

The family Rosaceae in Sikkim – Diversity and Distribution: An Appraisal - I

A.A. Ansari

Botanical Survey of India, Sikkim Himalayan Circle, Gangtok – 737 103, Sikkim
e-mail:bsigangtok@hotmail.com

DRAFT

Abstract

The paper presents an enumeration of 84 species and 14 varieties belonging to 17 out of a total of 27 genera of family Rosaceae in Sikkim along with their distribution in the state, altitude, flowering and fruiting periods, reference to a few herbarium specimens, etc. of available taxa.

Keywords: Rosaceae, Sikkima, Eastern Himalaya

INTRODUCTION

Sikkim, a truly rich biodiversity “Hotspot” in Eastern Himalaya harbors nearly 30 % of the floral wealth of India (ca 4,500 species of flowering plants), with only 0.22 % of the geographical area of the country (7096 sq km). It is a very small hilly state bounded by vast stretches of Tibetan Plateaus in the North, the Chumbi valley of Tibet and Bhutan in the East, Nepal in the West and Darjeeling district of West Bengal in the South. It has a stretch of 122 km from North to South and 64 km from East to West and lies in North-Eastern Himalaya between 27° 00' 46" – 28° 07' 48" latitude and 88° 58" – 88° 25" E longitudes. The state receives annual rainfall of 200 to 400 cm. Teesta and Rangeet, originating from Cholamu lake and Rathong glacier are the two major rivers of the state. The main soil type is loamy sand to silty clay-loam. The altitudes ranges between 270 to 8580 m with perpetual snow cover. The Sangalila range separates the state from Nepal; Chola range from Tibet and Bhutan and Pangolia range from Bhutan. The state has unique floristic composition of Rhododendrons, Orchids, Primulas alongwith several primitive flowering plants distributed in tropical, subtropical, temperate and alpine vegetation. Rosaceae is occupying 6th position among the 10 dominant families of angiosperms in the state and with over 138 species including several endemics.

Botanical explorations are regularly undertaken by the Botanical Survey of India throughout the state. Based on preliminary studies of herbarium (BSHC and CAL) and literature a total number 84 species and 14 varieties belonging to 17 out of a total of 27 genera of the family Rosaceae are enumerated in the present paper along with their distribution in the state, altitude, flowering and fruiting periods, reference to a few herbarium specimens, etc. of available taxa. Several taxa are added new to the state flora.

ENUMERATION

Agrimonia pilosa Ledeb. ssp. *japonica* (Miquel) Hara, var. *nepalensis* (D. Don) Nakai; *A. nepalensis* D. Don
Distribution: Nampruk, Geyzing to Rathong, Ratong river, Zemu valley; 1200 – 3000 m; *Flowers & Fruits:* April – September; P. Singh 13887 (BSHC).

var. *zeylanica* (Moon ex Hook. f.) Purohit & Panigrahi *A. zeylanica* Moon ex Hook. f.

Distribution: Sureil; 1200 – 3000 m; *Flowers & Fruits:* February – October; W. W. Smith 523 (CAL).

Aruncus dioicus (Walter) Fernald; *Actaea dioica* Walter, ssp. *triternatus* (Maximowicz) Hara; *Aruncus sylvester* Kostel ex Maximowicz var. *triternatus* Maximowicz

Distribution: Below Dzongri, Zemu Valley, Kishong, Thangu; 2300 – 3700 m; *Flowers & Fruits:* June – October; D. Maity 23312 (BSHC).

Brachycaulos simplicifolius Dixit & Panigrahi

Distribution: Gaorong; ca 4500 m; Endemic; *Flowers & Fruits:* July – October; W. W. Smith 3993 (CAL).

Coluria longifolia Maxim.

Distribution: Naku La; 2700 – 4600 m; *Flowers & Fruits:* July – October; Major F.E. Younghusband 237 (CAL).

Notes: New Generic record for India.

