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Hiroshi HARA*: Critical notes on some type specimens of East-Asiatic plants in foreign herbaria (4)

原 寛*: 欧米にある東亜植物基準標本の検討 (4)

13) *Rorippa indica* (L.) Hiern and its allies. In temperate eastern Asia, two allied species of *Rorippa indica* group commonly grow as weeds, and they can be distinguished as follows:

{	Petals usually absent. Pods spreading thinner and straight, seeds uniseriate. Annual. Stems slender and diffuse.Plant A
	Petals yellow, as long as or longer than sepals. Pods generally slightly curving upwards, seeds biseriate. Perennial. Main stems more robust and erect.Plant B

Both plants have long narrow linear pods 12-25 mm long and 0.8-1.5 mm wide, with pedicels 4-8 mm long, and leaves are glabrous, lower ones often lobed at the base, and upper ones not lobed and attenuate to both ends.

In the Indian and African regions, there is another distinct plant which has often been called *Nasturtium indicum*. It has shorter and plump pods 8-15 mm long and 1.5-2.5 mm thick, with short pedicels 2-4 mm long, deeply pinnatifid leaves which are auriculate-amplexicaul at the base, and developed petals. I call it here 'plant C.'

In 1934, O. E. Schulz revised '*Nasturtium indicum* (L.) DC. und verwandte Arten' in Fedde, Rep. 33: 275-285, but there still remain doubts especially regarding the application of some old names. He seems to have recognized the three species now in question under the following names; '1. *Nasturtium indicum* (L.) DC.' for the plant C, '3. *N. sinapis* (Burm. f.) O. E. Schulz' for A, and 'N.

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montanum Wallich' for B.

The oldest name given to this group is *Sisymbrium indicum* L., and Linnaeus published it first in his *Species Plantarum* ed. 2, 2:917 (1763), and again in his *Mant. Pl.* 1:93 (1767). Schulz (1934) identified the former plant of 1763 as the plant C without giving a particular reason, but considered that the latter one of 1767 is not the same as the former and is the plant B.

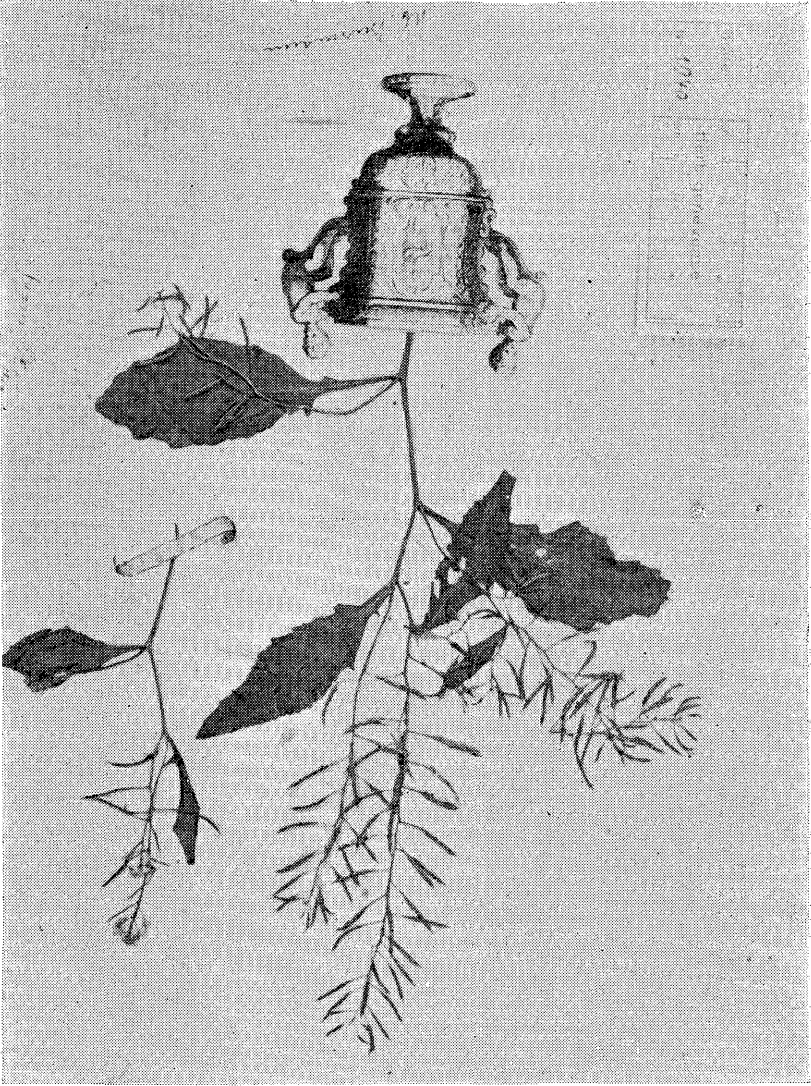
As Linnaeus did not cite any previous literature, he must have based his description on an actual specimen in his herbarium. In the Linnaean herbarium now in the Linnean Society of London, there is only one sheet of *Sisymbrium indicum*. Its leaves are not lobed, its petals are developed, its fully mature pods are slender, 10-16mm long, 0.8-1mm wide, and slightly curving upwards. This specimen agrees well with the Linnaean description of 1767, and it is apparently identical with the plant B which has hitherto been often called *Nasturtium montanum* Wallich.

