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TWO NEW SPECIES OF *COTONEASTER* MEDIC. (ROSACEAE) FROM THE HIMALAYA

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During the revisionary studies of *Cotoneaster* Medic. in India (Panigrahi and Arvind Kumar, 1988), we came across several specimens annotated by G. Klotz *in sched.* as *Cotoneaster confusus* Klotz, but all our search of literature established beyond any doubt that the taxon has nowhere been validly described. Since the taxon is very distinctive in its diagnostic characters, we take the opportunity to validate the taxon with Latin diagnosis, description and illustrations. Further, a specimen, *C. E. Parkinson* 5992 (DD), annotated by Klotz on 18, Feb. 1964, as *Cotoneaster* aff. *schlechtendelii* Klotz does indeed differ in several characters from *C. schlechtendalii*, as also from *C. poluninii* Klotz. This is being described here as *C. parkinsonii* sp. nov. in honour of the collector of the holotype.

1. Cotoneaster confusus Klotz ex A. Kumar et Panigrahi, sp. nov. [Fig. 1, A-H].

C. affini Lindl. similis, sed differt ramis glabrescentibus, foliis interdum oblongo-lanceolatis, infra glabris, petiolis, pedunculis, pedicellisque ± glabris, cupulis floralibus sparsim pilosis, pomis atro-brunneis, nigrisve.

Typus : Simla, 2290 m (7500), May, *Schlich s.n.* (Holotypus—CAL ; Acc. No. 153866).

Erect woody shrubs with dark brown and irregular branches ; older branches with leaf-scars of fallen leaves, younger branchlets glabrescent or glabrous, occasionally tomentose, older branches glabrous. Leaves 3 - 7 × 1 - 3.5 cm, subcoriaceous, elliptic, elliptic-oblong, obovate-oblong, obovate, or oblong-lanceolate, apex acute or obtuse, generally mucronulate, sometimes retuse, base cuneate, upper surfaces glabrous, lower ± glabrous but margin sometimes hairy ; petioles 4 - 11 mm long, ± glabrous. Inflorescences 5 - 16-flowered, peduncles and pedicels glabrous. Flowers about 4 - 5 mm long. Floral cups about 3 - 4 mm long, sparsely pilose, calyx teeth 1 1.5 mm long, tomentose or villous. Petals 3 mm, suborbicular or clawed, base of the claw villous. Carpels 2, 3 mm long, ovary 1 mm, tomentose, style 2 mm long, glabrous. Pomes 7 - 10 mm long, globose or turbinate, dark brown or black. Nutlets 2, the upper parts emerging from floral tubes.

Fls. : May : *Frts.* : June - Oct.

Distribution : INDIA : Kashmir, Himachal Pradesh, Uttar Pradesh, SIKKIM ; PAKISTAN.

Specimens examined : INDIA : *Kashmir* : Kistawar, Nagin Siru, 1800-3850 m, 22 Sept. 1958, *T A. Rao* 7864 (BSD) ; Waskar-Dagwan, 3500 m, 9 Sept. 1979, *B. M. Wadhwa* 66898 (BSD) ; *Himachal Pradesh* : Simla, on road below Rothneyl, 2300 m, 15 Sept. 1876, *Gamble* 1394 B (CAL acc. no. 153861) ; Simla, Suijoli, Mahasu road, 2200 m, 27 June 1877, *H. Gamble* 4417 D (CAL acc. no. 153863) ; Nirrkh, June 1883, *Schlich s.n.* (CAL acc. no. 153852) ; Simla, June 1883,