Cotonesater acuminatus Lindley

Distribution: Lachen, Sebu valley, Thangu; 2700 – 4000 m; *Flowers & Fruits:* April – August; G.A. Gammie 1131 (CAL); *D. Maity & A. Maity s.n.* (BSHC).

Cotoneaster adpressus Bois.

Distribution: Dzungri–Olokthang; ca 3900 m; *Flowers & Fruits:* May–July; D.C.S. Raju & S. Singh 7634 (BSHC)

Cotoneaster affinis Lindley *C. bacillaris* Lindley var. *affinis* (Lindley) Hook. f.

Distribution: - Cham La; 2135 – 3300 m; *Flowers & Fruits:* April – September; J.D. Hooker s.n. (CAL).

Cotoneaster bacillaris Wallich ex Lindley

Distribution: Dhakoma; 1600 – 3355 m; *Flowers & Fruits:* May – June; J.D. Hooker s.n. (CAL- 153921).

Cotoneaster cashmiriensis Klotz

Distribution: Sikkim; ca 3500 m; *Flowers:* June – July; *Fruits:* August; Mrs. Townaud 503 (CAL).

Cotoneaster cavei Klotz

Distribution: Kalapokhri; 2800 – 3400 m; *Flowers & Fruits:* May – September; G. Klotz s.n. (CAL).

Cotoneaster confusus Klotz

Distribution: Sikkim (locality not given); 2000 – 2450 m; *Flowers:* May; *Fruits:* June – October; J.D. Hooker s.n. (CAL – 153925).

Cotoneaster congestus Baker, *C. microphyllus* Wallich ex Lindley, var. *glacialis* Hook. f. ex Wenzig

Distribution: Kimchighom, Lachen valley, Lachung, Lamteng, Zemmu valley, Thangu, Nathu La, Gochia La; 2745 – 5270 m; *Flowers:* June; *Fruits:* October; J.D. Hooker s.n. (K-image – CAL).

Cotoneaster frigidus Wallich ex Lindley *Nep.:* Charu.

Distribution: Lachung; 2000 – 2800 m; *Flowers & Fruits:* April – November; W.W. Smith 3337 (CAL); N.R. Mondal 14664 (BSHC).

Cotoneaster gamblei Klotz

Distribution: Lachung ; 2500 – 3300 m; *Flowers & Fruits:* April – October; Ribu & Shomoo 6041 (K- image-CAL).

Cotoneaster horizontalis Decaisne

Distribution: Sikkim (locality not given); 3660 – 3965 m; *Flowers:* June; *Fruits:* September – November.

Cotoneaster integrifolius (Roxburgh) Klotz, *Caragana integrifolia* Roxburgh, *Cotoneaster thymifolius* Baker

Distribution: Samdong, Tankra La, Thangu; 1800 – 3500 m; *Flowers & Fruits:* April – July; G.A. Gammie 384 (CAL); S.K. Rai S. Pradhan 5507 (BSHC).

Cotoneaster kaganensis Klotz

Distribution: Sikkim (locality not given); *Flowers :* July; R. Seshagiri Rao s.n. (CAL-1923).

Cotoneaster microphyllus Wallich ex Lindley, var. *microphyllus*

Distribution: Thee La – Jakshong, Zemu valley; 1200 – 3050 m; *Flowers:* May – June; *Fruits:* August – September; Smith & Cave 2713 (CAL); S.K. Rai 5507,9354 (BSHC).

Cotoneaster nitidus Jaceues, *C. rotundifolia* auct. non Lindley, var. *nitidus*

Distribution: Lachen, Lachung valley; 2300 – 3200 m; *Flowers & Fruits:* May – June; G.A. Gammie s.n. (CAL- 15430); J.D. Hooker s.n. (CAL- 154030).

var. *parvifolius* (T.T. Yu) T.T. Yu. *C. distichus* Lange var. *parvifolius* T.T. Yu.

Distribution: Sikkim (locality not given) ; 2700 – 3200 m.

Cotoneaster obtusus Wallich ex Lindley

Distribution: Sikkim (locality not given); J.D. Hooker s.n. (CAL).

