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AVINOAM DANIN

A new species of *Bufonia (Caryophyllaceae)* from Israel: *B. ramonensis*

Abstract

Danin, A.: A new species of *Bufonia (Caryophyllaceae)* from Israel: *B. ramonensis*. – Willdenowia 31: 95-100. 2001. – ISSN 0511-9618.

Bufonia ramonensis is a small chamaephyte with lignified branches, described from one mountain slope at the Negev Highlands, where it is confined to crevices and soil pockets of smooth- faced limestone. The new species is closely related to *B. multiceps,* which is a hemicryptophyte with herbaceous stems endemic to similar microhabitats in magmatic rocks of southern Sinai.

Following previous investigations during the last 35 years (Danin 1983, 1999, Danin & Solomeshch 1999) I kept telling my colleagues that smooth-faced rock outcrops in desert areas are to be expected to support unexpected findings. In the last decades I passed many times half a kilometer north, east or west of the particular slope that I visited at the beginning of February 2001. It was thus an almost expected surprise to find a population of several hundred small shrubs of a so far undescribed species in rock crevices and soil pockets in an area of a shrub-steppe of Moricandio nitentis-Artemisietum sieberi.

Bufonia ramonensis Danin, **sp. nova**
Holotype: Israel, Negev Highlands, 2 km SW of Har Ramon, 30º30'N, 34º37'E, 900 m, in crevices and soil pockets of smooth-faced limestone outcrops, a gentle north-facing slope, 9.2.2001, *Danin* (HUJ; isotypes: B, K, E) – Fig. 1, 4.

A *Bufonia multicepe* Decne. ramis prostrato-ascendentibus lignosis et ramulis floriferis induratis perennantibus (nec ramis ramulisque herbaceis), sepalis 3(-6)-nervis (nec 6-7-nervis), margine ciliatis (nec glabris), ovarium subaequantibus (nec tertia parte longioribus) et seminibus omnino tuberculatis (nec dorso tenuiter tuberculatis facie planiusculis cellulis stellatis) differt.

A low *chamaephyte, stems* up to 30 cm long, 1-20 mm diam., much branched, densely appressed-pubescent with recurved hairs; the previous year's and older twigs greyish, giving rise to new branches from the lower 2/3 or 4/5 of previous year's stems; flowering branches 5-10 cm long. *Leaves* 5-12 × 0.2-0.5 mm, narrowly linear-lanceolate with ciliate margins, connate at the base and appressed to the stem, base with scarious margin. *Inflorescence* a dense terminal, short-

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Fig. 1. *Bufonia ramonensis* – branched stems. – Scale 1 cm; from the holotype.

pedicelled dichasial cyme of 4-12 flowers, 5-7 mm in diam. resembling a capitulum, in addition with 3-6 single lateral flowers or 2-3 flowers in monochasia at the axiles of bracts below it; often only the lateral flowers occur. *Pedicels* up to 1 mm, appressed hairy, in dense cymes with longitudinal depression. *Flowers* 3-4 mm long; sepals 3 mm, subequal, ovate-lanceolate, 3(-6)-nerved, margins scarious, ciliate; petals white, shorter than sepals; stamens 8. *Capsule* ovate, 2.5 × 1.5 mm, as long as, slightly longer, or slightly shorter than calyx. *Seeds* 2, brown, reniform, laterally compressed, 1.5-1.8 mm long, 0.8-1.5 mm wide, tuberculate throughout (Fig. 4).

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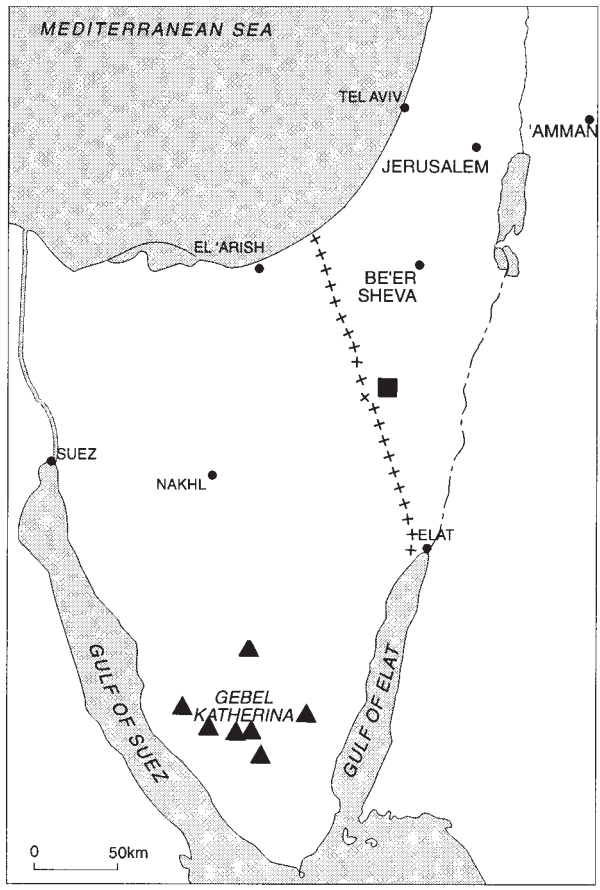

