A new variety of Scutellaria （Lamiaceae）from Japan

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Naohiro Naruhashi[1], Takashi Sawanomukai[1, 3], Takao Wakasugi[2] and Yoshikane Iwatsubo[1] : **A new variety of *Scutellaria* (Lamiaceae) from Japan**

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Abstract

A new variety *Scutellaria indica* var. *satokoae* (Lamiaceae) is described from Japan. This variety is distinguished from *S*. *indica* var. *parvifolia* by large leaves 20-25 mm in length and 15-25 mm in width and large nutlets 1.5-1.7 mm in length, and lower lip of corolla with small purple spots or no spots in the middle part. It is also distinguished from *S*. *muramatsui* by being densely pilose on both surfaces of leaves and on its stems. The chromosome number of the new variety is 2n=26 (diploid) and it is distributed mainly on the Japan Sea side from Toyama Prefecture to Shimane Prefecture.

Key words : description, Hokuriku, Lamiaceae, new variety, *Scutellaria indica* var. *satokoae*.

Scutellaria L. (Lamiaceae) has worldwide distribution with ca. 360 species in the world (Paton 1990). In Japan 15 species and 6 varieties were reported by Murata (1981), 14 species and 8 varieties by Ohwi and Kitagawa (1983) and recently 18 species and 6 varieties by Murata and Yamazaki (1993). Sawanomukai (Sawanomukai, Iwatsubo et al. 2003) examined chromosome numbers and morphology of 16 Japanese species and 3 varieties.

In 1968 one of the authors, Wakasugi, recognized a plant of *Scutellaria* in Fukui Prefecture as a new taxon because the plant had the same indumentum as *S*. *indica* var. *parvifolia* but it had flowers similar to those of *S*. *muramatsui*. In 1994, Ms Satoko Matsumoto presented the analysis of the relationship among Japanese species of *Scutellaria* at the 24 th annual Meeting of the Japanese Society of Plant Taxonomists, and she submitted her master's thesis entitled "The analysis of phylogenetic relationships in Japanese *Scutellaria*" to Tokyo Metropolitan University. In her thesis she referred to the new taxon and informally named it as "TAKEFU" without scientific name, because the plants were derived from a population in Takefu City, Fukui Prefecture (Matsumoto 1994).

We collected many species of *Scutellaria* and cultivated them at the Botanic Garden of Toyama University, comparing them morphologically and cytologically with each other. These results brought us to the conclusion that the plant in question represents a new variety of *S*. *indica*. In this paper we describe the new taxon, *S*. *indica* var. *satokoae*, comparing with the allied taxa, *S*. *indica* L. var. *parvifolia* (Makino) Makino and *S*. *muramatsui* H.Hara.

Scutellaria indica var. *satokoae* has most probably been misidentified as *S*. *indica* var. *parvifolia* (Murata 1961 ; Kitamura 1968 ; Watanabe 2003) or as *S*. *indica* var. *indica* (Komaki 1976 ; Botanical Club in Ishikawa 1983 ; Ohta et al. 1983).

Morphology

This plant is apparently very similar to *S*. *indica* var. *parvifolia*, owing to the same hairiness. However, the present variety has larger leaves and nutlets than *S*. *indica* var. *parvifolia* and small purple spots or no spots against large purple spots of the latter. This plant is also similar to *S*. *muramatsui* in the habit of its stem, i.e., at

basal part the stem is decumbent and at upper part it is erect. New roots sprouting from nodes of decumbent stem make asexual reproduction easy. However the most important morphological character of discrimination from *S*. *muramatsui* is hairiness. That is, stem and leaves of *S*. *muramatsui* show a sparse indumentum composed of short and bending hairs, while those of *S*. *indica* var. *satokoae* are densely covered by long and spreading hairs (Fig. 1). These morphological comparisons are shown in Table 1.

The epidermal morphology of fruits (nutlets) of 18 taxa in Japanese *Scutellaria* was investigated with scanning electron microscope (SEM) (Sawanomukai, Hashiya et al. 2003). In their report this new taxa was described as : fruits (nutlets) ovoid, covered with processes except for hilum. The apices of processes modified into a mouth, and surfaces of them irregularly bullate. Around the apices the processes have appendages which seem to be deveroped papilae or horns. These features were similar to those of *S*. *brachyspica*, *S*. *indica* var. *indica*, *S*. *indica* var. *parvifolia*, *S*. *muramatsui* and *S*. *rubropunctata* (Sawanomukai, Hashiya et al. 2003).