Cotoneaster prostratus Baker, *C. rotundifolius sensu* Hook. f. non Wallich ex Lindley

Distribution: Sikkim (locality not given); J.D. Hooker s.n. (CAL).

Cotoneaster rotundifolius Wallich ex Lindley

Distribution: Lachen; *Flowers:* June; *Fruits:* September; D. Maity & A. Maity s.n. (BSHC).

Cotoneaster rubens W.W. Smith

Distribution: Bijan, Thangu, Zemu valley; 3300 – 4200 m; *Flowers:* June; *Fruits:* September; Smith & Cave 1535 (CAL).

Cotoneaster sandakphuensis Klotz

Distribution: Lachung valley, Gosah pasture; 2200 – 3000 m; *Flowers & Fruits:* June – August; Prain's Collector 151 (CAL).

Cotoneaster symondii Th., *C. simonsii* Hort. ex Baker

Distribution: Lachung valley; 2300 – 3800 m; *Flowers & Fruits:* July – August; G.A. Gammie 304 (CAL-153979).

Cotoneaster sauguineus Yu

Distribution: Sikkim

Cotoneaster verruculosus Diels

Distribution: Sikkim

Cotoneaster wallichianus Klotz

Distribution: Dikchu valley, Gnatana, Nambrangthang, Tankra Mountain; ca 3000 m; *Flowers & Fruits:* July – August; W. W. Smith 3762 (CAL).

Cydonia oblonga Mill. *C. vulgaris* Pers. Eng. Quince; Cultivated.

Docynia indica (Wallich) Decne *Pyrus indica* Wallich Nep.: Mehel.

Distribution: Yoksum; 1300 – 2500 m; *Flowers & Fruits:* March – May; D.C.S. Raju 4359 (BSHC), S. Pradhan 15033 (BSHC).

Duchesnea indica (Andrews) Focke, *Fragaria indica* Andrews, *Potentilla indica* (Andrews) Wolf

Distribution: Dikchu to Singhik, Gangtok, Lachung to Chungthang; 1100 – 2400 m; *Flowers & Fruits:* February – June; S. Pradhan 15067, B. Krishna 4720 (BSHC).

Eriobotrya bengalensis (Roxburgh) Hook. f., *Mespilus bengalensis* Roxburgh Nep.: Maya. *Distribution:* Sikkim (locality not given); ca 1100 m; *Flowers & Fruits:* November – February.

Eriobotrya dubia (Lindley) Decaisne, *Mespilus dubia* Lindley; Nep.: Maya.

Distribution: Geyzing to Ratong, Phedong; 1200 – 2100 m; *Flowers & Fruits:* September – November.

Eriobotrya hookeriana Decaisne

Distribution: Yoksum to Bakhim; 1500 – 2300 m; *Flowers & Fruits:* October – November.

Eriobotrya petiolata Hook. f. Nep.: Maya.

Distribution: Sikkim ; 1700 – 2200 m; *Flowers & Fruits:* March – May; Herb. Griffith 2085 (CAL).

Fragaria daltoniana J. Gay *F. sikkimensis* Kurz, *F. rubiginosa* Lacaite

Distribution: Gnathang, Karponang, Tankra Mt., Bakhim – Dzungri; 2700 – 3800 m; *Flowers & Fruits:* June – July; D.C.S. Raju & B. Krishna 6333 (BSHC).

Fragaria nilgerrensis J. Gay

Distribution: Sikkim ; 2700 – 3500 m; *Flowers & Fruits:* May – June.

Fragaria nubicola (Hook. f.) Lacaite *F. vesca* L. var. *nubicola* Hook. f. *F. vesca* auct. non L.

Distribution: Bakhim - Dzungri, Chungthang to Lachung, Singhik; 2000- 3600 m; *Flowers & Fruits:* April – June; A R.K. Sastry & S.K. Rai 15606 (CAL).

Filipendula vestita (Wallich ex G. Don) Maxim. *Spiraea vestita* Wallich ex G. Don

Distribution: Sikkim ; 1525 – 3965 (-5000) m.

