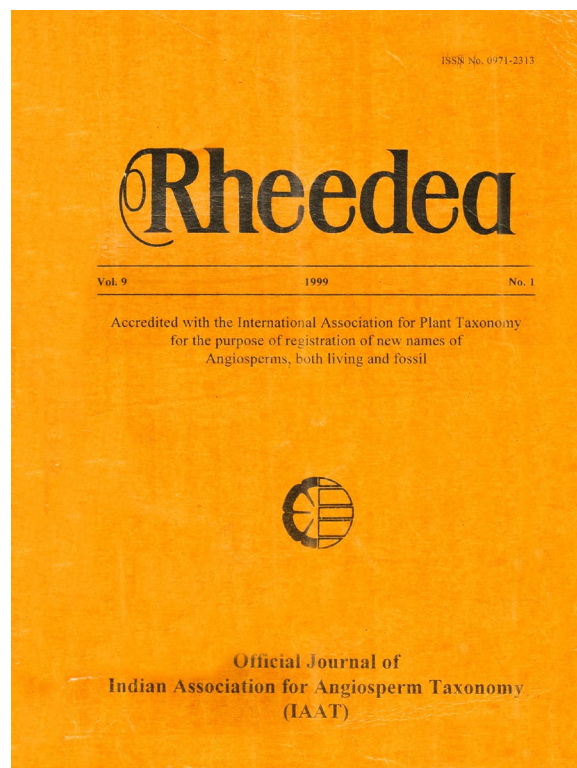




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The Genus *Ribes* L. (Grossulariaceae) in Sikkim

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Abstract

Taxonomic account of the genus *Ribes* L. in Sikkim is presented. *Ribes orientale* Desf. is new record for Sikkim. Correct nomenclature, descriptions, ecological notes, key to the species have been provided along with the distributional map.

INTRODUCTION

Genus *Ribes* L. includes about 150 species mainly distributed in temperate and alpine regions of Asia, Europe and America. In India, it is confined to temperate and alpine Himalayan ranges. A few species are known under cultivation mainly for their fruits (gooseberries and currants) and as ornamentals. Most of the cultivated varieties are of European and Asiatic in origin.

C.B. Clarke (1878) reported 8 species of *Ribes* L. in the Flora of British India, out of which 4 were reported from Sikkim. Perhaps the earliest collection of *Ribes* L. from this region was made by Griffith's collector in 1843 somewhere from Sikkim and Bhutan (*Ribes desmocarpum* Hook. f. & Thomson, cf. C.B. Clarke *l.c.*). Out of the four species reported by C.B. Clarke from Sikkim three have a type locality in Sikkim (*R. desmocarpum* Hook. f. & Thomson, *R. luridum* Hook. f. & Thomson and *R. griffithi* Hook. f. & Thomson). Smith and Cave (1911) collected 4 species from inner valleys of North Sikkim. Cowan & Cowan (1929) reported 2 species from northern part of Bengal. Rao (1964) could collect only one species during his tour to the State. Hara *et al.* (1979) reported 9 species from Nepal. Grierson & Long (1987) reported 8 species in Flora of Bhutan. The present paper confirms the occurrence of 6 species in Sikkim. Correct nomenclature with full citation and synonyms, descriptions, notes, key to the species, a distributional map (Fig. 1) and figures for easy identification have been provided in this paper.

Ribes L Sp. Pl. 200. 1753.

Dioecious or monoecious, branched shrubs, sometimes spiny (not in Sikkimese species). Leaves alternate, simple, usually palmately lobed, exstipulate. Racemes axillary or on short lateral shoots. Calyx shallowly cupular or tubular, 5 lobed, often petaloid. Petals 5, adnate to calyx and smaller than calyx lobes. Stamens 5, opposite to calyx lobes and adnate to calyx tube, rudimentary in female flowers. Ovary inferior, unilocular, placentation parietal, ovules numerous on

S.S. Das and Paramjit Singh

two placentas, style single, bifid above, male flowers with styles only. Fruit globose or oblong berry, usually with persistent calyx at apex.

