

Verdesmum, a New Genus of *Leguminosae*: Tribe *Desmodieae*

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A monotypic legume genus, *Verdesmum* is proposed based on *Hanslia hentyi* (Verdc.) H. Ohashi (= *Desmodium hentyi* Verdc.). *Verdesmum hentyi* has a funnel-shaped terminal stigma that is unique in the tribe *Desmodieae*, monadelphous stamens, broadly triangular lateral calyx-lobes, bracteoles, stipitate loment, of which the stipe is longer than the pedicel, and narrowly obovate-elliptic articles with central isthmi and lacks a floral disk. The new genus is most closely related to *Hylodesmum* by sharing monadelphous stamens, stipitate loment and long-pedunculate leafless inflorescences, and both genera lack a floral disk, but differs from *Hylodesmus* by the stigma, loment, articles, loment-stipe and bracteolate calyx. The relationship between *Verdesmum* and *Hanslia* is not as close as was once considered, because they differ in the stigma, disk, stamens, and inflorescences. Similarities between *Verdesmum*, *Ohwia* and *Ototropis* are described. The generic name is in memory of Dr. Bernard Verdcourt (1925–2011) of Kew. A new combination *Verdesmum hentyi* (Verdc.) H. Ohashi & K. Ohashi is proposed with amplified description.

Key words: *Desmodium*, *Hanslia*, *Hylodesmum*, *Leguminosae*, new genus, New Guinea, *Ototropis*, Verdcourt, *Verdesmum*, *Verdesmum hentyi*.

Desmodium hentyi Verdc. was described from Papua New Guinea based on a single collection without flowers (Fig. 1). The species was distinguished by Verdcourt (1977) from *D. ormocarpoides* DC. by the 3-foliolate leaves and the long-stipitate loment of which the stipe is longer than the pedicel (stipe 1.5–2 cm long; pedicel 1.2–1.5 cm long) (Fig. 2). Ohashi (2004) transferred *D. hentyi* to the genus *Hanslia* Schindl. based on shared similarities, such as linear loment with several narrowly obovate-elliptic articles connected with adjacent ones in the center. There remained, however, doubts on the correct taxonomic position of *Hanslia hentyi* (Verdc.) H. Ohashi, because *Hanslia* was distinguished from *Desmodium* mainly by

floral characters of diadelphous stamens, a disk around the base of the pistil and a lateral stigma (Schindler 1924).

While working on a treatment of *Desmodium* and allied genera for Flora Malesiana, two fragments of flowers of *Hanslia hentyi* were found with a specimen, Conn 35 & al. (L) collected on 19 February 1977 in New Guinea (Figs. 3, 4). After careful examination of the floral fragments, we found them to have a funnel-shaped terminal stigma (Fig. 6), monadelphous stamens, and broadly triangular lateral calyx lobes, and to lack a floral disk. The expanded stigma is unique in the tribe *Desmodieae*. Moreover, *H. hentyi* is confirmed as having a long loment-stipe, primary and secondary bracts,



Fig. 1. *Desmodium hentyi* Verdc. Holotype. Henty in NGF11922 (LAE).

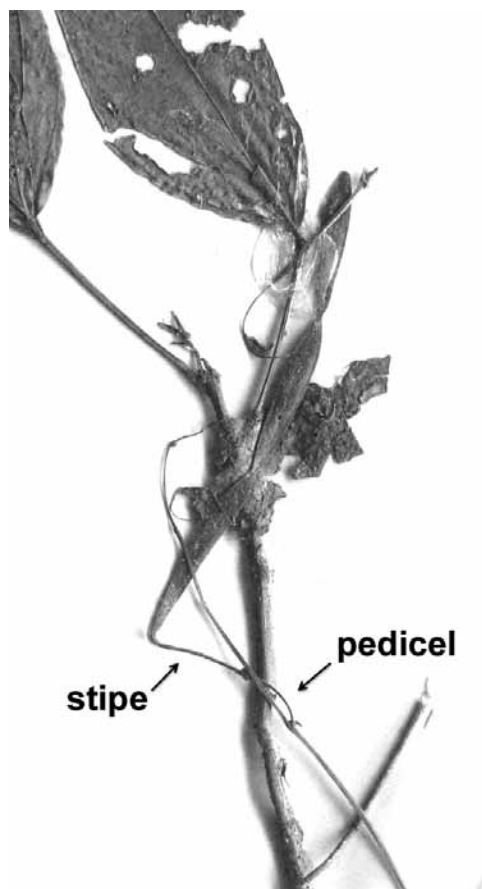


Fig. 2. Loment of *Desmodium hentyi* (isotype, LAE) showing the stipe longer than the pedicel.

bracteoles, and long inflorescences arising from old axils (Figs. 4, 5).