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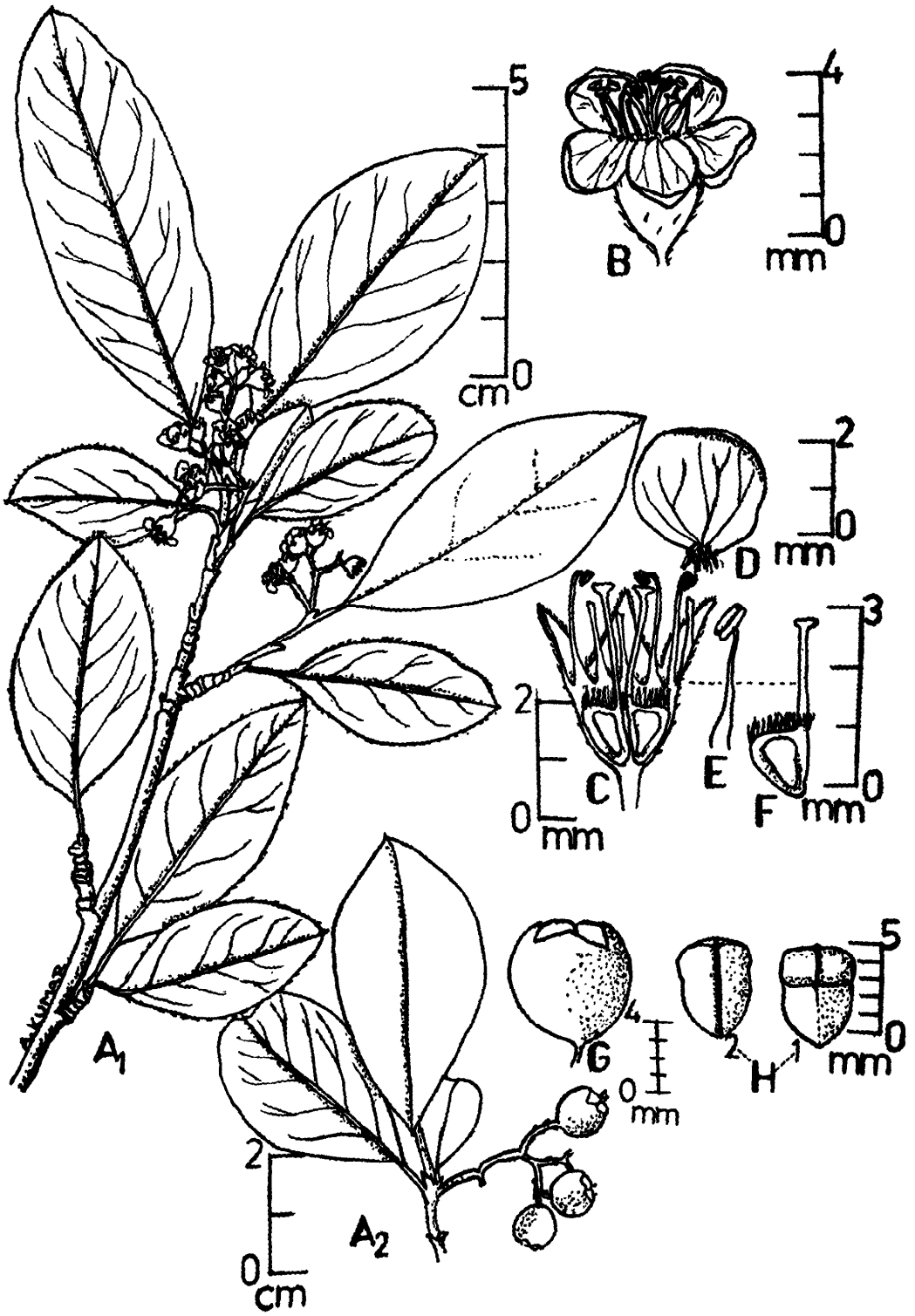


Fig. 1. (A-H): *Cotoneaster confusus* Klotz ex A Kumar et Panigrahi sp. nov. : A_1, a flowering twig. A_2, a fruiting twig. B. a flower, C. L.S. of a floral cup. D. a petal. E. a stamen. F. a carpel. G. a fruit. H. nutlets (1-dorsal view, 2-ventral view). [A_1 and B-F, drawn from *Schlich s.n.* (CAL acc no. 153866), A_2 and G—H from A. Kumar & G. Panigrahi 1651 (CAL.)].

Schlich s.n. (CAL acc. no. 153858); Jaunsar, Deota, 2440 m, May, 1894, *T. W. Forster* 52 (CAL); Simla, 24 June 1903, *Kalka...*19008 (CAL); Simla, 2440 m, Oct. 1907, *A. Meebold* 5078 (CAL); Simla, 1908, *A. R. Tucker s.n.* (CAL acc. no. 561283); *Uttar Pradesh* : Mussoorie, June 1869, *G. King s.n.* (CAL acc. no. 153881); Mussoorie, 1869, *G. King s.n.* (CAL acc. no. 153889); Garhwal valley of Nabun, (?) *G. King* 315. (CAL acc. no. 153876); Kumaon, Tola, Gory valley, 15 Aug. 1900, *Inayat* 24358 (CAL, DD); Garhwal, *G. King s.n.* (3 sheets, CAL acc. no. 153883, 153890 & 153891); Garhwal on way to Trijuginarayan, 2000 m, 24 May 1972, *B. D. Naithani* 47949 (BSD); Tehri-Garhwal, Pinsar, 2440 m, 23 Sept. 1974, *M. V. Viswanathan* 54881 (BSD); Mussoorie, Zabbarkhet, 2135 m, 11 Oct. 1985, *A. Kumar* & *G. Panigrahi* 1651 (CAL—9 sheets); *N. W. India* : *Royle* ? 387 (CAL acc. no. 153875); *Sikkim* : *J. D. Hooker s.n.* (CAL acc. no. 153925), *p.p.*, including only one left hand lower specimen. PAKISTAN : above Sambalpat, 2135-2440 m, 5 Oct. 1888, *J. F. Duthie* 7470 (CAL).