Key to the Species

- 1a. Racemes pendulous; flowers bisexual; fruits with 6-9 mm long persistent calyx at apex *R. griffithii*
 1b. Racemes suberect to erect; flowers unisexual; fruits with 2-5 mm long persistent calyx at apex 2
- 2a. Leaves reniform, 1-2 cm across, shallowly 3-5 lobed, rounded or subacute at apex, crenate at margins *R. orientale*
 2b. Leaves ovate or broadly ovate, 3-9 cm long, 3-5 lobed acute or acuminate at apex, dentate at margins 3
- 3a. Racemes 6-15 cm long; berries glandular pubescent *R. takare*
 3b. Racemes upto 5 cm long; berries glabrous 4

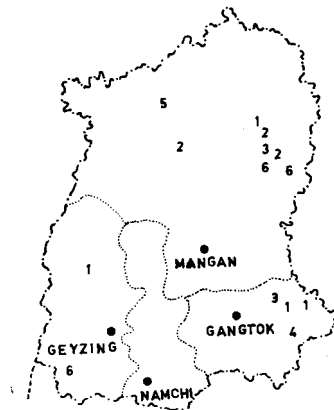


Fig. 1. Map Showing the distribution pattern of different species of *Ribes* in Sikkim : 1. *Ribes glaciale* Wallich; 2. *Ribes griffithii* Hook. f. & Thomson; 3. *Ribes laciniatum* Hook.f. & Thomson; 4. *Ribes luridum* Hook.f. & Thomson; 5. *Ribes orientale* Desf.; 6. *Ribes takare* D. Don.

● : District head-quarter.

Genus *Ribes*

- 4a. Leaves deeply lobed, mid lobe acuminate, more than twice as long as lateral ones
 *R. laciniatum*
- 4b. Leaves shallowly lobed, mid lobe sub-acute to acute, as long as or slightly longer than
 lateral ones 5
- 5a. Bark blackish; flowers minutely pubescent. Bracts obovate 5 x 2.5 mm berries black
 *R. luridum*
- 5b. Bark greyish; flowers puberulous; bracts linear lanceolate, 2-4 x 1 mm berries red
 *R. glaciale*

1. *Ribes glaciale* Wall. in Roxb., Fl. Ind. 2 : 513. 1824 *pro parte*; C.B. Clarke in Hook. f. Fl. Brit. Ind. 2 : 410 1878 *pro parte*; Hara in Fl. E. Him. 116. 1966; in Hara *et al*, Enum. Fl. Pl. Nepal 2 : 158. 1979; Grierson in Grierson & Long, Fl. Bhutan 1 (3) : 525. 1987. *Kimbu* (Nepali). Fig. 2.

Polygamo - dioecious shrubs up to 5 m high, branches woody, silvery - greyish. Leaves 2-5 cm long, broadly ovate, shallowly 3-lobed, middle lobe elongate, cordate at base, dentate at margins, acute at apex, puberulous above, glandular - pubescent beneath; petioles up to 2 cm long. Racemes glandular pubescent. Flowers dull purplish; bracts elliptic, glandular - ciliate.

Male flowers : Calyx lobes ca 4 mm long, linear oblong, acute. Petals not seen. Stamens ca 1 mm long. Berries globose, glabrous, red.

Fl. & Fr : April - July.

Distribution : Himalaya (Kasmir to Bhutan) S. Tibet, W. China.

Ecology : Occasional in forest margins and *Rhododendron* forests between 2500-4000 m altitude.

Selected specimens : East Sikkim; Mamaichu, *Krishna & Singh* - 3035 (BSHC); Kupup - Mamaichu, *Hajra* - 328 (BSHC), North Sikkim : Yumthang to Yomesamdong, *Rai & Pradhan* - 5555 (BSHC). West Sikkim : Dzungri - Tsoka, *Pradhan* 15150 (BSHC).

2. *Ribes griffithii* Hook. f. & Thomson in J. Linn. Soc. Bot. 2 : 88. 1857; C.B. Clarke in Hook. f., Fl. Brit. India 2 : 441. 1878; Hara in Fl. E. Him. 116. 1966; 2 : 48. 1971; in Hara *et al*, Enum. Fl. Pl. Nepal 2 : 158. 1979; Grierson in Grierson & Long, Fl. Bhutan 1 (3) : 523. 1987. Fig. 3.