Based on these characteristics *Hanslia hentyi* is considered to be most closely related to *Hylodesmum*. They share monadelphous stamens, stipitate loment and long-pedunculate leafless stem-like inflorescences arising from old axils of the stem (from the base of the stem in *H. laxum* (DC.) H. Ohashi & R. R. Mill and *H. nudiflorum* (L.) H. Ohashi & R. R. Mill), and lack a floral disk, but *Hanslia hentyi* is distinct from *Hylodesmum* in the expanded terminal stigma, linear loment of which the articles are narrowly obovate-elliptic and the isthmi are at the center, a loment-stipe longer than the pedicel, bracteoles at the base of the calyx, and

inflorescences arising from old, leafless axils (Fig. 6). In contrast, *H. hentyi* is remote from *H. ormocarpoides* (DC.) H. Ohashi, because the latter has a lateral stigma, diadelphous stamens, a floral disk and terminal or sometimes terminal and axillary pendulous inflorescences.

Hanslia hentyi was considered to be related to *Desmodium caudatum* (Verdcourt 1977; currently recognized as *Ohwia caudata* (Thunb.) H. Ohashi) in having linear loment with narrowly elliptic articles, but differs in lacking a floral disk, diadelphous stamens, a small terminal stigma, narrowly triangular lateral calyx lobes and many-flowered terminal inflorescences. *Hanslia hentyi* is somewhat related to *Ototropis* Nees in sharing the monadelphous stamens and lacking a floral disk (Ohashi and Ohashi 2012), but *Ototropis* differs from in having a small terminal stigma, copiously branched, many-flowered inflorescences and broader isthmus of the loment.

Hanslia hentyi is not accommodated well in any genus in tribe *Desmodieae*. We therefore recognize it as a new genus, *Verdesmum*, named in memory of Dr. Bernard Verdcourt (1925–2011) by combining his name and *Desmodium*. Dr. Verdcourt contributed greatly to our understanding of Leguminosae through his extensive studies on the floras of Africa and New Guinea. Dr. Verdcourt adopted Bentham's generic circumscription of *Desmodium*, which is far broader than the present concept of *Desmodium*.

Verdesmum H. Ohashi & K. Ohashi, gen. nov.

Genus novum, differt ab omnibus generibus tribu Desmodiis late infundibuliformi informibus terminali stigmatate (0.4–0.6 mm lata) quod est 3-vel 4-plo latius quam stilo (0.1–0.15 mm lata). Hoc genus est maxime similis *Hylodesmum*, sed differt a bracteolis presentibus, lomentis linearibus, stipitibus lomentiorum pedicellos longioribus, et articulis anguste obovatis-ellipticis quae centralis isthmi inter vasa.

