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Dianthus cyri Fisch. and Mey. (Caryophyllaceae): A New Record

Abstract. *Dianthus cyri* Fisch. & Mey., a Southwest Asian species, earlier reported from Oman and UAE in the Arabian Peninsula, is reported from Jebel Aja, in the Hail Province, which is a new record for Saudi Arabia. The species is described and illustrated pointing out its characteristics and differences from other species found in Saudi Arabia.

Keywords: New record, *Dianthus cyri*, Caryophyllaceae, flora, Saudi Arabia, Jabal Aja

تسجيل نوع نباتي جديد من نباتات العائلة القرنفلية هو القرنفل *Dianthus cyri* Fisch. & Mey. من المملكة العربية السعودية

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المستخلص: نبات القرنفل *Dianthus cyri* Fisch. & Mey. من الأنواع النباتية المتواجدة بالجنوب الغربي من آسيا، سجل في السابق في الجزيرة العربية في كل من سلطنة عمان والأمارات العربية المتحدة، حديثاً تم تسجيله كنوع نباتي جديد للفلورا السعودية من جبال أجا بمنطقة حائل بالمملكة العربية السعودية، في هذا البحث تم وصف هذا النبات مزوداً بالرسومات التوضيحية لتعريفه، لإيضاح الأختلافات بينه وبين الأنواع الأخرى المسجلة بالمملكة العربية السعودية.

كلمات مدخلية: السعودية، فلورا، العائلة القرنفلية، القرنفل، جبال أجا.

Introduction

Dianthus is a herbaceous to sub-shrubby genus comprising nearly 300 species, and more than 30,000 cultivars domesticated for the beautiful flowers (Mabberley, 1997; Zohary, 1966). Collenette (1999) presented photographs of four species of the genus from Saudi Arabia: *D. strictus* ssp. *sublaevis* D.F. Chamb. (*D. zonatus* auct. Collenette, 1985, non Fenzl.), *D. judaicus* Boiss., *D. sinaicus* Boiss. and *D. deserti* Kotsch. Chaudhary (1999) described six species which included the four species mentioned above and two others, viz, *D. crinitus* Sm. and *D. uniflorus* Forssk. For *D. uniflorus* (auct Collenette, 1985, non Forssk.), there has not been any material collected from Saudi Arabia although Chaudhary (1999) prospected its presence in the Juniper zone of the Western Region. Thus, in a strict sense, on the evidence of collections preserved in the herbaria (RIY, KSU, KACST), there are five species of *Dianthus* in the Kingdom of Saudi Arabia.

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A botanical expedition to the mountain ranges of Jebel Aja and Salma, Hail Province, Saudi Arabia, was conducted in the month of April 2000, by the joint effort of the Natural Resources and Environment Research Institute and the Girls College of Education, Riyadh, facilitated by support from the King Abdulaziz City for Science and Technology. While a fuller examination of the material collected during this expedition remains to be undertaken, an annual species of *Dianthus* with attractive rose flowers, edging an almost perennial lake in Wadi Nuchbayin, proved to be a new record for Saudi Arabia. All five species of *Dianthus* recorded previously in the Kingdom are perennials. This annual specimen differed from the species previously recorded in specific details and could not be matched. On critical study this species proved to be *D. cyri* Fisch. & Mey., a Southwest Asian species (from E Turkey to Afghanistan), also reported from Oman and UAE (Chamberlain, 1996).

Dianthus cyri Fisch. & Mey., Ind. Sem. Hort. Petrop. 4: 34. 1837; Boiss., Fl. Orient. 1: 482. 1867; D.F. Chamb. in Miller & Cope, Fl. Arab. Penins. 1: 228, fig. 42 G, map 289. 1996. Illustr.: Zohary, Fl. Palaest. 1: 109, t. 147. 1966. (see Figure 1.)