The descriptive phrases by Linnaeus in 1763 and 1767 are not the same, and those of 1767 agree more accurately with the specimen in his herbarium, but both descriptions seem to me to be equally applicable to the same plant B. Such Linnaean descriptive phrases of 1763 as 'Facies *S. amphibii* aut *Sinap. arvensis*' or 'Siliquae.....filiformes' match better with the plant B than with the plant C which has deeply pinnatifid leaves and thick pods. I think, it is proper to consider that Linnaeus in 1763 described *S. indicum* based on the specimen in his herbarium, and in 1767 he simply amended his description of the same plant. Thus I conclude that the specimen No. 836. 52 in the Linnaean herbarium is the holotype of *Sisymbrium indicum*, and is the same as the plant B.

It is noteworthy that DC. published the combination, *Nasturtium indicum* (L.) DC. (1821), based on *Sisymbrium indicum* L. of 1767. Also the oldest combination under *Rorippa*, *R. indica* Hiern (1896) was based on *Nasturtium indicum* of DC. But these combinations may be interpreted as those based on *Sisymbrium indicum* L. going back 1763.

The next old name is *Sisymbrium sinapis* Burmann fil. published in 1768. By the special courtesy of Prof. C. Baehni at Genève, to whom I wish express my cordial thanks, I could examine the photograph of the Burmann's type which was reproduced here as Fig. 2. According to Baehni, this type specimen has petals of the same length or shorter than the sepals. This is the plant B contrary to the interpretation of O. E. Schulz (1934), and is the same as *Sisymbrium indicum* L. Schulz apparently confused the plants A and B under his *Nasturtium sinapis*.

Fig. 2. *Sisymbrium sinapis* Burmann fil.
Holotype in Herb. Genève.



Judging from the original description, *Sisymbrium atrovirens* Hornemann (1819) from China is also undoubtedly the plant B, although the type was not extant at Copenhagen in 1954. In the Wallich herbarium at Kew I have examined authentic specimens, no. 4778 a, b, and c of *Nasturtium montanum* Wallich, and they all belong to the plant B, and match well the Linnaean type of *Sisymbrium indicum*, although Schulz considered that Wallich's plants were a mixture of A and B.

For the plant A, *Sisymbrium dubium* Persoon (1807) seems to be the earliest name, although I do not see its type. *Nasturtium heterophyllum* Blume (1825) and *Cardamine sublyrata* Miquel (1866), which authentic specimens I have examined in the Rijksherbarium at Leiden in 1954, belong for a certainty to the plant A.

The application of *Nasturtium indicum* DC. or *Rorippa indica* both based on *Sisymbrium indicum* L. to the plant C by many authors such as Hooker fil. & Thomson, Anderson, Oliver, Hiern, Schulz, is not correct as explained above. Thus the earliest name for the plant C seems to be *Nasturtium madagascariense* DC. (1821), as Roxburgh's *Sinapis divaricata* was not validly published until 1832. *Sisymbrium micranthum* Roth, Nov. Pl. Spec. 324 (1821) will be a pubescent form of *N. madagascariense*.

Hooker fil. and Anderson's *Nasturtium indicum* is a mixture of several different plants. In India there are some other plants besides the three species mentioned above. They have often short and thick pods similar to the plant C, and *Nasturtium benghalense* DC. (1821) (*Sinapis benghalensis* Roxb.) has undivided leaves and large foliaceous bracts, and some others are pubescent up to the pedicel. These forms have not been found in temperate eastern Asia. *Sisymbrium apetalum* Loureiro (1790) which was described as 'folia.....superius pinnati-fida, tomentosa,Petala nulla' cannot be either the plant A or B. *Sinapis pusilla* Roxburgh (1832), according to Roxb. Icon. No. 1479 preserved at Kew, has long slender pods as in the plant B, but has pinnatifid leaves and is pubescent up to the pedicel.