Shrubs up to 3 m high; branches glabrous, blackish. Leaves 3.5-8 x 4.5-9 cm, broadly ovate, 3-5 lobed, serrate at margins, glandular hairy above, pubescent along veins beneath; petioles 4-6 cm long. Racemes up to 15 cm long, pendulous, pinkish - red. Flowers bisexual, sessile,

S.S. Das and Paramjit Singh

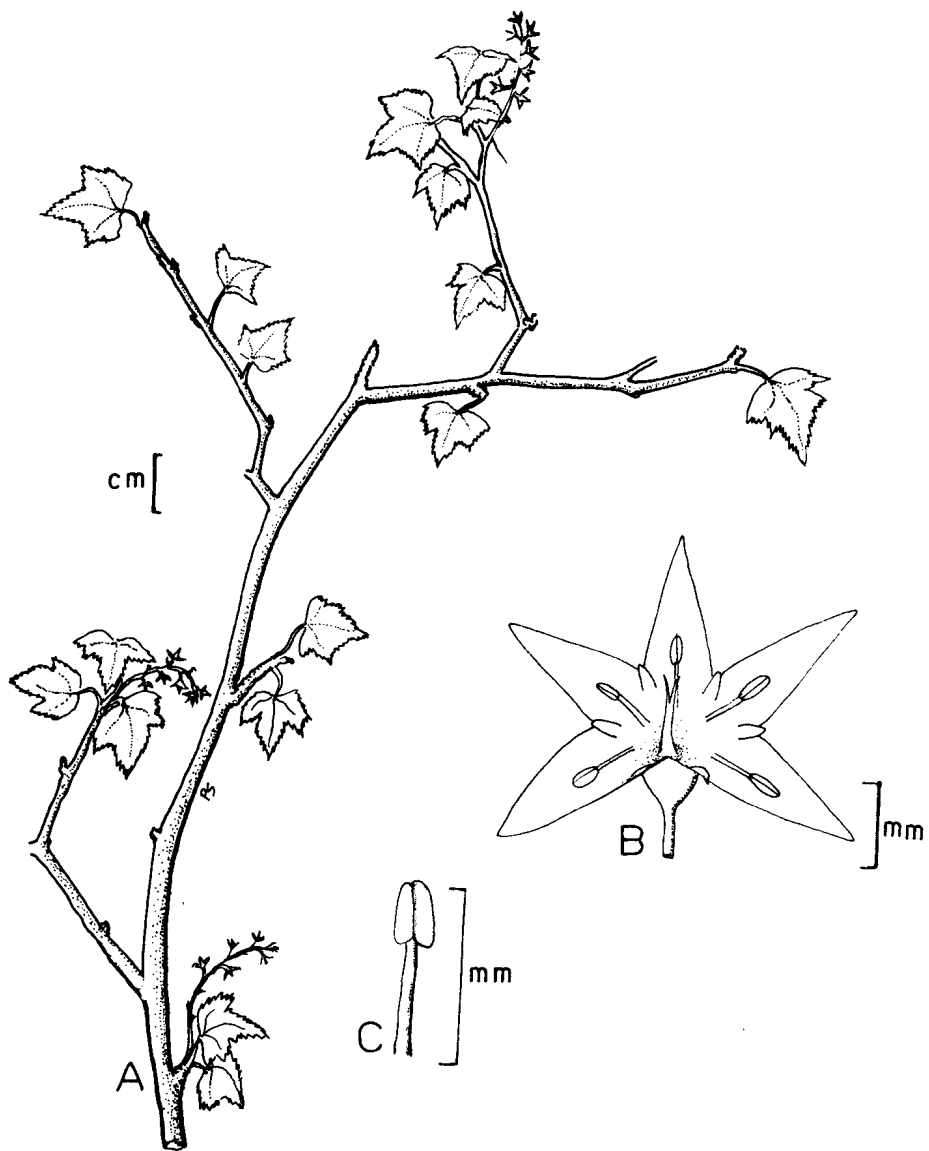


Fig. 2. *Ribes glaciale* Wall. : A. Habit; B. Male flower opened; C. Stamen.