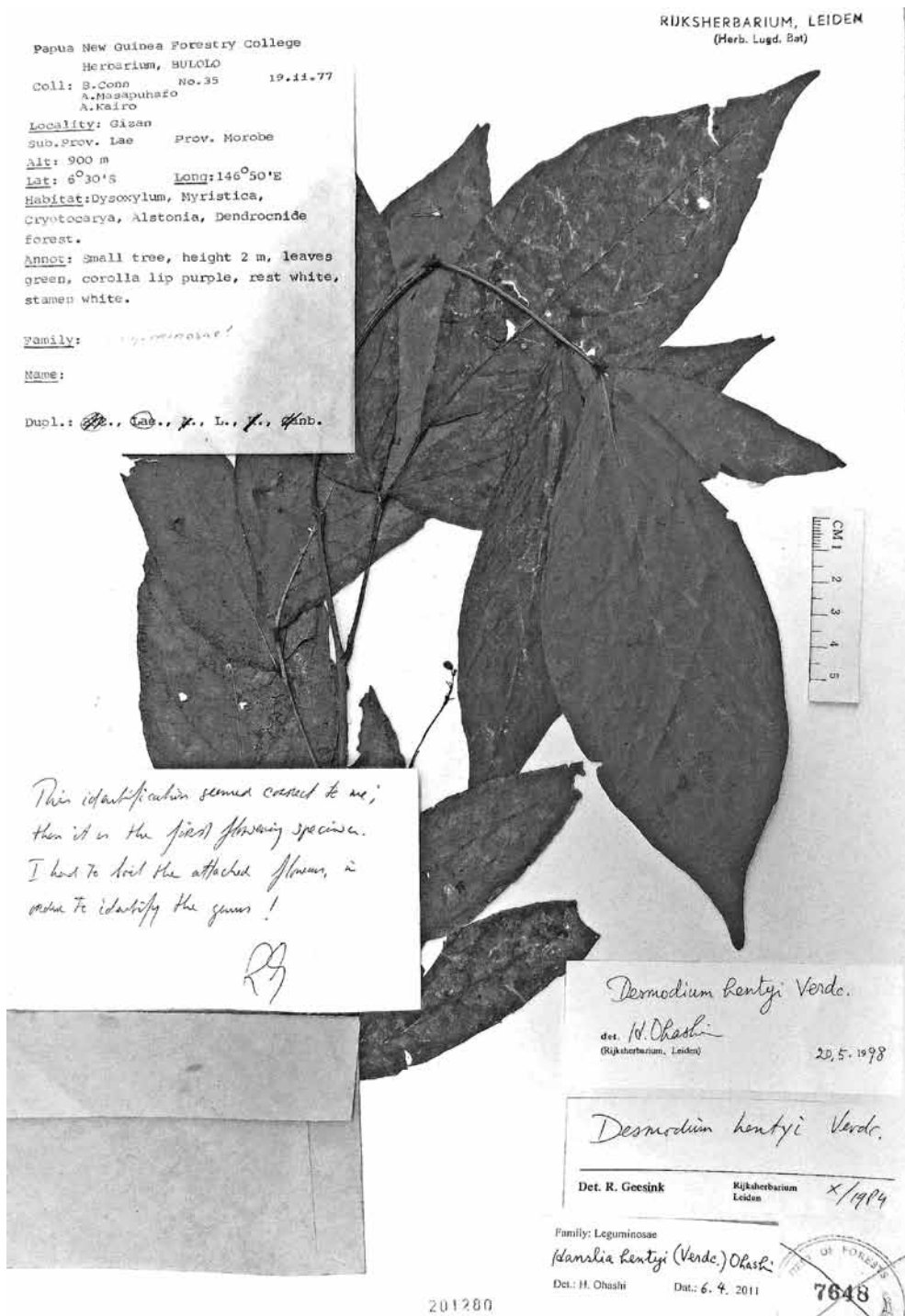


Fig. 3. *Verdesmum hentyi* (Verdc.) H. Ohashi & K. Ohashi (Conn 35 & al., L).

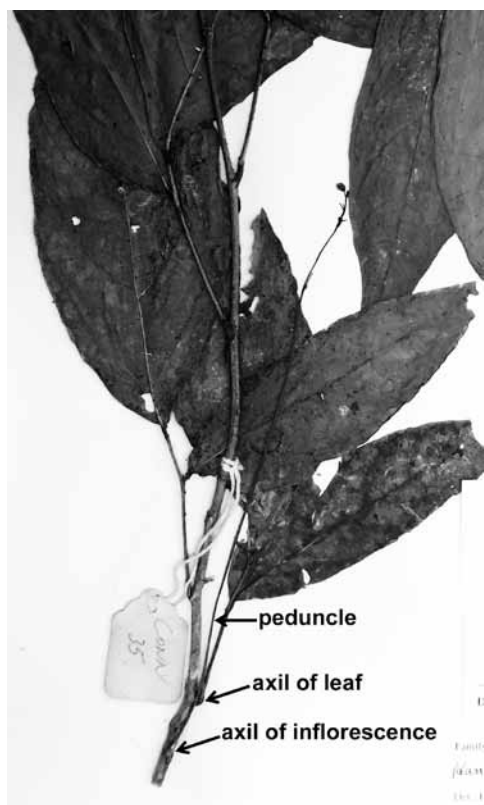


Fig. 4. *Verdesmum hentyi* (Conn 35 & al., L) showing an inflorescence arising from a leafless old axil below the lowest leaf after removing the label and packet in Fig. 3.