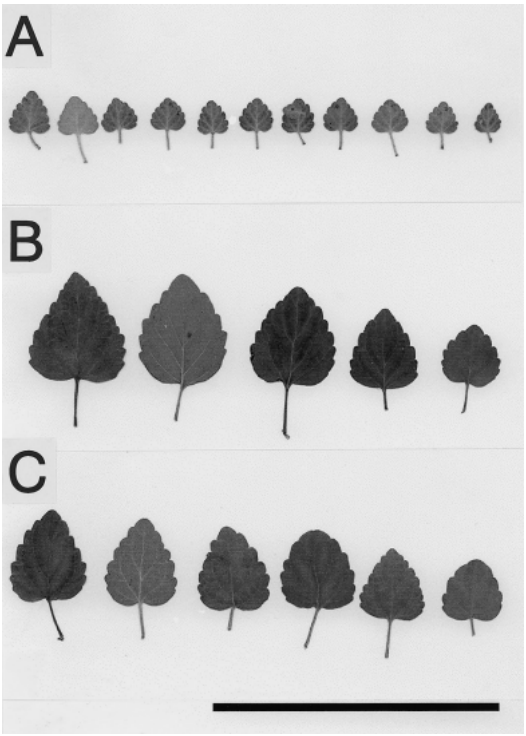


Fig. 1. Leaves of three taxa of *Scutellaria*. A: *S*. *indica* var. *parvifolia*. B: *S*. *muramatsui*. C: *S*. *indica* var. *satokoae*. Bar = 10 cm.

Table 1. Comparison of *Scutellaria indica* var. *satokoae* and allied taxa

	S. *indica* var. *satokoae*	*S*. *indica* var. *parvifolia*	*S*. *muramatsui*
spot on lower lip of corolla	small purple spots or no spot	large purple spots	small purple spots or no spot
basal part of stem	decumbent	ascending	decumbent
strengthened corner of stem	slightly developed	strongly developed	slightly developed
hairs on stem	densely long and spreading	densely long and spreading	sparsely short and bending
length of leaf	20-25 mm	8-12 mm	20-25 mm
width of leaf	15-25 mm	8-12 mm	15-25 mm
no. of leaf serration	9-15	7-11	11-17
hairs on adaxial side of leaf	densely pilose	densely pilose	sparsely pubescent
hairs on abaxial side of leaf	densely pilose	densely pilose	sparsely pubescent only on nerves
length of nutlet	1.5-1.7 mm	1-1.2 mm	1.5-1.7 mm

Pollination biology

Generally speaking, entomophilous flowers can be interpreted in terms of their co-adaptation or co-evolution with insects. It is known that insects are more sensitive to shorter wave length, 300～400 nm (Weiss 1943; Burkhardt 1964; Autrum 1968). Naruhashi and Sugimoto (1996) reported that the two flowers of the two species in *Ducesnea* showed different patterns in UV light although we see in ordinary daylight two species with almost identical flowers. As a result of the UV photos, UV patterns of flowers were same in the three taxa: *S. indica* var. *satokoae*, *S. indica* var. *parvifolia* and *S. muramatsui*, the upper and lower lip of corolla absorbed UV light weakly, and the margin of pore of corolla, i.e., between the upper lip and the lower lip and the base of the lower lip, reflected UV light weakly (Fig. 2).



Fig. 2. UV light photo of an anthetic flower of *Scutellaria indica* var. *satokoae*.

Chromosome number

Chromosome counts of 16 species and two varieties of Japanese *Scutellaria* were reported by us (Sawanomukai, Iwatsubo et al. 2003). We examined the present variety by using the same method and obtained 2n=26 (Fig. 3) which is the same chromosome number as in *S. indica* var. *parvifolia* and *S. muramatsui*. Thus chromosome data also support close relationship among the three taxa.

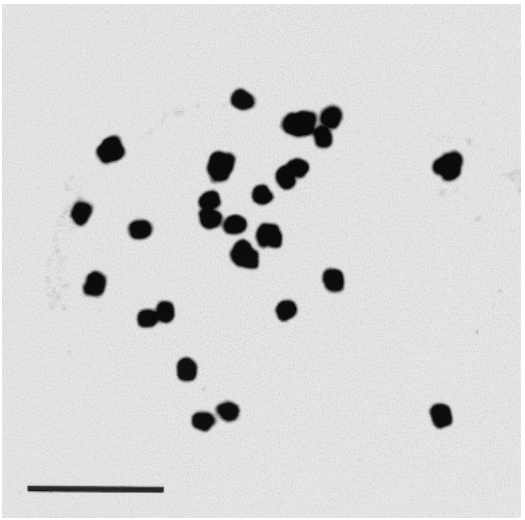


Fig. 3. Somatic metaphase chromosomes of *Scutellaria indica* var. *satokoae* (2n=26). Bar = 7 μm.

Habitats and distribution

The plants grow at the margin of forests on low mountains, rarely under thin thickets, and do better in places getting several hours of sunshine a day. They are distributed mainly on Japan Sea side from Toyama Prefecture to Shimane Prefecture (Fig. 4). Varietas *parvifolia* distributes on the Pacific side of central and western Honshu, Shikoku and Kyushu, occurring separately from the new variety. *Scutellaria muramatsui* also distributes on the Japan Sea side of Honshu likewise as the new variety, but it prefers more northern area and higher elevation. There are no mixed habitats in both plants.