Genus *Ribes*

pedicel densely hairy. Bracts ca 4 mm long, linear - oblong, pubescent; bracteoles 2, subulate, pubescent. Calyx tube 5-6 mm long, campanulate, lobes ca 3 x 1.5 mm, oblong, obtuse, reflexed, glabrous. Petals ca 2 mm long, subacute, erect. Stamens ca 2 mm long. Gynoecium ca 8 mm long. Style ca 5 mm long, stigma bifid. Berries ca 1.2 cm across, ovoid, red.

Fl. & Fr. : April - August.

Distribution : Himalaya (Nepal and Bhutan), Assam, South Tibet.

Ecology : Rare in forests and hill sides between 3700-4000 m altitude.

Selected specimens : North Sikkim : Yumthang, Gammie - 961 (CAL); Lachung to Yumthang, Raju & Mitra - 7420 (BSHC); Zemu Valley, Smith & Cave - 1138 (CAL).

3. *Ribes laciniatum* Hook. f. & Thomson in J. Linn. Soc. Bot. 2 : 87. 1857; Hara in Hara et al. Enum. Fl. Pl. Nepal 2 : 158. 1979; Grierson in Grierson & Long, Fl. Bhutan 1 (3) : 525. 1987. *R. glaciale* Wall. var. *laciniatum* (Hook. f. & Thomson) C.B. Clarke in Hook. f., Fl. Brit. India 2 : 410. 1878; Hara, Fl. E. Him. 116. 1966.

Polygamo - dioecious shrubs up to 3 m high; branches rough, greyish, glabrous. Leaves up to 3.5 cm long, conspicuously trilobed, middle lobe longer than lateral ones, cordate at base, dentate at margin, acuminate at apex, puberulous above, glandular pubescent beneath, glands subsessile. Racemes up to 5 cm long, few flowered; bracts ca 5 mm long, linear - lanceolate, ciliate, acuminate at apex, bracteoles 2, glandular pubescent. Calyx lobes ca 4 x 2 mm, elliptic-lanceolate. Petals ca 0.75 mm long. Stamens ca 1 mm long. Fruits not seen.

Fl. & Fr. : April - June.

Distribution : Eastern Himalaya (Nepal to Bhutan), Assam, South Tibet and North Myanmar.

Ecology : Occasional in coniferous - *Rhododendron* forests between 3000-3500 m altitude.

Notes : The species is closely allied to *Ribes glaciale*, but in latter bark is silvery, leaves shallowly lobed, bracteoles absent, racemes glandular pubescent, whereas in *R. laciniatum* bark is greyish, leaves deeply lobed bracteoles 2, racemes eglandular pubescent.

Selected specimens : East Sikkim : Kyongnosla to Kupup, Pradhan - 6630 (BSHC). North Sikkim : Yumthang to Lachung, Sastry & Rai 15651 (BSHC).

4. *Ribes luridum* Hook. f. & Thoms. in J. Linn. Soc. Bot 2 : 87 1857; C.B. Clarke in Hook. f. Fl. Brit. India 2 : 410. 1878; Hara, Fl. E. Him. 116.1966; Hara in Hara *et al*, Enum. Fl. Pl. Nepal 2 : 158. 1979; Grierson in Grierson & Long, Fl. Bhutan 1 (3) : 525. 1987. Fig. 4