Geum elatum Wallich ex G. Don var. *elatum* G. *elatum* Wallich ex G. Don, var. *leicarpum* Evans *Acomastylis elata* (G. Don) F. Bolle

Distribution: Changu, Sherathang, Botchuppa; 2400 – 4880 m; *Flowers & Fruits:* May – December; W.W. Smith 4289 (CAL).

var. *humile* (Royle) Hook. f., *Sieversia elata* Royle var. *humile* Royle

Distribution: Changu, Tankra, Joc-koo La, Chola, Megu, Dzungri; 3660 – 4575; *Flowers & Fruits:* May – August; W.W. Smith 3174 (CAL).

Geum macrosepalum Ludlow

Distribution: Hewalungi, Megu, Bijan; 4100 – 4570 m; *Flowers & Fruits:* June – September; Prain's Collector 937 (CAL).

Geum roylei Wallich ex F. Bolle

Distribution: Sikkim (locality not given); 1525 – 3487 (- 5000 m); *Flowers & Fruits:* May – October.

Geum sikkimense Prain emend. Ludlow, *Acomastylis sikkimensis* (Prain) F. Bolle

Distribution: Olakthang, Onglathang near Dzungri; Above Bho bohanjan; 3660 – 4575 m; *Flowers & Fruits:* June – October; Ribu 55 (CAL).

Maddenia himalaica Hook. f. & Thomson

Distribution: Chungthang to Lachen, Lower Zemu valley, Lachen to Chetan to Thepa la, Lachung to Temteng, Hille RF to Tal; 2500 – 3200 m; *Flowers & Fruits:* April – May; *Smith & Cave* 995 (CAL), *P. Singh & S.K. Rai* 17083 (BSHC).

Malus baccata (L.) Borkh., *Pyrus baccata* L.

Distribution: Sikkim (locality not given); 1800 – 3000 m; *Flowers & Fruits:* April – May.

Malus pumila Mill. *M. domestica* Borkh., *Pyrus malus* L. *Nep.:* Eyephal; *Eng.* Apple. *Sikkim.:* Parow.

Distribution: Chungthang to Lachung, Jungi Mandi ; 1500 – 3400 m; *Flowers:* April – May; *Fruits:* July – September; *Dr. K. Biswas* 6663 (CAL), *A.R.K. Sastry & S.K. Rai* 15608 (BSHC).

Malus sikkimensis (Wenzig) Koehne *Pyrus pashia* Buch. – Ham. ex D. Don var. *sikkimensis* Wenzig, *P. sikkimensis* (Wenzig) Hook. f.

Distribution: Lachen, Zemu valley, Lachung, Samdong, Tankra Mt.; 2400 – 3100 m; *Flowers:* March – May; *Fruits:* July – December; *Smith & Cave* 2711 (CAL), *S. Singh & S.K. Rai* 3636 (BSHC).

Neillia rubiflora D. Don

Distribution: Karponang, Lachung; 2000 – 4000 m; *Flowers & Fruits:* June – October; *C.B. Clarke* 10167 (CAL), *P. Singh* 17093 (BSHC).

Neillia thyrsiflora D. Don

Distribution: Gangtok, Fumbanglho to Ranka, Rorathang to Rongli, Chungthang, 1067 – 2440 m; *Flowers & Fruits:* Almost throughout the year; *D. Chatterjee's Collector* 138 (CAL), *S. S. Dash* 25464, 25462, 25463 (BSHC).

Photinia arguta Lindley var. **hookeri** (Decaisne) J.E. Vidal, *Pourthiaea hookeri* Decaisne *Photinia hookeri* (Decaisne) Merrill, *P. mollis* Hook. f., *Pourthiaea arguta* (Lindley) Decaisne var. *hookeri* (Decaisne) Hook. f.

Distribution: Sikkim; 300 – 1300 m.