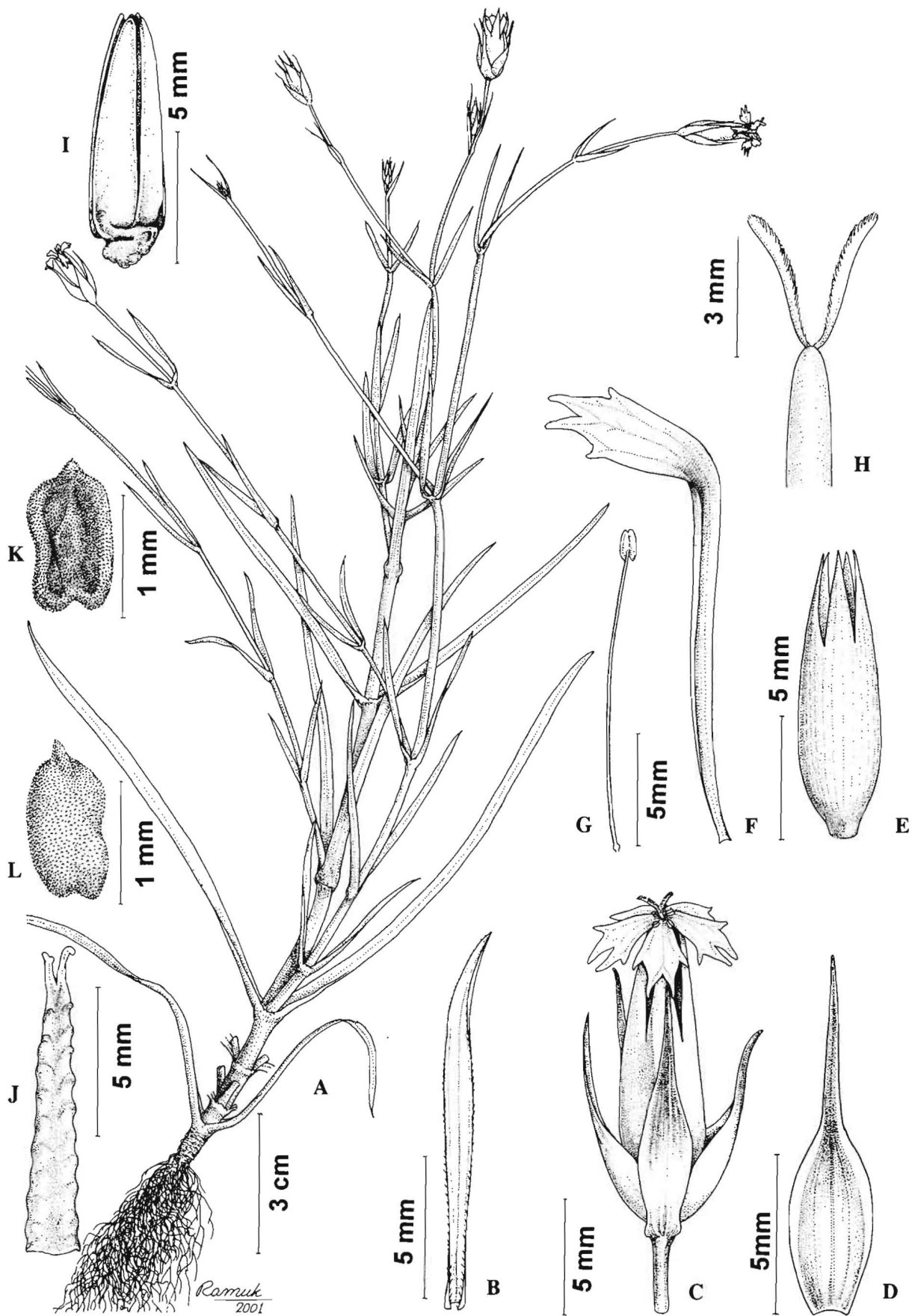


Figure 1. *Dianthus cyri* Fisch. & Mey. A, habit; B, leaf; C, flower; D, bracteole; E, calyx; F, one petal; G, a stamen; H, pistil; I, capsule; J, fruit placentum; K & L, seeds.

Annual herbs, about 45 cm tall. Branchlets cylindrical, internodes 2-6 cm long, nodes slightly dilated on older parts or on the main stem. Leaves opposite decussate, linear, 20-60(-70) x 1.5-4 mm, gradually transforming into bracts, base narrowed, base of opposite leaves united and sheathing the stem, apex acute, ciliate along the margin basally. Inflorescences corymbose dichasial cymes or flowers solitary. Peduncles 15-30 mm long. Flowers 14-15 x 10 mm. Bracteoles 4, imbricate, shorter or equalling the calyx, ovate, aristate, margins pellucid; outer bracteoles 2, broader, 8 x 2.5 mm, arista 3-3.5 mm long; inner bracteoles narrower, 10 x 2 mm, awn 6 mm long. Calyx lobes 5, gamosepalous, semi-cartilaginous or coriaceous, tube 5-6 x 3 mm, cylindrical, nerveless, finely tuberculate, lobes \pm equalling the size of the tube, 5-6 x 2 mm, triangular, acute, striate, scarious at apex. Petals 5, cuneate oblong, 15-16 mm long, 1 mm at the widest, barbellate or glabrous, limb 4-dentate (4-6 dentate: see Chamberlain, 1996); apical denticles always even, *c.* 1 mm long, lateral denticles smaller; rose pink. Stamens 10, 2-seriate, free, as long as the calyx, filaments 10-11 mm long, that of antisepalous with two minute tubercles at the base; anthers 1 x 0.25 mm. Ovary 4-5 x 0.8 mm, oblong, tip obtuse, unilocular; styles 2, erect,