S.S. Das and Paramjit Singh

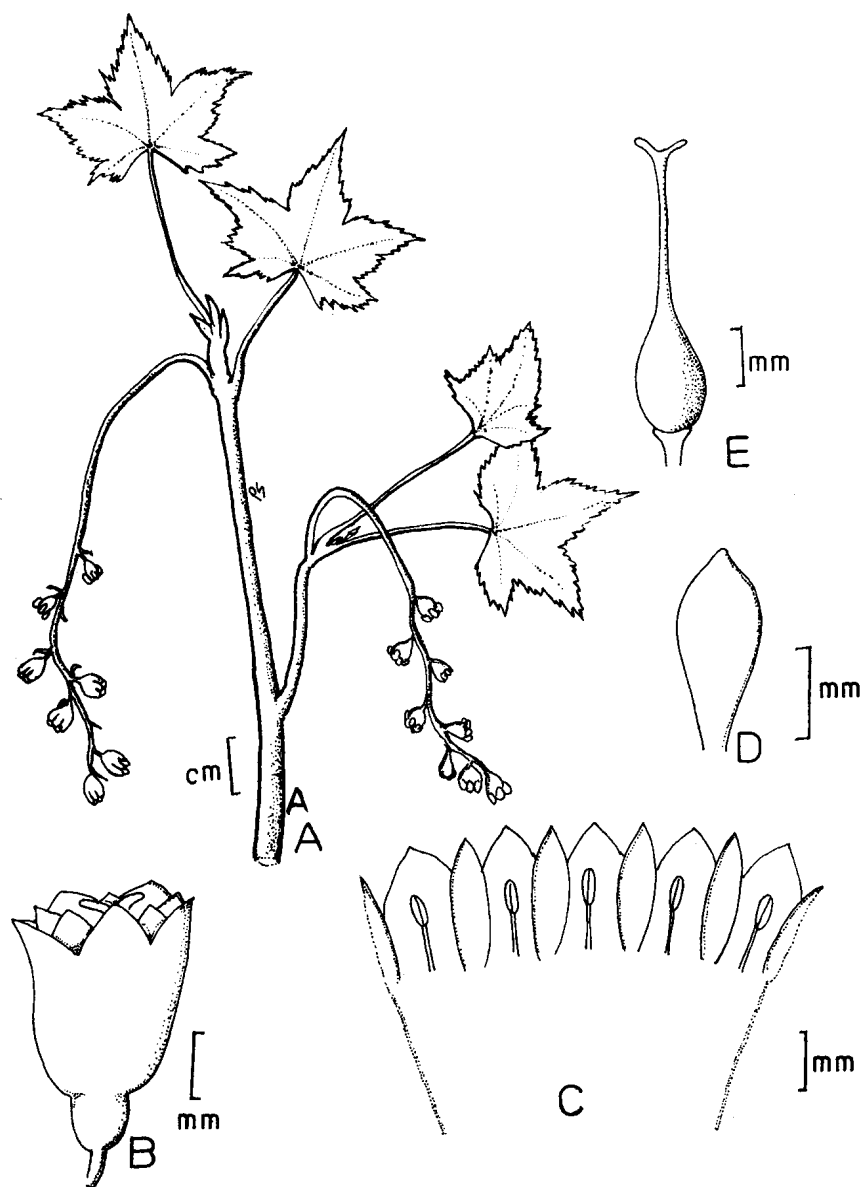


Fig. 3. *Ribes griffithii* Hook. f. & Thomson : A. Habit; B. Flower; C. Flower opened; D. Petal; E. Gynoecium.

Genus *Ribes*

Polygamo - dioecious shrubs upto 2 m high; branches glabrous, blackish. Leaves up to 4 x 3 cm, broadly ovate, shallowly tri-lobed, cordate at base, dentate at margins, acute at apex, glandular hairy above, pubescent and glandular beneath; petiole 1-2 cm long, pubescent. Racemes upto 5 cm long, densely flowered, erect, pubescent. Male flowers not seen. Female flowers : Calyx tube pubescent; lobes ca 3x2 mm, elliptic, acute, pubescent along nerves. Petals ca 1 mm long, mucronate at apex. Stamines 1 mm long. Gynoecium ca 2.5 mm long. Berries ca 7 mm across, glabrous, black.

Fl. & Fr. : June - August.

Distribution : Eastern Himalaya, Tibet, Western China.

Ecology : Occasional in open hill sides in temperate to alpine regions between 3800-4200 m.

Selected specimens : East Sikkim : Gnathang to Padamchen Rai - 501 (CAL, BSHC).

5. ***Ribes orientale*** Desf. Hist. Arb. 2 : 88. 1809; C.B. Clarke in Hook.f. Fl. Brit. India. 2 : 410 1878; Hara in Fauna & Fl. Nep. Him. 143. 1955; in Fl.E. Him. 2 : 48. 1971; in Hara *et al*, Enum. Fl. Pl. Nepal 2 : 158. 1979; Grierson in Grierson & Long, Fl. Bhutan 1 (3) : 524. 1987. Darbang (Bhutia). Fig. 5

Polygamo-dioecious shrubs 30-100 cm. high; branches blackish, woody. Leaves ca 2 cm, across, broadly ovate to suborbicular, shallowly 3-5 lobed, shallowly cordate at base, serrate and ciliate at margins, sub-acute to obtuse at apex, pubescent above, densely pubescent beneath. Racemes 5-10 flowered, 2-4 cm long, pubescent and glandular. Bracts ca 4x1 mm, elliptic. Calyx cup hairy, lobes ca 2.5 mm long, oblong, obtuse. Petals ca 1 mm long. Stamens ca 1 mm long. Berries ca 5 mm across globose, pubescent near apex, reddish.

