Hiroyoshi Ohashi*: Notes on some species of Desmodium and Codariocalyx from Himalaya (1)

大橋康好*: ヒマラヤのヌスピトハギ属 (広義) について (1) **

About 50 Desmodium species in a wide sense have hitherto been recorded from the Himalayan regions. These representatives were studied notably by Baker (in Hooker fil., The Flora of British India 2: 161-175, 1876), by Prain (in Journ. Asiat. Soc. Beng. 66 (2): 387-401, 1897), and by Schindler (mainly in Fedde, Rep. Sp. Nov. Beih. 49: 1-371, 1928), and their investigations revealed much of the taxonomic as well as floristic importance of the Desmodium (sens. lat.) plants in the region, but no further detailed work has been undertaken until recent years. Thus, more critical studies seems to be necessary.

Though still controversial as to the generic delimitation of Desmodium (cf. Schindler, l. c.), in the present paper the genus Desmodium sensu stricto is adopted.

By the courtesy of Prof. Hiroshi Hara, the present writer had an opportunity to examine many specimens of Desmodium sens. lat. collected in Eastern Himalaya by the members of the Botanical Expeditions of the University of Tokyo in 1960 and 1963 and by Prof. Hara in 1964. This preliminary paper deals with some taxonomic problems on three Desmodium species sens. lat., i.e., D. nepalense Ohashi, D. kulhaitense C. B. Clarke ex Prain and Codariocalyx motorius Ohashi (=D. motorium Merrill).

1) Desmodium nepalense Ohashi, sp. nov. (Figs. 1 & 2).

Frutex circa 150 cm altus, pilis appressis vel ascendentibus, fusco-bruneis et in novellis subsericeus. Caules plures a basi lignosa orientes, erecti, plus minusve striolati, sursum angulati, graciles, ramosi, pubescentes. Stipulae lanceolatae, 5 mm longae. Folia pinnatim trifoliata; petioli pubescentes 4-5 cm longi. Foliola subcoriacea, obovata-oblonga, apice obtusa vel subacuta, basi rotundata vel plus minusve cuneata, supra glabra, subtus appresse serices-pubescentia; nervis lateralibus validis 5-6 utrinsecus costam validam praedita, inter eos prominenter reticulata; foliolum terminale 3-5 cm longum, 2-3 cm latum; folia lateralia paullo minora, plus oblonga. Racemi terminales et axillares, densi, 5-10 cm longi; pedicelli filiformes, pro more 5 mm longi. Bracteae

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lanceolatae, ciliatae, scariosae, 5 mm longae. Calyx circa 3 mm longus, partim pubescens; tubus 2 mm longus; lobi superiores deltoidi, obtusi, 0.8 mm longi, inferiores lanceolati, subacuti, 1.2 mm longi. Corolla glibra; vexillum oblanceolatum, circa 7 mm longum et 2 mm latum; alae circa 6.7 mm longae; carina laviter incurva, circa 7 mm longa. Stamina diadelpha. Ovarium sessile. Legumen sessile, indehiscent, pro more 6-articulatum, plus minusve incurvum, margine supero incrassato vix constrictum, margine infero leviter constrictum, appresse pubescens; isthmi dimidio latitutine leguminis, paullo angustiores; articuli 3-4 mm longi, 2-3 mm lati, leviter reticulati. Semina matura circa 2 mm longa, 1.2 mm lata; hilum suborbiculare margine incrassatum.


Growing in open areas, roadsides, field margins or light thickets.

This new species is very distinct among Desmodium species hitherto recorded from the Himalayan region and its neighbouring areas, and is characterized especially by its oblanceolate standard and long spurred petals (Fig. 1).

Presumably, it has so far been identified as Desmodium floribundum (D. Don) G. Don, Gen. Syst. 2: 297 (1832). Despite their some superficial morphological resemblances, however, D. nepalense Ohashi is easily distinguished from D. floribundum by less pubescent and angular branches, smaller leaflets and flowers, obtuse or subacute calyx-teeth, and the shape of standard, wings and keel. Furthermore, in D. floribundum, standard, wings and keel are clearly different in length from one another, while in this new species, D. nepalense Ohashi, all these petals are almost the same in length.