filiform, cylindrical, acute, papillate; placentum tetragonal; ovules many, in 4 vertical rows; ovules horizontal, slightly curved, camphyotropous, attachment basal. Capsules 12-13 x 2.5-3 mm, shorter than calyx, enclosed in the persistent bracts and calyx, tetragonal, with 1-2 semi-annular wrinkles at the base, dehiscent by 4 valves; fruiting placentum sub-cylindric, tip bifid. Seeds black, many, 1.25 x 0.75 mm, compressed, discoid, elliptic-ovate, tip with a short acumen, base truncate, slightly concave, margins slightly thick, surface finely tuberculate, attachment central on the concave surface, embryo straight, eccentric.

Flowering and Fruiting: April-July.

Dianthus cyri Fisch. & Mey. differs from all the other species of *Dianthus* found in Saudi Arabia in the annual life form (Table 1). It differs from *D. sinaicus* Boiss. in the linear leaves (spathulate in *D. sinaicus*), from *D. uniflorus* Forssk. in the awned bracteoles, from *D. judaicus* Boiss. and *D. deserti* Kotsch. in the dentate petals, from *D. crinitus* Sm. in the non-fimbriate petals, and from *D. strictus* ssp. *sublaevis* D.F. Chamb. in the minutely tuberculate calyx and the absence of darker lines for the petals (Chamberlain, 1996; Chaudhary, 1999).

Table 1. Morphological differences of various species of *Dianthus* L. present in Saudi Arabia.

| | <i>D. strictus</i> ssp. <i>laevis</i> | <i>D. judaicus</i> | <i>D. sinaicus</i> | <i>D. deserti</i> | <i>D. crinitus</i> | <i>D. cyri</i> |
|-------------------|--|---|---|---------------------------------|---------------------------------|---|
| Habit | Perennial Herb | Perennial Herb | Perennial Shrubby-Herb | Perennial Herb | Perennial Herb | Annual Herb |
| Leaves | Linear | Linear | Spathulate | Linear | Linear | Linear |
| Bracteoles | 4, Scarious-margined, aristate | 4, scarious-tip margined, setaceous divergent | 10-14, broadly membranous margined, mucronate | 4, acute | 4-10, acuminate | 4, margins pellucid, aristate. |
| Calyx | 15-18 mm long, faintly tuberculate, | Up to 35 mm long, striate. deeply ribbed. almost smooth | Up to 25 mm long, glabrous | 12-18 mm long, glabrous | 25-45 mm long, glabrous | 5-6 mm long. finely tuberculate, |
| Petals | Pink with dark venation, deeply dentate. | Cream or whitish, back pink coloured, minutely dentate | White to pink, deeply fimbriate | Deep pink, dentate to subentire | White to pink, deeply fimbriate | Rose-pink, dentate, non fimbriate darker lines absent |

Distribution:

Irano-Turanian element of SW Asia known from Turkey to Afghanistan, and the Arabian Peninsula in UAE, Oman and Saudi Arabia.

Speciman Examined:

Saudi Arabia, Hail Province, Wadi Nuchbayin, 27°36.8' N, 41°36.1' E; ± 1000 m, 23 iv 2001, *Al-Turki & Swarupanandan* 5952 (KACST).

Ecology:

Chamberlain (1996) mentions the species (in Oman and UAE) to be weeds in open ground in plantations, between 0-300 m msl. Our collection is at about an elevation of 1,000 m msl. The species was found along the flood beds in an almost perennial lake at the down fall of a waterfall in Wadi Nuchabayin and the population was not large. It grows in association with *Papaver decaisnei* Hochst. & Steud., *Veronica anagalloides* Guss., *Euphorbia falcata* L. and other herbs. The still waters of the lake also support an algal species of *Chara*.

Genetic Potential:

The showy flowers promise the genetic material to be of value in hybridization.

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