Fig. 2. Distribution of *Bufonia ramonensis* (■) and *B. multiceps* (▲) as documented in HUJ.

Distribution and ecology

So far known only from the type locality (Fig. 2), at an area of less than half a hectare, where the number of individuals of *Bufonia ramonensis* is estimated as 200-300. Until discovered in additional places it may be regarded as one of the rarest endemic plants of Israel.

The companions of *B. ramonensis* are shrub-steppe species of the plant community Moricandio nitentis-Artemisietum sieberi Danin & Solomeshch 1999 and of the Pistacio atlanticae-Chiliadenetum iphionoidis Danin, Orshan & Zohary ex Danin & Solomeshch 1999 (cf. Danin & Solomeshch 1999) Those of the Artemisietum are: *Artemisia sieberi* Besser, *Astragalus sanctus* Boiss., *Diplotaxis harra* (Forssk.) Boiss., *Erodium crassifolium* L'Her., *Gymnocarpos decander* Forssk., *Helianthemum vesicarium* Boiss., *Moricandia nitens* (Viv.) E. A. Durand & Barratte, *Noaea mucronata* (Forssk.) Asch. & Schweinf. and *Salvia lanigera* Poir. Those of the Chiliadenetum are: *Astragalus amalecitanus* Boiss., *A. bethlehemiticus* Boiss., *Ankyropetalum gypsophiloides* Fenzl, *Chiliadenus iphionoides* (Boiss. & Blanche) Brullo, *Delphinium ithaburense* Boiss., *Dianthus sinaicus* Boiss., *Eryngium glomeratum* Lam., *Fumana thymifolia* (L.) Webb, *Haplophyllum poorei* C. C. Towns., *Micromeria sinaica* Benth., *Phagnalon rupestre* (L.) DC., *Pterocephalus pulverulentus* Boiss. & Balansa, *Rhamnus disperma* Boiss., *Tanacetum sinaicum* (Fresen.) Decne. ex K. Bremer & Humphries, *Urospermum picroides* (L.) F. W. Schmidt and *Umbilicus intermedius* Boiss.