Fl. & Fr. : May - August.

Distribution : S.E. Europe, W.&C. Asia, Altai, Himalaya (Jammu & Kashmir, Bhutan, Nepal, Sikkim) Tibet, Mongolia and W. China.

Ecology : Rare on open hill sides at ca 4000m altitude.

Note : This is the first report for the species from Sikkim.

Selected specimens : North Sikkim : Mugunthang to Lhonak La. Rai 9452 (BSHC).

6. ***Ribes takare*** D. Don, Prodr. Fl. Nep. 208. 1825; Hara in J. Jap. Bot. 50. 267. 1975; in Hara *et al*, Enum. Fl. Pl. Nepal 2 : 159. 1979; *R. acuminatum* Wall. ex G. Don. Gen. Syst. 3 : 187 1834; Grierson in Grierson & Long, Fl. Bhutan 1(3) : 524.1987. *R. desmocarum* Hook. f. & Thoms. in J. Linn. Soc. Bot. 2 : 87. 1857; C.B. Clarke in Hook.f.Fl. Brit. India 2 : 410.1878. Fig. 6.

S.S. Das and Paramjit Singh

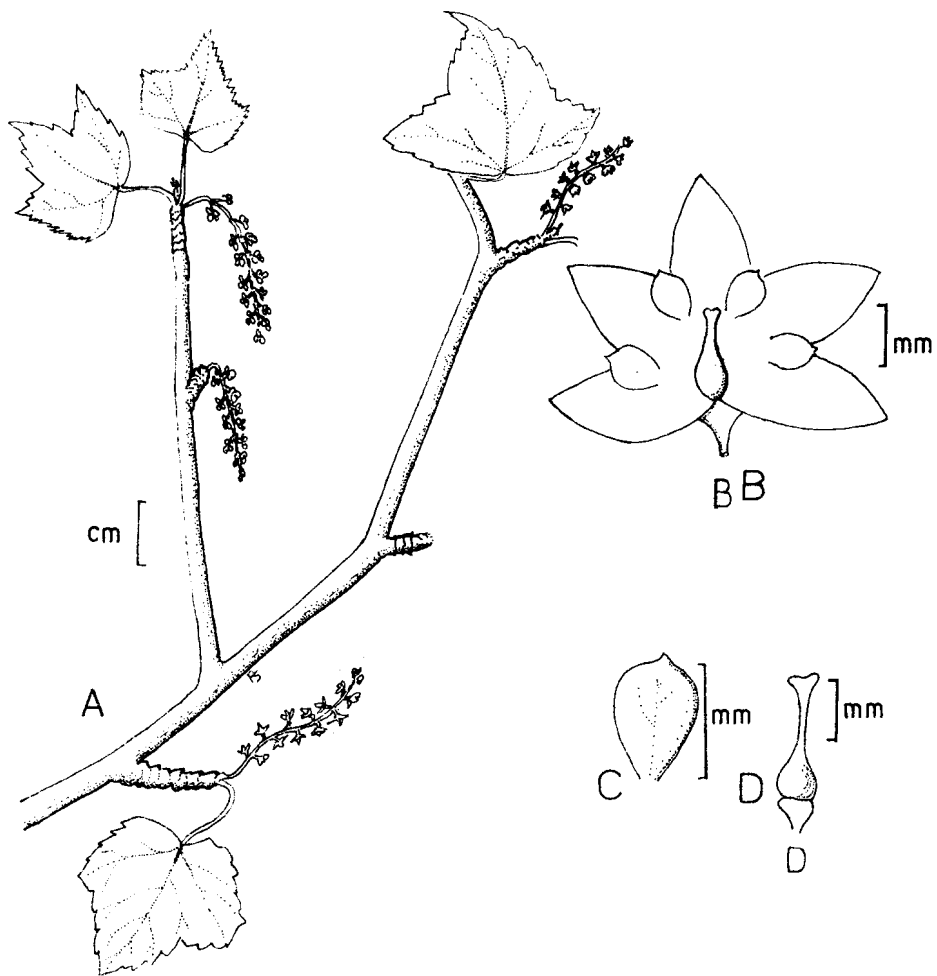


Fig. 4. *Ribes luridum* Hook. f. & Thomson : A. Habit; B. Female flower opened; C. Petal; D. Gynoecium.