Prain described this species based on two sheets of fruiting specimens
Fig. 2. The type specimen of Desmodium nepalense Ohashi ×2/5.
collected by C. B. Clarke at Hee in Sikkim, alt. 2000 m. Unfortunately, however, the plant has not been fully recognized since its publication because of the lack of the description of flowers. Later, no student of the Desmodium taxonomy has provided it up to the present time. Our specimens collected by H. Hara and K. C. Pradhan at an edge of the evergreen oak forests of Penlong La near Gangtok, Sikkim alt. 2100 m (Sept. 13, 1964), bear both flowers and loment.s. After having examined these specimens, the writer comes to the same conclusion as Prain that this Desmodium plant is specifically distinct. Although very similar especially in its nature of pods to the following 5 species, i. e., Desmodium Prainii Schindl. which is now regarded as conspecific with D. megaphyllum Zoll., D. sambuense (D. Don) DC. (=D. floribundum (D. Don) G. Don), D. khasianum Prain1), D. serriferum Wall. ex Prain, and D. tiliaefolium (D. D n) Wall. ex G. Don this species, here newly described, D. nepalense, appear to differ sharply from them in its characters of leaflets, stipules, petals, etc. Therefore, the following supplementary description of this species is given here.

Subshrub, up to 150 cm high. Stems several from a woody stock, erect, dark brown, slender terete, branched, glabrescent at the base, gradually clothed upwards with dense spreading hairs, slightly striate in the upper part. Leaves pinnately trifoliate; petioles 3-5 cm long; terminal petiolule about 2 cm long, lateral ones 0-3 mm long. Leaflets subcoriaceous, lanceolate, entire, acuminate, obtuse or attenuate at the base, glabrescent above, densely clothed with adpressed silky hairs beneath; the lateral nerves 7 on each side of the midrib and with it and the reticulation prominent on abaxial surfaces; terminal leaflets 7-13 cm long, 2-4 cm wide, the lateral ones smaller and narrower. Stipules membranous, lancolate, cuspidate, 8-15 mm long, densely sericeous within, shortly connate at the base. Racemes copious, 12-25 cm long, terminal and axillary; peduncle dark brown with spreading silky hairs; pedicels filiform, mostly 1.5 cm long, with very minute papillate hairs. Calyx 4-5 mm long, glabrous; tube 3 mm long, obtuse at the base, teeth lancolate, acute, the 2 upper ones connate quite to the top forming a broad, subacute upper lip. Corolla glabrous; standard

1) Only the occurrence of this species has thus far been known from Khasia Mts. and Jaintea Hills in E. India. Our specimens of this species, however, are found in two localities in E. Nepal and these collections are new records from the Himalayan region.
Fig. 3. *Desmodium kulhaiitense* C. B. Carke ex Prain.  1. Calyx ×5,  2. Pistil ×5,  3. Corolla ×2.5.

suborbicular, contracted into a short but distinct claw at the base, about 10 mm long (including the claw) and 7 mm wide; wings lightly adhering to the keel, clawed and spurred, about 12 mm long; keel straight, slightly apiculate at the apex, about 13 mm long. Stamens diadelphous, upper one partially free, the other 9 connate as far as 3/4 their length; anther basifixed, extrorse, about 0.5 mm long. Ovary sessile, sericeous, style much recurved; stigma slightly club-shaped. Pods glabrous, sessile, 3.5–5 cm long, indehiscent, incurved, the upper suture thickead but scarcely constricted between the seeds, the lower margin slightly constricted as that the isthmus is about 2/3 as wide as the pod; segments 6–9 mostly 8 in number, oblong, 5–6 mm long, 3 mm wide, finely reticulate.

3) *Codariocalyx motorius* (Houtt.) Ohashi, comb. nov.

*Hedysarum motorium* Houttuyn, Nat. Hist. 2, 10: 246 (1779).

*H. gyranus* L. f., Suppl. 332 (1781).

*Desmodium gyranus* (L. f.) DC., Prodr. 2: 326 (1825); Miq., Fl. Ind. Bat. 1, 1: 243 (1855); Baker in Hook. f., Fl. Brit. Ind. 2: 174 (1876); Matsum. in Bot. Mag. Tokyo 16: 75 (1902); Hayata, Icon. Pl. Formos. 1: 185 (1911);


Meibomia gyrans (L. f.) O. Kuntze, Rev. Gen. 1: 196 (1891).


var. Roylei (Wight et Arn.) Ohashi, comb. nov.

Desmodium Roylei Wight et Arnott, Prodr. 1: 227 (1834).