Photinia integrifolia Lindley; *Nep.:* Kursimia, Phalame, Hare, Saro kat

Distribution: Damthang, Gangtok to Karponang; 1500 – 2400 m; *Flowers & Fruits:* April – May; *A.K. Verma* 9022, 6537 (BSHC).

Potentilla atrisanguinea Lodd.

Distrib.: Sikkim; 2700 – 5600 m; *Flowers & Fruits:* June – October.

Potentilla argyrophylla Wallich ex Lehm. var. **argyrophylla**

Distribution: Bijan, Nathu La, Onglathang near Dzungri; 2255 – 5200 m; *Flowers & Fruits:* June – September ; *King's Collector s.n.* (CAL – 149561).

var. **leucochroa** Hook. f.

Distribution: Dzungri, Zemu valley; 4010 – 4420 m; *Flowers & Fruits:* June – July; *S.N. Mitra* 9578 (CAL) *Smith & Cave* 1373 (CAL).

Potentilla arbuscula D. Don, var. **arbuscula** *Eng.:* Snow Flake; *Nep.:* Bhairung pate, China Phal.

Distribution: Dzungri – Alokthang, Lachung, Thangu, Chhangu, Kyangnosla; 3355 – 5185 m; *Flowers & Fruits:* July – October; *D. Prain s.n.* (CAL 148567), *S. S. Dash* 19367 (BSHC).

var. **glabrata** (Hook. f.) Dikshit & Panigrahi, *P. fruticosa* L. var. *glabrata* Hook.f.

Distribution: Sikkim (locality not given); Endemic; ca 4575 m ; *J.D. Hooker s.n.* (CAL-148635).

var. **pumila** (Hook. f.) Handle-Mazzetti, *P. fruticosa* L. var. *pumila* Hook. f.

Distribution: Buroomchu; ca 3660 m; *Fl.* : August; *G. King's Collector s.n.* (CAL-148660), *A. K. Verma* 7375 (BSHC).

Potentilla armerioides (Hook.f.) Grierson & Long *P. fruticosa* L. var. *armerioides* Hook. f.

Distribution: Sikkim (Below Chorten minala); ca 5185 m; *Flowers:* August; *W.W. Smith & G.H. Cave* 2330 (CAL)

Potentilla bifurcata L. subsp. **moorcroftii** (Wallich ex Lehm.) Sojak ex Panigrahi, *P. moorcroftii* Wallich ex Lehm.

Distribution: Sikkim (locality not given); 2745 – 4575 m; *Flowers & Fruits:* June – September.

Potentilla biflora Lindley ex Schlecht

Distribution: Sikkim (locality not given); 3965 – 6110 m; *Flowers & Fruits:* June – October.

Potentilla coriandrifolia D. Don *P. bryoides* Sojak

Distribution: Sherathang to Kupup, Dzungri, Jalep La; 3965 – 4575 m; *Flowers & Fruits:* June – September; *W.W. Smith* 3415 (CAL).

XX Family Rosaceae in

Potentilla cuneata Wallich ex Lehm., *P. ambigua* Cambess.

Distribution: Thangu, Yeumthang, Zemu valley; 2500 – 3700 m; *Flowers & Fruits*: May – July; *P. Chakraborty* 2370 (BSHC).

Potentilla cuneifolia Bertol.

Distribution: Changu, Yak La, Zemu valley, Nathaang, Thangu, Yeumthang; 2500 – 5200 m; *Flowers & Fruits*: June – September; *Smith & Cave* 1424 (CAL).

Potentilla eriocarpa Wallich ex Lehm., var. **eriocarpa**

Distribution: Dzungri, Llonak, Nathu la, Yak la; 4000 – 4600 m; *Flowers & Fruits*: June – August; *King's Collector s.n.* (CAL- 1487970), *D.C.S. Raju & S. Singh* 7799 (BSHC).

var. **dissecta** Marquand

Distribution: Tenchulongkri, Dongkong; 4200 – 4600 m.

var. **tsarongensis** Evans

Distribution: Llonakh, Goraphu chu, Pokhri, Nathu La; 1700 – 4400 m; *Flowers & Fruits*: July – October; *W.W. Smith* 3462, 2037 (CAL).