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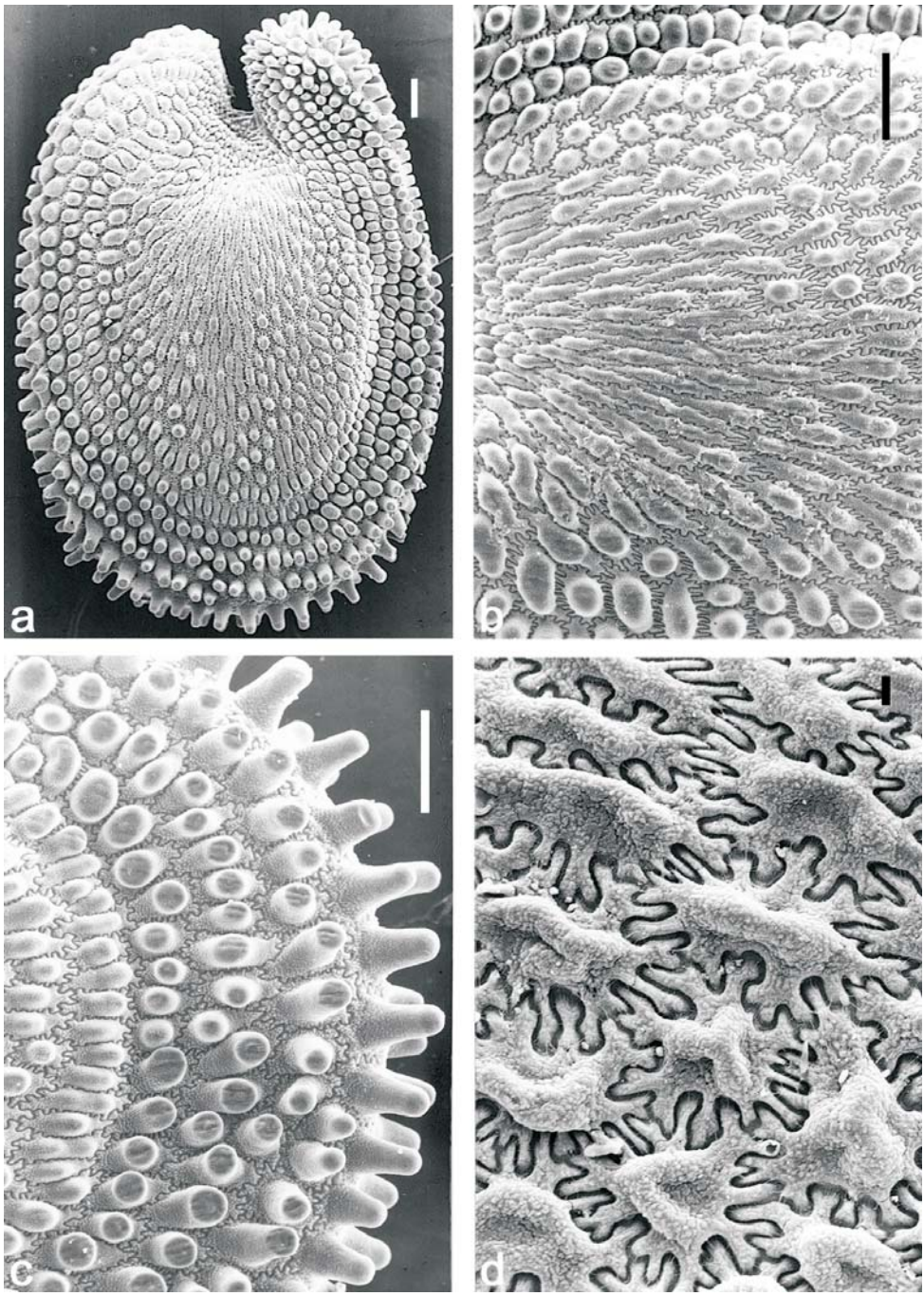

Fig. 3. Seed of *Bufonia multiceps* – a: whole seed; b: lateral faces with stellate epidermal cells; c: anti-micropylar pole with 70-80 µm long, distinct and spaced appendages; d: stellate epidermal cells. – Scale bars: a-c =100 µm, d = 10 µm; specimen from S Sinai, 17.7.1968, leg. *Tadmor* (HUJ).