Genus *Ribes*

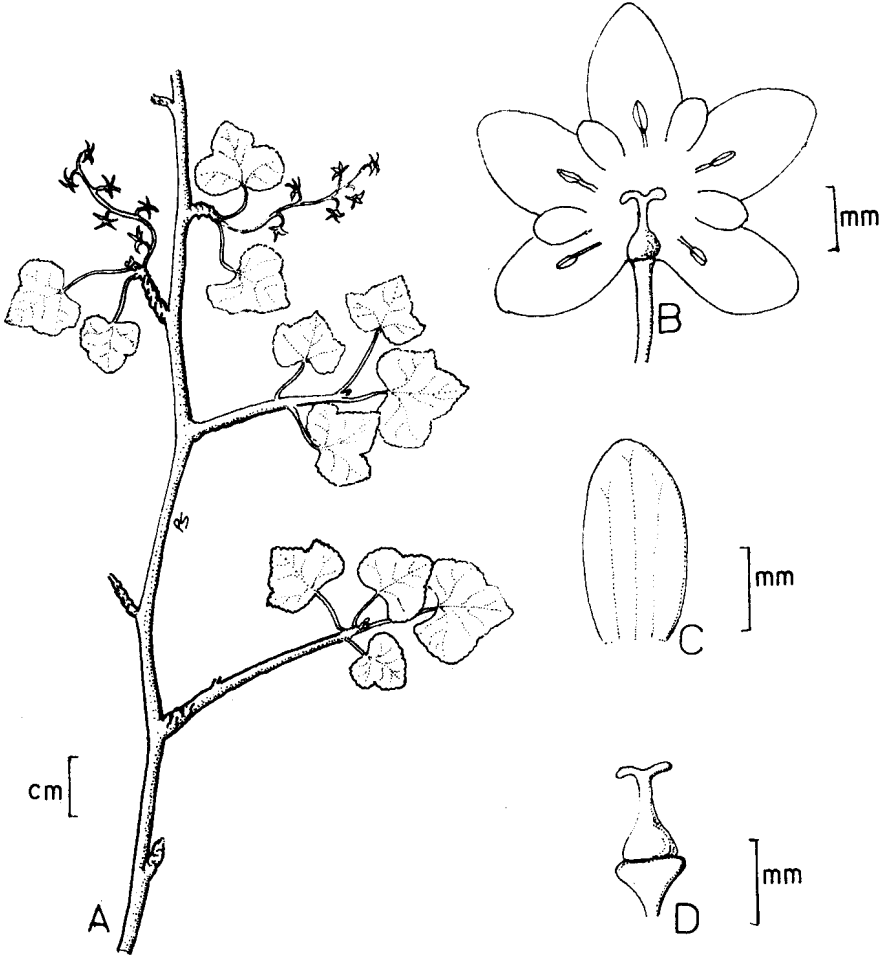


Fig. 5. *Ribes orientale* Desf. : A. Habit; B. Male flower opened (with pistilloid); C. Sepal; D. Pistilloid.