Potentilla eriocarpoides Krause

Distribution: Chaerlung; 2800 – 4600 m; *Flowers & Fruits*: July – August.

Potentilla flagellaris Willd. ex Schlecht

No specimen available; Occurrence in Himalaya is based on the authority of Juzepczuk (1941 – Russian Flora)

Potentilla forrestii W.W. Smith *P. nivea sensu* Hook. f. *non* L.

Distribution: Thangu; 4000 – 4900 m; *Flowers & Fruits*: May- September.

Potentilla gerardiana Lindley ex Lehm. *P. fragarioides sensu* Hook. f. *non* L.

Distribution: Sikkim.

Potentilla griffithii Hook.f.

Distribution: Lachen, Lachung, Llonak, Zemu valley, Lenikok – Lunga; 2745 – 4430 m; *Flowers & Fruits*: June – September ; *Smith & Cave* 2704 (CAL-149018, 149020).

Potentilla hemsleyana Wolf

Distribution: Gangtok (Baluakhani); ca 1800 m; *Flowers & Fruits*: June–August; *P.K. Harja s.n.* 100 (BSHC)

Potentilla hypargyrea Hand.- Mazz.

Distribution: Sikkim (locality not given); 4300 – 4475 m; *Fl.*: August.

Potentilla latipetiolata Fischer *P. fruticosa* L. var. *armerioides* Hook. f.

Distribution: Chorten, Nima La, Naku La; 5000 – 5200 m; *Flowers & Fruits*: July – August.

Potentilla leuconota D. Don

Distribution: Chola, Dzungri, Llonak, Megu pasture; 3600 – 4880 m; *Flowers & Fruits*: June – October; *C.B. Clarke* 10015 (CAL), *S. S. Dash* 18527 (BSHC).

Potentilla lineate Treviv ex Reich *P. fulgens* Wallich ex Lehm., var. **lineate** Nep.: Bajradanti, Ganephul, Danta Manjari.

Distribution: Changu, Dzungri, Lachung, Lagyap, Nathu La; 1150 – 4050 m; *Flowers & Fruits*: June – August; *W. W. Smith* 314 (CAL), *D.C.S. Raju & S. Singh* 5977 (BSHC).

var. **intermedia** (Hook.f.) Dikshit & Panigrahi *P. fulgens* Wallich ex Lehm. var. *intermedia* Hook. f.

Distribution: Dzungri, Zelap La; Endemic; *Flowers & Fruits*: June – October; *Kung s.n.* (CAL-148929).

Potentilla microphylla D. Don, var. **microphylla**

Distribution: Dzungri, Lachung valley, Nathu La, Zemu valley; 3660 – 5490 m; *G.A. Gammie s.n.* (CAL), *G.P. Sinha D.G. Long, et al.*, 18240, 18211 (BSHC).

var. **achilleifolia** Hook f.

Distribution: Thangu, Dzungri, Nathang, Zemu valley; 3695 – 5030 m; *Smith & Cave* 1570 (CAL).

var. **latifolia** Wallich ex Lehm. *P. commutata* Lehm.

Distribution: Thangu, Gaoring, Tankra La, Zemu valley; 4270 – 4775 m; *Flowers & Fruits*: July – September; *Smith & Cave* 1348 (CAL).

var. **glabriuscula** Wallich ex Lehm.

Distribution: Jelap La; ca 4575 m; *Fl.*: September; *sine lect.* 143 (CAL).

Potentilla monanthes Lindley ex Lehm., var. **monanthes**

Distribution: Changu, Gnathang, Karponang; 2600 – 4575 m; *Flowers & Fruits:* June – October; *J.D. Hooker s.n.* (CAL- 149610), *R. Seshagiri Rao* 776 (BSHC).

var. **sibthorpioides** Hook. f.