Notes : In describing *Cotoneaster stracheyi* Klotz (1966) commented that "*C. stracheyi* is a hybrid between *C. acuminatus* Lindley and *C. obtusus* Lindley or *C. confusus* Klotz est". But for this incidental reference to *C. confusus* Klotz, he has nowhere published the name validly (Art. 36.1). Naithani's (1984) reference to *C. confusus* Klotz as allegedly published in "Bull. Bot. Surv. India 5 : 213. 1963, et in Wiss. Z. Univ. Halle 15 : 539. 1966" must be treated as an erroneous presumption. Further *C. confusus* sp. nov. resembles *C. affinis* Lindley in habit, size and shape of leaves, colour of petals and number of nutlets, but *C. affinis* differs from the former in having its younger branches densely pubescent, leaves obovate to elliptic, but never oblong-lanceolate; lower surfaces of leaves densely pubescent; petioles, peduncles, pedicels and floral cups pubescent and pomes dark purple.

2. Cotoneaster parkinsonii Panigrahi et A. Kumar, sp. nov. [Fig. 2, A-G ; plate 1].

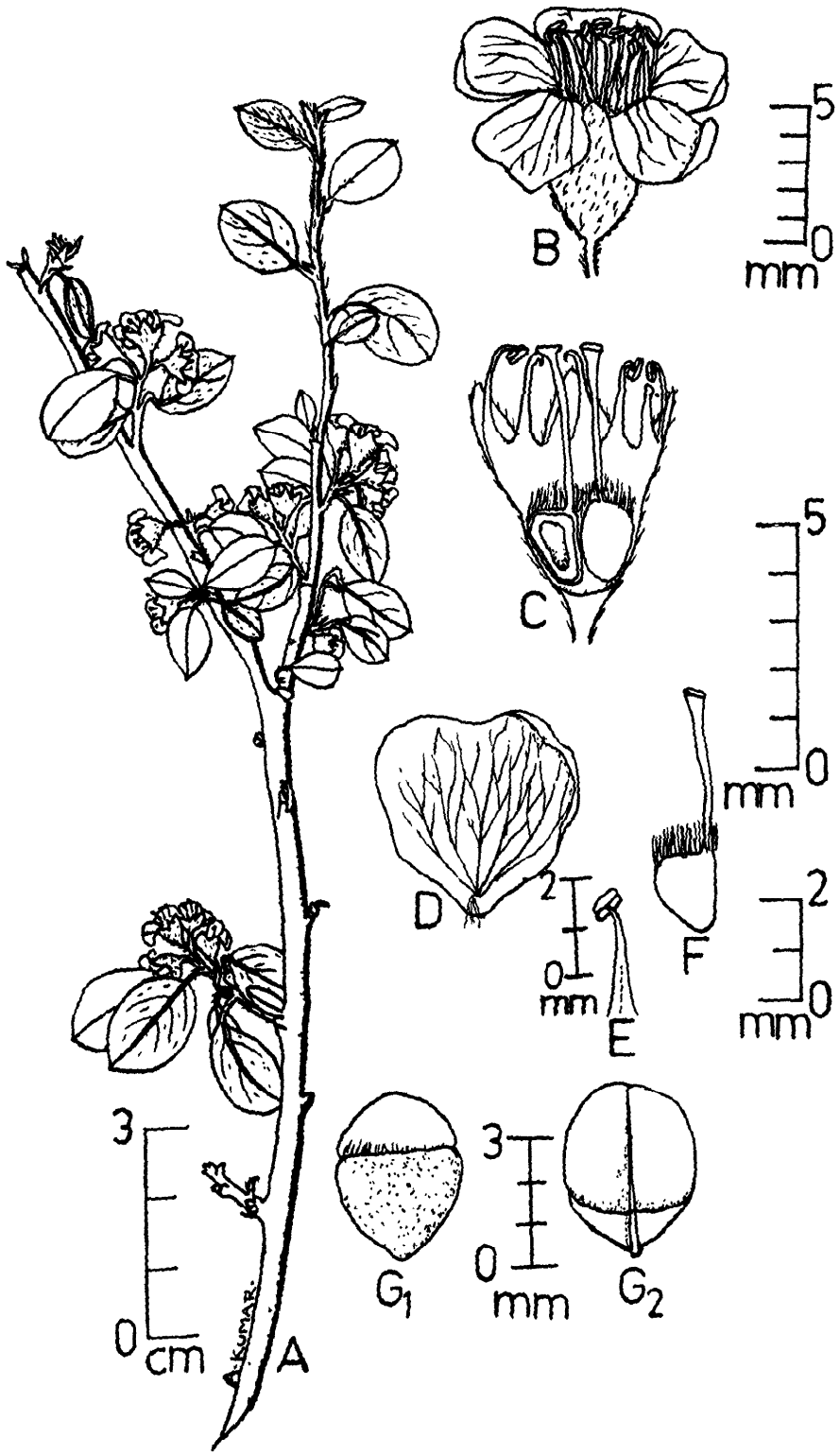
C. schlechitendalii Klotz similis, sed differt foliis infra sparsim villosis, cum petiolis longioribus, nuculis 2, non connatis. Differt a *C. poluninii* Klotz folliis majoribus, infrasparsim villosis, supra glabris, petiolis longioribus, floribusque paucioribus.