S.S. Das and Paramjit Singh

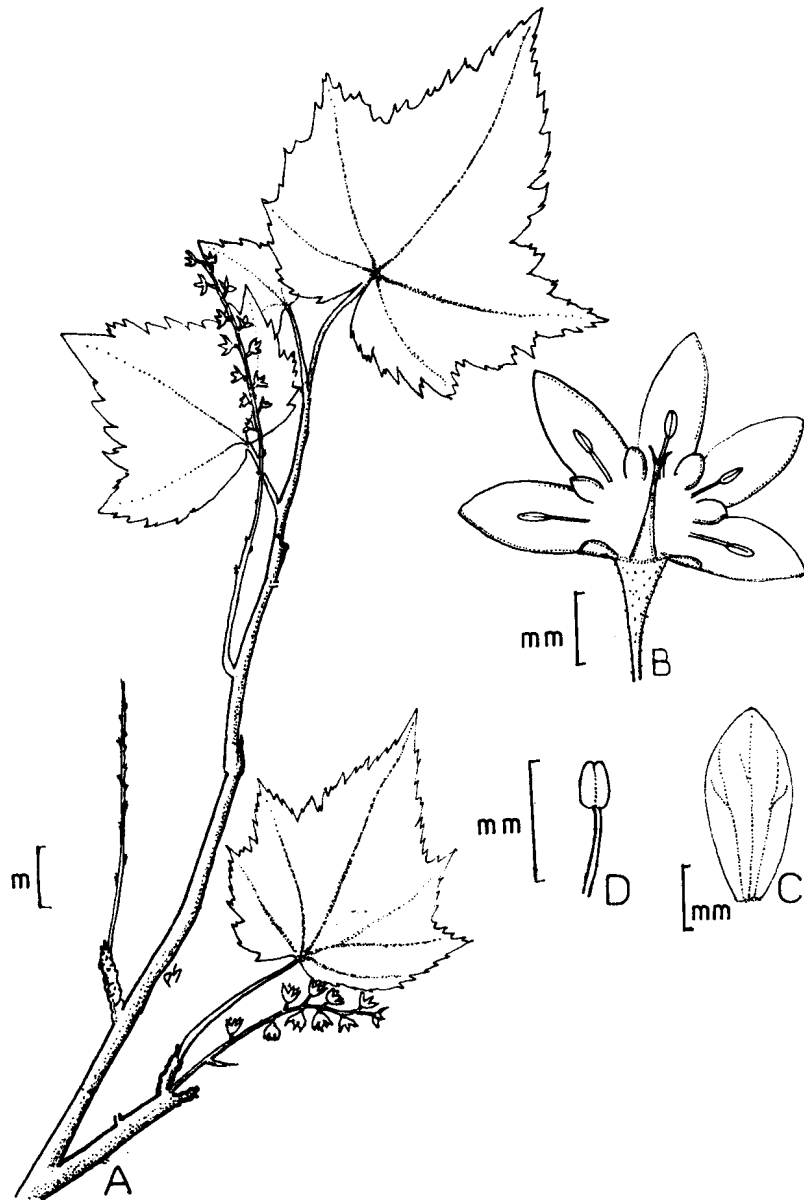


Fig. 6. *Ribes takare* D. Don : A. Habit; B. Male flower opened; C. Sepal; D. Stamen.

Genus *Ribes*

Polygamo - dioecious shrubs ca 2 m high; old stems glabrous, blackish, younger parts glandular hairy. Leaves 5-11 x 3.5-8 cm, broadly ovate, shallowly 3 lobed, cordate at base, sub-acutely serrate at margins, acute at apex, pubescent and glandular hairy beneath; petioles upto 4 cm long, densely pubescent and glandular hairy. Racemes 6-11 cm long; rachis pubescent and glandular hairy. Bracts 5-7 mm long, lanceolate, glandular-ciliate at margins. Flowers ca 6 mm across, greenish; pedicels upto 5 mm long, glandular pubescent. Calyx cup pubescent; lobes ca 2.5 x 1 mm, ovate-oblong, acute. Petals ca 0.5 mm long, obovate. Berries ca 7x5 mm, ellipsoid, glandular-pubescent, red.

Fl. & Fr. : May-July.

Distribution : Himalaya (Garhwal to Bhutan), Assam, N. Myanmar, W.&C. China.

Ecology : Occasionally found in rocky habitats on the margins of oak and coniferous forests between 2700-3500m altitude.

Selected Specimens : North Sikkim : Yakchey - Yumthang, *Raju & Singh* 5806 (BSHC); Lachung to Yumthang, *Raju & Mitra* - 7418 (BSHC); West Sikkim : Hille to Ribdi, *Singh* - 17306 (BSHC).

Notes : Hara (in J. Jap. Bot. 50.267.1975) recorded two forms as from Eastern Himalaya f. *takare* and f. *desmocarpum* (Hook.f. & Thomson) Hara mainly differentiated on the basis of minor characters. These forms have not been recognised here.

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S.S. Das and Paramjit Singh

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