The genus Desmodium in a wide meaning is morphologically heterogeneous to a considerable extent. The genus Codariocalyx here adopted is quite distinct from the genus Desmodium sens. str. Schindler (1924) circumscribed the genus Codariocalyx mainly basing upon the differences of loment characters. The present writer is in the same opinion as that of Schindler, so it becomes necessary to make a new combination as given above. The detailed circumscription of the genus Codariocalyx will be described in my forthcoming paper of the Asiatic genera belonging to trib. Desmodieae Hutchinson, Gen. Fl. Pl. 477 (1964).

Among our collections of this species from Eastern Nepal the specimens collected at an open area of the margin of thickets between Tuwa and Taplethok, alt. 1300-1600 m (Nov. 5, 1963; TI-6301447) and at a sunny place of the roadside of the field margin between Tharpu and near Changthaphu, alt. 900-1200 m (Nov. 26, 1963; TI-6301448) are referable to var. Roylei. This variety is easily distinguished from typical form, var. motorius, by its terminal leaflets, viz., in var. Roylei its terminal leaflets are subcoriaceous, narrow lanceolate, 8-13 cm long, and acute at the apex, while in var. motorius they are usually most commonly thick or somewhat membranous, narrow oblong or oblong-lanceolate, 3-7 cm long,
and obtuse at the apex.

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1）原寛教授の御好意で東京大学のインド植物調査により得られた東部ヒマラヤでの採集品の一部を研究させていただいております。NASAKITの未知のものに気付いた。標本はすべて実験品のものであったが二三残っていた花を解剖してみたところに記載したように非常に変ったものであり、独立種として区別しておくことが適当であると考えた。ヒマラヤ中部のSimula から東部のN. Assam, 中国南部, 台湾にわたる熱帯から温帯にかけて分布するDesmodium floribundum(D. Don) G. Don (=D. sambuense (D. Don) DC.)に株が似ていて近縁とも思われるが、花弁(図1)をはじめ上述のような諸形質が全く異なっている。

2）Desmodium kulhaitense C. B. Clarke ex Prain はシッキムの暖帯林に特産する極く稀な種類ではないかと思われる。Prain(1897) はその原記載のノートで本種と近縁な次の4種、D. sambuense (D. Don) DC., D. khasianum Prain, D. serriferum Wall. ex Prain および D. tiliarifolium (D. Don) Wall. ex G. Donとの同異について述べている (p. 395)。これらと共に、現在 D. megaphyllum Zoll. とみなされている D. Prainii Schindl. と名付けられたものも、本種と英の形質が似ていることで近縁と思われるものである。しかしながら本種はこれらのDesmodiumとは小葉や托葉の形、花柄の毛、花弁の形態等で明らかに異なっているものである。本種については1897年に花を持たない2枚の標本に基づいて記載されて以来、少なくとも分類学的にはその後何らの検討も加えられていないかった。1964年Gangtok 附近で原寛教授が採集され持ち帰られた本果の標本は花実共にそなえたものであったので、この機会にまず本種の特徴を、特に花部について、他の形質をも含めて明らかにすることが必要であると思われる。その結果は本文中に記載したとおりである。また本種の分類上の位置についてはPrainの扱いが適当であると考えられるが、今後更に多くの資料を用いて近縁の種類との間の類縁関係を再検討する必要があると思われる。

3）Desmodium は形態的に非常に対変に富んだ heterogeneous なグループであり、いくつかの属に細分化することが必要であると思われる (この問題についてはいずれ報告したい)。Schindler (1924, 28) はこれを13属に細分化したが、彼の system については再検討の必要がある。Schindler は主として茨が個々の article に分かれて、発表したままでいて、下記が2片に裂開する性質を重視し、A.P.de Candolle のDesmodium subsect. Gyraentia の一部、Bentham や Baker のDesmodium sect. Pleurolium の一部を、Hasskarl の用いた名前を生かして Codariocalyx にまとめた。この属はアジアとオーストラリアの熱帯から亜熱帯、時に暖帯にかけて分布し、2種1変種から成る小群である。茨以外の形質をも考慮した結果、詳細は後に述べるが、筆者もSchindlerの扱いに賛成してCodariocalyxを採用する。したがって、従来一般にはDesmodium gyrans (L. f.) DC. とされていた一種は、Desmodium として扱うならば D. motorium Merrill を用いるべきであるが、Codariocalyx では本文中に述べたような新紹合せ、C. motorius Ohashi が必要となる。