Verdesmum is distinct from all genera of the tribe *Desmodieae* in having a broad, funnel-shaped terminal stigma that is 3–4 times broader (0.4–0.6 mm wide) than the style (0.1–0.15 mm wide). The genus is most similar to *Hylodesmum*, but differs in having bracteoles, linear loments, the loment-stipe longer than the pedicel, and narrowly obovate-elliptic articles that have central isthmi between adjacent articles.

Shrub. Leaves stipulate, petiolate, (1–)3-foliolate. Leaflets stipelate, elliptic, principal lateral nerves arcuate along margin, terminal leaflet with rachis; lateral leaflets sessile. Inflorescences axillary, several arising from old nodes at base or lower part of stem, racemes, slender, long-pedunculate, laxly flowered, with

several flowers. Flowers 2 or sometimes 4–6 (2 flowers and 2–4 buds) per node. Primary bracts and secondary bracts present. Pedicels with dense, minute patent hooked hairs. Bracteoles minute, at apex of pedicel. Calyx broadly cup-shaped; abaxial lobe slightly longer than lateral lobes. Corolla papilionaceous. Stamens monadelphous; filaments glabrous. Disk absent. Pistil incurved, glabrous, stipitate; stigma terminal, expanded, broadly funnel-shaped, uneven at apex. Loments linear, with hooked hairs; articles narrowly obovate-elliptic or narrowly oblong; isthmi central, very narrow.

Type: *Verdesmum hentyi* (Verdc.) H. Ohashi & K. Ohashi.

Verdesmum hentyi (Verdc.) H. Ohashi & K. Ohashi, comb. nov.

Desmodium hentyi Verdc. in Kew Bull. **32**: 249 (1977) & Verdc., Man. New Guinea Leg.: 398, fig. 94-o (1979).

Hanslia hentyi (Verdc.) H. Ohashi in J. Jpn. Bot. **79**: 155, fig. 5 (2004).

Shrub, to 200 cm tall. Stipules narrowly ovate, 11.5 mm long, 1.5 mm wide, soon deciduous. Petiole to 6 cm long, adaxially sulcate, glabrous; pulvini dark, sparsely pubescent, glabrescent. Stipels minute, filiform. Leaflets (1–)3, terminal one elliptic, to 20 cm long, 8.5 cm wide, glabrous, base equilateral, somewhat long cuneate, margin entire, apex acuminate, both surfaces glabrous, adaxial surface deep green, somewhat lustrous, abaxial surface pale green, principal lateral nerves lax, 5 or 6 pairs, looped within margin; rachis to 2.5 cm long, glabrous; lateral leaflets slightly oblique at base. Inflorescences axillary, arising from old axils, to 26 cm long or more; peduncle to 24 cm long, glabrous; rachis sparsely patent-uncinate-puberulent, to 5 cm long, laxly flowered, with 2 flowers and sometimes with 2–4 buds per node. Flowers ca. 10 mm long. Primary bracts early deciduous; secondary bracts narrowly triangular, ca. 2.5 mm long. Pedicels ca. 3.5 mm long in flower, 1.2–1.5 cm long in fruit, sparsely