Typus : India : Uttar Pradesh, Almora district, Pindow valley, Dwali, 2440 m, 12 June 1935, *C. E. Parkinson* 5992 (Holotypus-DD; photo—CAL).

A rigid shrub, erect, semi-evergreen; short shoots spirally arranged on the main stem, young branches strigose-villous but older ones become glabrous, brown and rough, dark-purple or dark-brown. Leaves 8 - 17 × 5 - 11 mm, ± spiral, coriaceous or subcoriaceous, elliptic or broad-elliptic, apex obtuse or rounded, mucronulate, base generally rounded or obtuse, sometimes broad-cuneate, upper surfaces bright and glabrous, lower surfaces ash-grey-brown, sparsely villous when young and subglabrous or glabrous at maturity; petioles 2-4 mm, strigose-pilose. Stipules 1 1.5 mm long, subulate, margin pilose. Inflorescences 6 - 11 mm long, 1 -6-flowered; pedicels 2 - 3 mm long, villous. Floral cups 4-5.5 mm long, strigose-villous when young, but sparsely strigose at maturity; calyx teeth 1.5 - 2 mm long, densely villous or tomentose. Petals 3.5 - 4 mm, white, patent, obovate, clawed at base and nearly subglabrous, 3 - 5 veins arising from base of the claw and branched towards the apex. Stamens about 15 in number; anthers dithecous, dorsifixed, filaments 2 - 3 mm long. Carpels 2, 4-6.5 mm long, upper portion of the ovary woolly, styles 2, glabrous, emerging outside the floral cup, stigma capitate. Seeds/nutlets 2 in number, 4 × 3 mm when enclosed in young fruit, but not fused; ripe pome not seen.

Distribution : INDIA : Uttar Pradesh (known by the type collection only).

Notes : *Cotoneaster schlechtendalii* Klotz resembles *C. parkinsonii* Panigrahi et A.



Figs. 2. (A-G): *Cotoneaster parkinsonii* Panigrahi et A. Kumar sp. nov. : A. a flowering twig. B. a flower, C.L.S. of a floral cup. D. a petal. E. a stamen. F. a carpel. C. Nutlets (1-dorsal view, 2-ventral view). [A-G drawn from C.E. Parkinson 5992(DD)].



Plate 1. *Holotype* (C.E. Parkinson 5992, DD) of *Cotoneaster parkinsonii* Panigrahi et A. Kumar sp. nov.

Kumar *sp. nov.* in being erect shrubs with leaves elliptic, apex rounded, not emarginate, inflorescences 1 - 6-flowered, petals patent and nutlets 2, but it differs in having shorter petioles (1 2 mm), lower surfaces of the leaves strigose tomentose and nutlets fused. *Cotoneaster poluninii* Klotz (species endemic to Nepal) also resembles *C. parkinsonii sp. nov.* but differs in having smaller leaves (6 - 12 × 3 - 6 mm), lower surfaces tomentose, upper

surfaces sparsely pilose ; petioles shorter (1 - 2 mm) and inflorescence with 3 - 9 flowers.

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