In conclusion synonymy of the three plants A, B, and C above discussed is summarized as follows:

A. **Rorippa dubia** (Pers.) Hara, comb. nov.

? *Sisymbrium apetalum* Desfontaines, Tabl. Écol. Bot. Mus. Paris 130 (1804), nom. ; non Lour. 1790.

S. dubium Persoon, Synop. Pl. 2: 199 (1807).

? *Nasturtium indicum* var. *apetalum* (Desf.) DC., Prodr. 1: 139 (1824).

Nasturtium heterophyllum Blume, Bijdr. Fl. Ned. Ind. 2: 50 (1825), e typo—

Miquel, Ill. Fl. Archip. Ind. **1**: 15, t. 9 (1870)—Koidzumi, Fl. Symb. Or.-Asia. 13 (1930).

Cardamine sublyrata Miquel, Ann. Mus. Lugd.-Bat. **2**: 73 (1866), e typo.

Nasturtium sublyratum (Miq.) Franch. et Sav., Enum. Pl. Jap. **2**: 278 (1876).

Rorippa indica var. *apetala* (DC.) Hochreutiner in Candollea **2**: 370 (1925).

Rorippa heterophylla (Bl.) R. O. Williams in Fl. Trinid. & Tobago **1**: 24 (1929).

Radicula heterophylla (Bl.) Small, Man. S. E. Fl. 557 (1933).

'*Nasturtium sinapis* O. E. Schulz' in Fedde, Rep. **33**: 278 (1934), p.p.

Rorippa sublyrata (Miq.) Hara in Journ. Jap. Bot. **11**: 623 (1935), p. p., quoad basonym.

'*R. sinapis* Ohwi et Hara': Hara, l.c. **12**: 899, f. C (1936), p.p.—Ohwi, Fl. Jap. 595 (1953).

? *N. indicum* f. *apetalum* Makino, Ill. Fl. Nippon 517 (1940), jap.

Rorippa sublyrata (Fr. et Sav.) Cheo in Bot. Bull. Acad. Sinic. **2** (3): 178 (1948).

Icon. Miquel, l.c. (1870); Backer et Slooten, Geill. Handb. Java Theeonkr. t. 114 (1924); Ochse, Veg. Dutch E. Ind. f. 107 (1931); Gleason, New Brit. & Br. Ill. Fl. **2**: 241 (1952).

Dist. Japan! (Honshu to Ryukyu), Formosa!, China, Philippines, Java!, and India. Naturalized to U.S.A., Jamaica, and S. America.

B. *Rorippa indica* (L.) Hiern, Cat. Afr. Pl. Welw. **1**: xxvi (1896).

Sisymbrium indicum L., Sp. Pl. ed. 2, **2**: 917 (1763); Mant. Pl. **1**: 93 (1767), e typo.

S. sinapis Burmann fil., Fl. Ind. 140 (1768), excl. syn. Barrel.

S. atrovirens Hornemann, Suppl. Hort. Bot. Hafn. 72 (1819).

Nasturtium indicum (L.) DC., Syst. Nat. **2**: 199 (1821)—Hook. f. & Anderson, Fl. Brit. Ind. **1**: 134 (1872), p.p.

N. atrovirens (Horn.) DC., l.c. 201 (1821)—C. A. Meyer, Ind. Sem. Hort. Petrop. **11**: Suppl. 59 (1846).

? *N. diffusum* DC., Prodr. **1**: 139 (1824)—Miq., Ill. Fl. Archip. Ind. **1**: 14 (1870).

N. montanum Wallich, Cat. no. 4778 (1828), nom. nud., e typo—Bentham, Fl. Hongk. 16 (1861)—Hooker et Thomson in Journ. Linn. Soc. **5**: 139 (1861)—Miquel, Ann. Mus. Lugd.-Bat. **2**: 71 (1865), cum *β. obtusulum* Miq.—Matsum. Ind. **2** (2): 158 (1912)—Schulz in Fedde, Rep. **33**: 280 (1934)

Cardamine glandulosa Blanco, Fl. Filip. ed. 1, 521 (1837).

N. montanum β. nipponicum Fr. et Sav., Enum. Pl. Jap. **1**: 32 (1873), nom. nud., e typo.

Rorippa montana (Wall.) Small, Fl. S.E.U.S. ed. 2, 1336 (1913).

Rorippa indica (L.) Bailey in Rhodora **18**: 155 (1916).

Radicula indica (L.) Standley in Smithson. Misc. Coll. **68** (5): 2 (1917), quoad basonym.