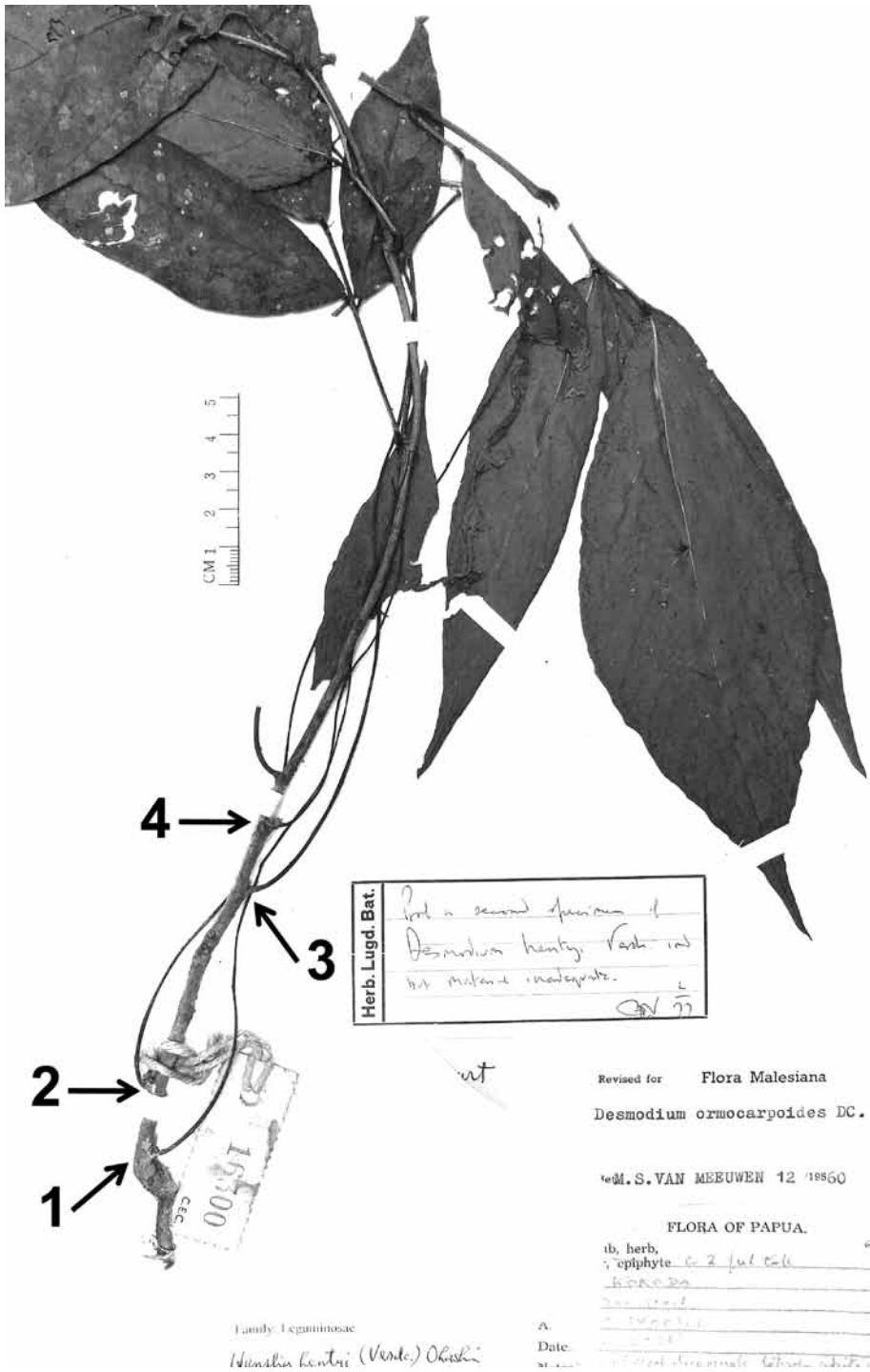


Fig. 5. *Verdesmum hentyi* (Carr 16300, L), showing four long-peduncled inflorescences arising from leafless old axils (1, 2, 3, 4 from the base).



Fig. 6. Stigma, style and upper part of ovary of *Verdesmum hentyi* (Conn 35 & al., L). Scale below indicates 1 mm long.

uncinate-puberulent. Bracteoles filiform, ca. 1 mm long, lobes broadly triangular, ca. 0.7 mm long, apex acute; abaxial lobe broadly triangular, ca. 1 mm long, early deciduous. Calyx ca. 3 mm long, with sparse hooked hairs; tube ca. 2 mm long; (adaxial lobes unknown), lateral lobes broadly triangular, ca. 0.7 mm long, apex acute; abaxial lobe broadly triangular, ca. 1 mm long, apex acute, margin sparsely uncinately-puberulent. Standard reddish purple, wings and keel petals pale pink (standard and wings unknown); keel petals incurved, ca 8 mm long, apex acute; claw ca. 2 mm long. Pistil stipitate, incurved; ovary glabrous; style filiform, ca. 2 mm long, ca. 0.1 mm wide, fattened, glabrous; stigma ca. 0.2 mm long, 0.4–0.6 mm wide. Loments stipitate (stipe 1.5–2 cm long), 2–4(–? more)-articulate; articles 2.8–3 cm long, 4–6 mm wide, with minute

hooked hairs; lateral surfaces reticulate veined.

