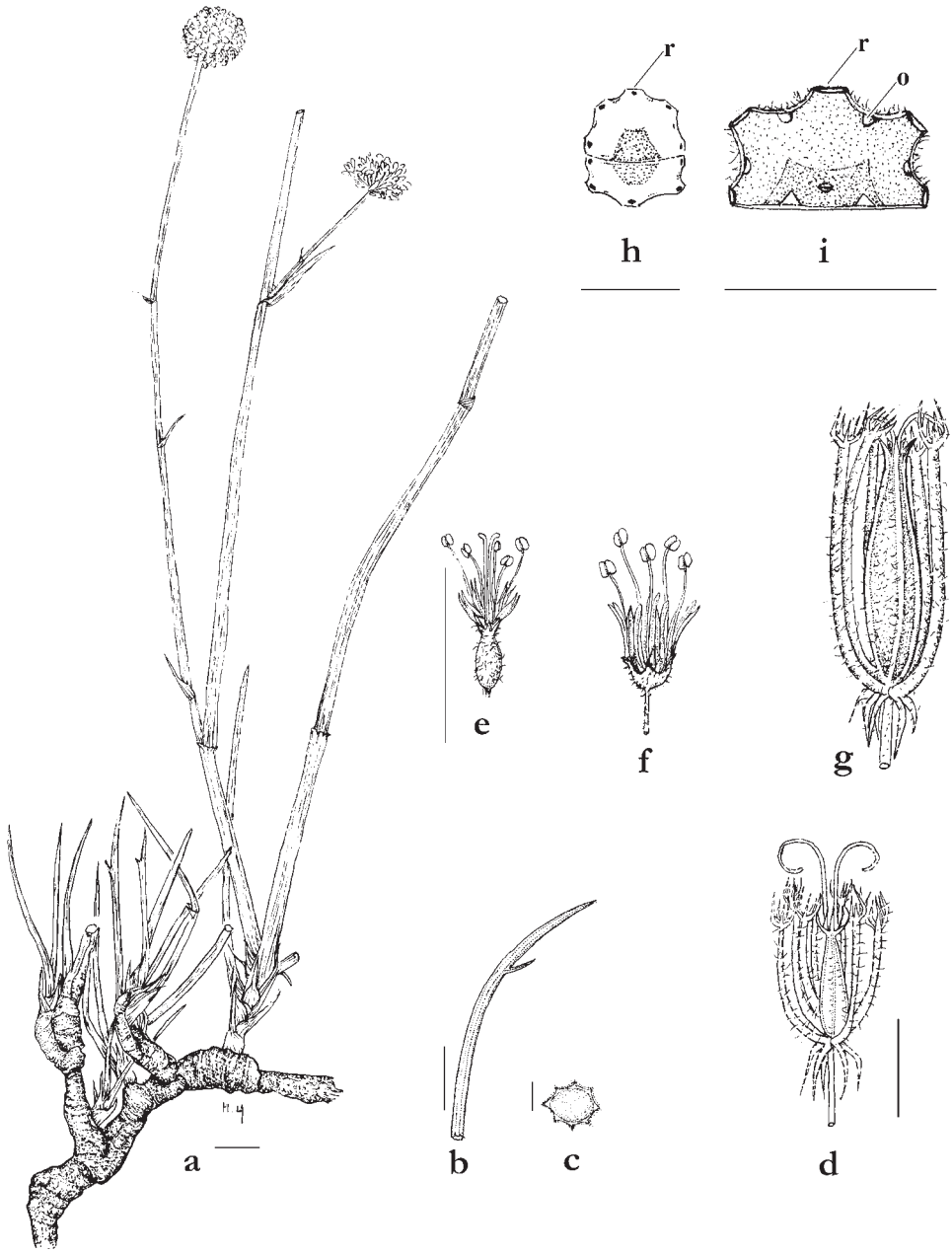


Fig. 1. *Pycnocycla saxatilis* Danin, Hedge & Lamond – a: flowering stem with lignified base; b: leaf; c: cross-section of leaf; d: umbellule at anthesis with peripheral male and central female flower; e: female flower; f: male flower; g: umbellule with one ripe fruit; h: cross-section of pedicel of male flower displaying two sterile mericarps (r = primary rib); i: cross-section of ripe fruit (r = primary rib, o = oil duct). – Scale: a + b, d-g = 1 cm, c, h + i = 1 mm; drawn from *Danin 981101*.


Fig. 2. Distribution of *Pycnocycla saxatilis* Danin, Hedge & Lamond.

mentose. *Sepals* 0.5 mm long, acicular, ± conspicuous; in fruit 1-1.8 mm long. *Petals* white or white-rose, marginal not or slightly radiant. *Mericarps* oblong-cylindrical, curved, densely tomentose, only one mericarp developes (Fig. 1i); styles c. 5 mm. Fl. 6(?)-11.

Ic.: Fig. 1; Collenette 1999: 734 as *Pycnocycla* sp. nova, sp. B.

Bedouin name: *Saber.*

Additional specimens seen

SAUDI ARABIA: Jabal Dabbagh, 100 km SW Tabuk, in hanging valley on S side, 1310 m, 4.3.1984, *Collenette 4404A* (E), *4801* (E, K, RIY); ibid., among boulders in granite wadi near base of mountain, 610 m, 13.4.1985, *Collenette 5291* (E, RIY); Jabal Hisma range, 60 km E of Bir Himass, crevices of sandstone buttes, fairly common in Jabal Hisma, 1219 m, 8.7.1991, *Collenette 7839* (E, K); 64 km W of Bir Himass, crevices of sandstone buttes, 2.8.1989, *Collenette 7216* (E); near Shiqri, Tabuk road, crevices, 944 m, 25.4.1983, *Collenette 4404* (E); 10 km N of Shiqri road, crevices of red sandstone buttes, 944 m, 19.9.1983, *Collenette 4544* (E, RIY); sandstone butte, just N of Shiqri, 944 m, 1.4.1989, *Collenette 7058* (E).