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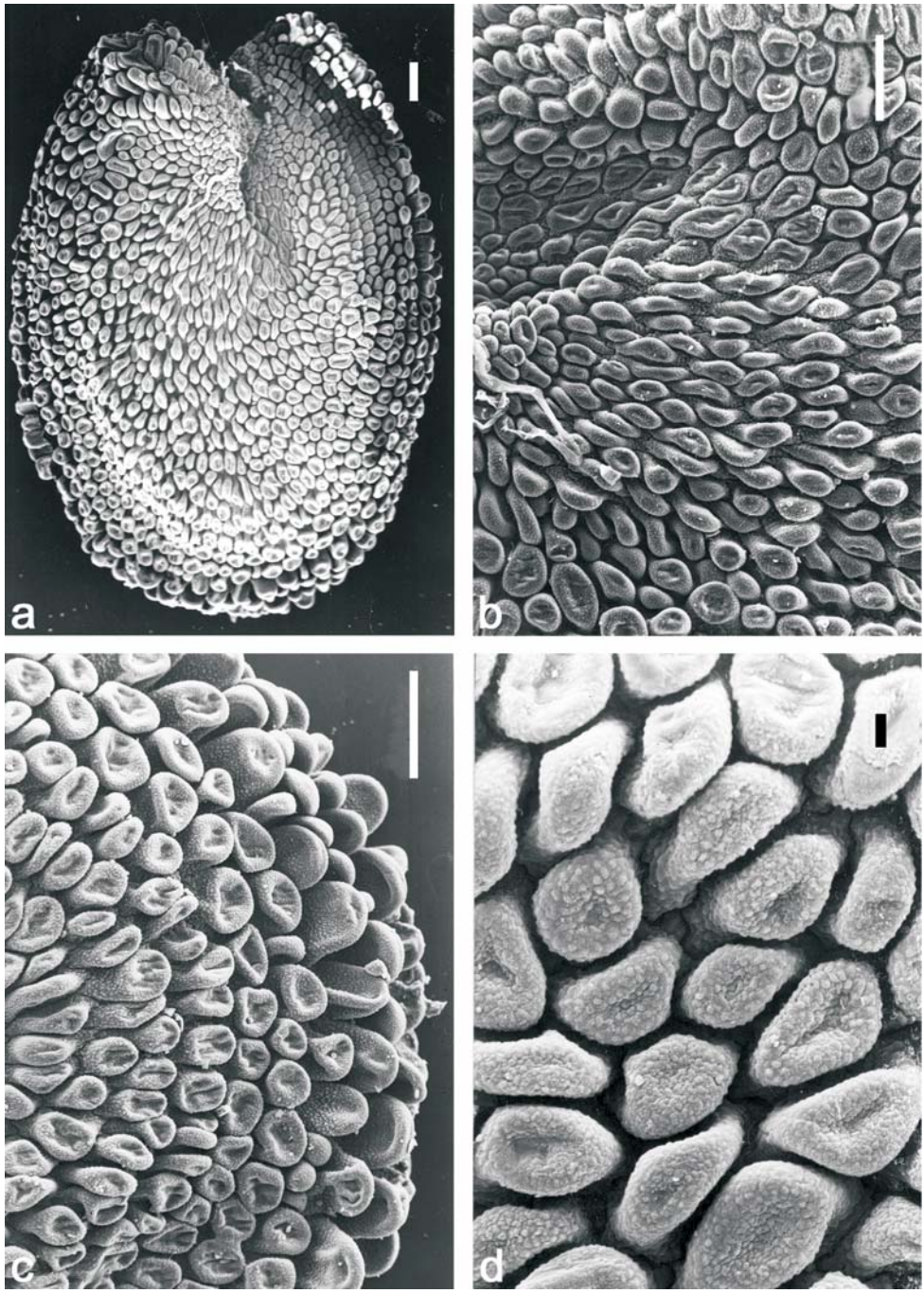

Fig. 4. Seed of *Bufonia ramonensis* – a: whole seed; b: lateral faces with tubercles; c: anti-micropylar pole with 50-60 µm long densely packed appendages; d: densely packed tubercular epidermal cells. – Scale bars: a-c = 100 µm, d = 10 µm; from the type collection.

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A live plant collected together with the type collection, planted in a pot and raised in Jerusalem started to bloom on 20.5.2001.

Relationship

There are one or two additional species of *Bufonia* in the Flora Palaestina area. *B. virgata* Boiss. is an annual. *B. ephedrina* Sam., recorded by Mouterde (1966) and by Chrtek & Křisa (1999) from Jordan, is described by Mouterde (1966) as pubescent at base and glabrous above, with 7-nerved sepals and smooth seeds. These properties are not shared with *B. ramonensis.* Our new species neither agrees with any of the *Bufonia* species treated by Rechinger (1988) nor with any of those recognized by Chrtek & Křisa (1999) in their revision of the genus in Asia. Geographically and morphologically the closest species is *B. multiceps* (see distribution map, Fig. 2) as described by Decaisne (1835), Boissier (1867) and Boulos (1999). Its differentiating characters are presented in the Latin diagnosis and in the English description of *B. ramonensis,* above.

The description of the seed of *B. multiceps* by Boissier (1867: "seminibus dorso tenuiter tuberculatis facie planiusculis") agrees with specimens of this species deposited in HUJ better than the original description by Decaisne (1835: "semina reniformia, compressa, tuberculata") and by Boulos (1999: "seeds … muricate-tuberculate"). In fact there is a part of the seed with muricate-tuberculate surface; this is the pole opposite the micropyle (Fig. 3a, c). The seed of *B. ramonensis,* in contrast, is covered by tubercles throughout (Fig. 4). The stellate cells of the lateral seed surface of *B. multiceps* (Fig. 3d) markedly differ from the tubercular surface of *B. ramonensis* (Fig. 4d).

Specimens of *Bufonia multiceps* seen: S Sinai, Gebel Katherina, 2 km S of top, 2400 m, 17.7. 1968, *Tadmor* (HUJ); Gebel Abu Hisheib (N of wadi Sulaf), 9.9.1968, *Orshan* (HUJ).

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