N. sinapis (Burm.) O. E. Schulz in Engl., Bot. Jahrb. **55**: 270 (1918), quoad basonym tantum; in Fedde, Rep. **33**: 278 (1934), pro min. part.

'*N. sublyratum* Fr. et Sav.': Nakai in Bot. Mag. Tokyo **34**: 43 (1920).

Rorippa indica (L.) Hochreutiner in *Candollea* **2**: 370 (1925), var. *typica* Hochr. *Radicala montana* (Wall.) Hu ex P'ei in *Contr. Biol. Lab. Sci. Soc. Chin. Bot.* **9**: 45 (1933).

N. asturtium obtusulum (Miq.) Koidzumi in *Act. Phy. Geo.* **3**: 149 (1934).

Rorippa sinapis (Burm.) Ohwi et Hara in *Journ. Jap. Bot.* **12**: 899 (1936), quoad basonym tantum.

R. atrovirens (Hornem.) Ohwi et Hara, l.c. 900 (1936)—Ohwi, *Fl. Jap.* 575 (1953).

R. Sinapis (Burm.) Macbride in *Field Mus. Nat. Hist. Bot.* **13** (2): 967 (1938), quoad basonym.

R. indica (L.) Stehlé in *Rev. Bot. Appliq.* **26**: 103 (1946).

Icon. Iinuma, *Sômoku-dzusetsu* ed. Makino **3**: 729 (1913); Terasaki, *Nippon-Shokub.-Zufu* f. 224 (1933); Porterfield, *Wayside Pl. Shanghai* 97 (1933); Makino, *Ill. Fl. Nippon* f. 1551 (1940); Henderson, *Malay. Wild Fl.* **1**: f. 11 (1949).

Dist. Japan! (Hokkaido to Ryukyu), Formosa!, Korea!, Manchuria, China!, Malaysia (Philippines!, Java!, Sumatra!, Malay, etc.), and India (Himalaya!).

C. *Rorippa madagascariensis* (DC.) Hara, comb. nov.

Sinapis divaricata Roxburgh, *Hort. Bengal.* 48 (1814), nom. nud.; *Fl. Ind.* ed. **2**, **3**: 123 (1832).

Nasturtium madagascariense DC., *Syst. Nat.* **2**: 192 (1821).

N. quercifolium Wallich, *Cat. no.* 4775 (1828), nom. nud.

N. divaricatum Wallich, *Cat. no.* 4776 (1828), p.p., nom. nud.

N. gangeticum Wallich, *Cat. no.* 4777 (1828), nom. nud.

N. niloticum Boissier, *Diagn. Pl. Or. Nov. ser. 1*, **2** (8): 19 (1849).

'*N. indicum* DC.': Hooker et Thomson in *Journ. Linn. Soc.* **5**: 138 (1861)—Oliver, *Fl. Trop. Afr.* **1**: 58 (1868)—Hooker f. et Anderson in *Fl. Brit. Ind.* **1**: 134 (1872), p.p.—O. E. Schulz in *Fedde, Rep.* **33**: 275 (1934).

Icon. Wight, *Ill. Ind. Bot.* **1**: t. 13 (1840).

Dist. Africa!, Madagascar!, and India!.

14) ***Stellaria modesta* Fenzl.** This species was published by Zollinger based upon a specimen from Japan (Zollinger, no. 451), but in *Index Kewensis* its locality was cited as 'Malaya' by mistake. I saw a specimen of Zollinger (no. 451) in the *Muséum National d'Histoire Naturelle* at Paris, and noticed that it is nothing but *Stellaria media* which is a common weed in Japan too. Its seeds have flattish tubercles on the surface.

Stellaria modesta Fenzl ex Zollinger, *Syst. Verz. Ind. Archip.* **2**: 142 (1854), nom. nud.; in *Nat. Tijds. Nederl. Ind.* **14**: 165 (1857), descr.

= *Stellaria media* (L.) Villars.

13) イヌガラシとミチバタガラシ この両種の学名の問題は仲々複雑である。今迄 *Rorippa indica* (L.) Hiern はインドやアフリカにある別の種に用いられるのが普通であつたが、その名の基になる *Sisymbrium indicum* L. のタイプを見て、それがイヌガラシであるとの見解になつた。又 *Rorippa sinapis* もミチバタガラシでなくイヌガラシである。ミチバタガラシの学名は *Rorippa dubia* (Pers.) Hara となる。

14) *Stellaria modesta* Fenzl この名は日本から記載されたが今迄何であるかはつきりしなかつた。パリで Zollinger 採集の標本を見て、これがコハコベに過ぎないことを確めた。