Distribution, ecology and relationship

*Pycnocycla saxatilis* was first recognised in the late 1980s by one of us (J. L.) as a possible new taxon during the course of studying some of Mrs Sheila Collenette's collections from Saudi Ara-

bia. There were a number of gatherings, all apparently of the same taxon and all growing in crevices of sandstone (butte) cliffs. At that time, the specimens were provisionally designated as "*Pycnocycla* sp. B". Further collections were made by Mrs Collenette in the early 1990s. In 1998, another of us (A.D.) collected specimens from SW Jordan (see type collection) which initially seemed to be the same taxon or a close ally of it. Recently, in Edinburgh, more detailed studies by the authors showed that all the gatherings were indeed the same and merited description as a new species. Its distribution is shown in Fig. 2.

Comparison with material from throughout the Arabian peninsula and the 'Flora iranica area' (Hedge & Lamond 1987), the main areas of the genus, revealed that the new species is allied to *Pycnocycla tomentosa* Decne. The latter was previously thought to be restricted to Sinai, but is now known to occur also in NW Saudi Arabia (Sawarin Camp, 80 km SW Tabuk, iron-ore deposit, in crevice of ore-body, *Collenette 5271* RIY!), in the same general area as the new species. In their overall facies and especially in the dense, tomentose indumentum on all parts of the inflorescence, *P. saxatilis* and *P. tomentosa* are very similar, but the latter species has clearly divided leaves with short or elongated ovate to linear lobes in contrast to the undivided leaves, sometimes with 1-2 very small lobes, of *P. saxatilis*. Although fruiting material of both species is rare, the sepals in fruit seem to be clearly longer in the new species. There is also a clear difference in the ecology of the two: *P. saxatilis* is a chasmophyte restricted to crevices of smooth-faced sandstone rocks, whereas *P. tomentosa* grows in stony and rocky slopes and in wadis. Size and shape of the leaflets vary considerably in *P. tomentosa*. The leaflets shown in Jaubert & Spach (1847-50: t. 242) are ± broadly ovate and coarsely toothed as are those from the basal rosettes of *Collenette 5271*. In contrast, most of the recent collections from Sinai (HUJ) have leaves with very narrow, linear or filiform leaflets.

*Pycnocycla saxatilis*, resembling in the vegetative state *Deverra (Pituranthos) triradiata* Hochst. ex Boiss., is a chasmophyte of the Nubian sandstone plateau (Powell 1989) extending from S Jordan to N Saudi Arabia (Bartov 1994). At high elevations the hard sandstone forms large areas of smooth-faced rock outcrops, which may support a rich flora in comparison with non-rocky habitats of these desert areas (Danin 1972, 1999a, 1999b). In the Wadi Rum area of S Jordan many rare desert plants are associated with *P. saxatilis*. A few of these are: *Satureja nabateorum* Danin & Hedge (now also known from adjacent Saudi Arabia), *Ballota saxatilis* C. Presl, *Hyoscyamus aureus* L. and *Silene danaensis* Danin. The special habitat of smooth-faced hard rock outcrops functions as a refugium in desert areas and may support plants that have remained in the area from various penetrations of floras in the remote past. These rock outcrops with their special water regime, in fact act as moist islands in the desert ocean surrounding them.

Some specimens from considerably south of the localities of *P. saxatilis* and *P. tomentosa* may represent a taxon separate from either but with affinities to them. However, until a wider range of material is at hand it may be premature to formally describe it. There are a small number of gatherings of this taxon, which grows almost 1000 km to the south of the new species: e.g. Jabal Shumrukh to Taif, Abha road, steep rocky hillside, 28.4.1985, *Collenette 5319* (RIY!). It is a shrub of similar habit as *P. saxatilis* and *P. tomentosa,* up to c. 1 m; the terete leaves are apically provided with linear lobes; the rounded, densely-flowered capitulum is 3 cm wide and the outer petals are clearly larger than the inner ones. In both *P. saxatilis* and *P. tomentosa* the outer petals are, apparently, not radiant. The indumentum on all parts of the inflorescence is appreciably less dense than in these species and pilose rather than tomentose. It is illustrated in Collenette (1999: 734) as "*Pycnocycla* sp. nov., sp. A".

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## References

Bartov, Y. 1994: Geological photomap of Israel and adjacent areas; scale 1: 750 000, ed. 2. – Jerusalem.

Collenette, S. 1999: Wildflowers of Saudi Arabia. – Riyadh.

Danin, A. 1972: Mediterranean elements in rocks of the Negev and Sinai deserts. – Notes Roy. Bot. Gard. Edinburgh **31:** 437-440.

— 1983: Desert vegetation of Israel and Sinai. – Jerusalem.

— 1999a: Desert rocks as plant refugia in the Near East. – Bot. Rev. **65(2):** 93-170.

— 1999b: Sandstone outcrops – a major refugium of Mediterranean flora in the xeric part of Jordan. – Israel J. Pl. Sci. **47:** 179-187.

Hedge, I. & Lamond, J. 1987: *Pycnocycla* Lindl. – Pp. 72-80 in: Rechinger, K. H. (ed.), Flora iranica **162.** – Graz.

Jaubert, H.-F. & Spach, E. 1847-50: Illustrationes plantarum orientalium **3.** – Paris.

Powell, J. H. 1989: Stratigraphy and sedimentation of the phanerozoic rocks of central and southern Jordan. Part A: Ram and Khrein groups. – Nat. Resources Authority Bull. (Amman) **11:** 1-72.

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