Distribution: Papua New Guinea and Borneo.

Specimens examined. **Papua New Guinea.** Morobe District: near Lae, Atzera Range, 6°45'S, 147°00'E. 700 ft. 1 Mar. 1960. Shrub, standard reddish purple, keel and wings pale pink, pod purple, adhesive. Henty in NGF11922 (LAE–holotype, isotype–K, photo); Morobe Prov. Gizan, alt. 900 m. 6°30'S, 146°50'E. *Dysoxylum*, *Myristica*, *Cryptocarya*, *Alstonia*, *Dendrocnide* forest. Small tree, height 2 m, leaves green, corolla lip purple, rest white, stamen white. 19 Feb. 1977. Conn 35 et al. (L, LAE; photo–TUS); Kokoda. Herb, ca. 2 ft. tall. 28 Mar. 1936. N. G. Carr 16300 (L). **Borneo.** Mt. Kinabalu. Ulu Liwagu and Ulu Mesilau, 6°00'N, about 116°35' E. Kudasang. Wings purple, keels pink. Riverside Forest. 3 Sept. 1961. Chew, Corner & Stainton 1444 (K; fig. 5 in Ohashi 2004).

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大橋広好^a, 大橋一晶^b: マメ科ヌスビトハギ連の1新属

Desmodium hentyi Verdc. は、1960年にニューギニアで採集された果実を付けた1点の標本に基づいて、1977年に Verdcourt (1977) によって記載された。後に Ohashi (2004) はボルネオからの新分布を記録すると共に *Hanslia* に属すと見なし、*Hanslia hentyi* (Verdc.) H. Ohashi と組み替えた。しかし本種はこれまで花が知られておらず、その分類学的位置を正確には定めることができなかった。幸いにも2011年4月にライデン大学植物標本館所蔵の本種ニューギニア産標本(1977年2月19日採集 Conn 35 & al.) から花の断片2個を見つけることができた。それらを解剖した結果、柱頭が杯状に広がるというヌスビトハギ連に初めて見られた特徴があること、花内蜜腺がなく、単体雄蕊であること、萼の側裂片は広三角形であることが明らかになった。また、小苞があり、節果の柄は小花柄よりも長く、花序は葉のない古い腋から出て花柄が著しく長く、花はまばらに数個がつくという特徴があることも分かった。

これらの形質から、*Desmodium hentyi* はこれまで考えられてきた *Hanslia* には近縁でないことが明らかになった。*Hanslia* には花内蜜腺があり、二体雄蕊をもち、柱頭は側面にあることで、全く異なっている。ヌスビトハギ連全体の中で比較してみると、*Desmodium hentyi*

は花内蜜腺がなく単体雄蕊をもち、節果に柄のあることで、*Hylodesmum* (ヌスビトハギ属) と共通であり、最も近縁であると考えられる。しかし、*Desmodium hentyi* は *Hylodesmum* とは柱頭が膨らみ (*Hylodesmum* では膨らまない)、節果は両側の縫合線から等しく狭まり (*Hylodesmum* では反軸側が狭まる)、小節果は狭倒卵形から狭楕円形 (*Hylodesmum* では倒三角形) であることなどの点で異なっているため、*Desmodium hentyi* を *Hylodesmum* に含めることはできない。

以上の結果から、*Desmodium hentyi* を新属と認めることにした。新属名 *Verdesmum* は *Desmodium hentyi* の命名者 Dr. Bernard Verdcourt (1925–2011) のお名前的一部分と *Desmodium* と組み合わせた。Dr. Verdcourt は Kew でアフリカのフロラを長い間研究し、大きな業績を遺した。マメ科の研究では *Phaseolus*, *Vigna*, *Dolichos* などの属の範囲を定め、これら有用豆類の分類学上の基礎を築いた。大橋広好とは、1975年4月に Kew でアズキ類の学名を話し合ったときに始まり、長く友人であった。

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