Distribution: Lachen valley, Changu, Lam choo; Thainphung, below Dzungri; 3355 – 3965 m; *Flowers & Fruits:* May – July; *J.D. Hooker s.n.* (CAL- photo), *K. Biswas* 7309 (CAL).

Potentilla nepalensis Hook.

Distribution: Sikkim (locality not given); 1800 – 2440 m; *Flowers & Fruits:* July – October; *T. Thomson s.n.* (CAL- 149410).

Potentilla nivea L.

Distribution: Thangu, Dzungri, Onglathang, on way to Ronala (Theng to Taling); 3965 – 5185 m; *Flowers & Fruits:* June – October; *Major F F Younghusband* 17 (CAL), *R. Sashagiri Rao* 570 (BSHC).

Potentilla panigrahaiana Dikshit

Distribution: Sikkim, ca 4575 m; *Fl.* : July.

Potentilla peduncularis D. Don, var. **peduncularis**

Distribution: Aluthang – Dzungri; Cho La, Lachung valley, Llohakh, Zemu valley; 3600 – 4400 m; *Smith & Cave* 2092 (CAL); *S.K. Rai & S. Pradhan* 5544 (BSHC).

var. **clarkei** Hook. f.

Distribution: Yak La, Changu, Zelep La, Gnatong; Endemic; 3600 – 3965; *Flowers & Fruits:* May – July; *K. Biswas* 7312 (CAL).

Potentilla polyphylla Wallich ex Lehm. *P. mooniana* Wight

Distribution: Changu, Karponang, Lachen, Zemu valley; 1500 – 5000 m; *Flowers & Fruits:* June – September; *Smith & Cave* 1678 (CAL), *D.C.S. Raju & S. Singh* 5915, 6164 (BSHC).

Potentilla polyschista Boiss. & Hohen.; *P. sericea* L. var. *polyschista* (Boiss. & Hohen.) Lehm.

Distribution: Sikkim

Potentilla rigida Wallich ex Lehm. *P. fruticosa* L. var. *rigida* (Wallich ex Lehm.) Maxim.

Distribution: Changu, Jelep La, Lingtoo, Patangla; 2500 – 3965 m; *Flowers & Fruits:* June – October; *King's Collector* 4178 (CAL); *S. Kumar & P. Singh* 12820 (BSHC).

Potentilla saundersiana Royle

Distribution: Thangu, Llonak; 3600 – 5490 m; *Flowers & Fruits:* June - September; *K. Biswas* 6920 (CAL), *P. Singh & S.S. Dash* 200013 (BSHC).

Potentilla sino-nivea Hulte var. **caespitosa** (Wolf) Dikshit & Panigrahi *P. saundersiana* Royle var. *caespitosa* Wolf

Distribution: Thangu, Giagong, Yangsap; 3660 – 4880 m. *Flowers & Fruits:* July – August; *F.E. Younghusband s.n.* (CAL-149635).

Potentilla spodioclora Sojak *P. sikkimensis* Wolf non Prain

Distribution: Temu La, Thangu; 3000 – 4800 m; *Fl. & Fr.:* July – August; *Smith & Cave* 2534 (CAL).

Potentilla sundaica (Bl.) Kuntze *Fragaria sundaica* Bl. *P. kleiniana* Wight

Distribution: Dikchu, Gangtok, Penlong, Ranipool, Yoksum; 800– 4575 m; *Flowers & Fruits:* April–September; *S.K. Mukherjee* 4993 (CAL), *N.R. Mandal* 13052, 13061 (BSHC).

Potentilla supina L.

Distribution: Gangtok; 1500 – 2500 m; *Flowers & Fruits:* January – May; *J.D. Hooker s.n.* (CAL-49774).

Potentilla tatsienluensis Wolf

Distribution: Dumtso La, Llonak, Thela; 4575 – 5030 m; *Flowers & Fruits:* July – August; *W. W. Smith & G.H. Cave* 2182 (CAL).

Acknowledgement

I am grateful to Dr. M. Sanjappa, Director, Botanical Survey of India, Kolkata for providing facilities.