Etymology

The epithet "*satokoae*" was adopted for the honor of Ms Satoko Matsumoto, who independently recognized this as a new taxon by phylogenetical studies of Japanese *Scutellaria* (Matsumoto 1994).

Description

Scutellaria indica L. var. ***satokoae*** Wakasugi et Naruhashi, var. nov. (Fig. 5 A～H)

Haec varietas *Scutellariae indicae* var. *parvifoliae* proxime similis, sed foliis majoribus, 20-25



Fig. 4. Distribution of *Scutellaria indica* var. *satokoae*.

mm longis, 15-25 mm latis, nuculis majoribus, 1.5-1.7 mm longis, labiis inferioribus corollae in parte media minute purpureo-punctulatis vel albis, diversa. Necnon haec planta *Scutellariae muramatsui* valde affinis, sed foliis utrinque et caulibus dense pilosis diversa.

Perennial herbs. Stems decumbent at basal part, upper part erect, 10-20 cm tall, greenish white rarely reddish brown, densely pilose, 4-angled with strengthened corners, the transection square with one side 1-1.5 mm long. Leaves simple, decussate opposite. Petiole pilose, 5-16 mm long. Blade triangularly ovate, crenate with 10-12 teeth, obtuse at apex, slightly cordate at base, 20-25 mm long, 15-25 mm broad, not lustrous, densely pilose on both surfaces, green on upper surface, pale green and glandular dotted on lower surface. Flowers arranged in an opposite and decussate manner forming a 4-sided inflorescence. Inflorescence with 3-7 pairs of flowers, 3-5 cm in height. Bract ensiform to oblanceolate, obtuse to rounded at apex, pale green, pilose. Calyx bilabiate, upper lip with a sail-like structure known as scutellum, lower lip smaller than upper lip. Both lips entire, rounded at apex, densely pilose. Corolla geniculate at angle ca. 90 degrees, bilabiate with unequal lips, lower lip larger, rounded, retuse at apex, upper lip galeate enclosing anthers, reddish purple to purple, pilose outside, 18-19 mm long with small purple spots in middle part of lower lip inside or sometimes with no spots. Stamens four, in two pairs, ascending, anterior stamens larger than posterior ones. Anthers dark reddish purple, oblong, vertically dehiscent by a slit with ciliate margin. Anther of anterior stamen 1 locular, anther of posterior stamen 2 locular. Filaments sparsely pilose in the lower part, adnate to corolla for about half of their length. Pistil 1. Stigma white, unequally bilobed, upper lobe very small. Fruits (nutlets) 4 in persistent calyx. Nutlets dark brown, ovoid, 1.5-1.7 mm long, 1.2-1.3 mm broad, the surface covered by many conical processes. Flowers (chasmogamous flowers) May to June, cleistogamous flowers simillar to buds of chasmogamous flowers, in summer to autumn.

Holotypus: Honshu. Toyama Pref. Kaminiikawa-gun; Yoshiminenobiraki, Tateyama-machi, 230 m alt. (137°20'E, 36°37'N). In herbs at the margin of forest along stream in a low mountain, N. Naruhashi and T. Sawanomukai no. 02060601, Jun. 6, 2002 (KYO). Isotypi (KANA, KYO, MAK, TI, TNS, TOYA, TYM).

Nom. Jap. Hokuriku-tatsunamisou (nov.)

Hab. Japonia (Japan Sea side).

Specimens examined.

Toyama Pref. Nakaniikawa-gun: Chichikoba, Tateyama-machi 100 m alt., K. Shinno 4098, Jun. 19, 1960 (TOYA), Oiwa, Kamiichi-machi 180 m, H. Ohta 41641, Jun. 12, 1934 (TOYA), Yoshiminenobiraki, Tateyama-machi 230 m alt., Y. Hori & T. Sawanomukai 00051001, May 10, 2000 (TYM), T. Sawanomukai 00071102, Jul. 11, 2000 (TYM), T. Sawanomukai 00090501, Sep. 5, 2000 (TYM), T. Sawanomukai 00112401, Nov. 24, 2000 (TYM), T. Sawanomukai 00120301, Dec. 3, 2000 (TYM), T. Sawanomukai 02042502, Apr. 25, 2002 (TYM). Tsutsumidani, Kamiichi-machi 120 m alt., M. Ohta 23112, Oct. 16, 1990 (TOYA). Namerikawa-shi: Minowa, S. Nagai 16428, Jun. 13, 1962 (TOYA). Nei-gun: Mugizima, Fuchu-machi, K. Shinno 4150, Jun. 24, 1960 (TOYA).

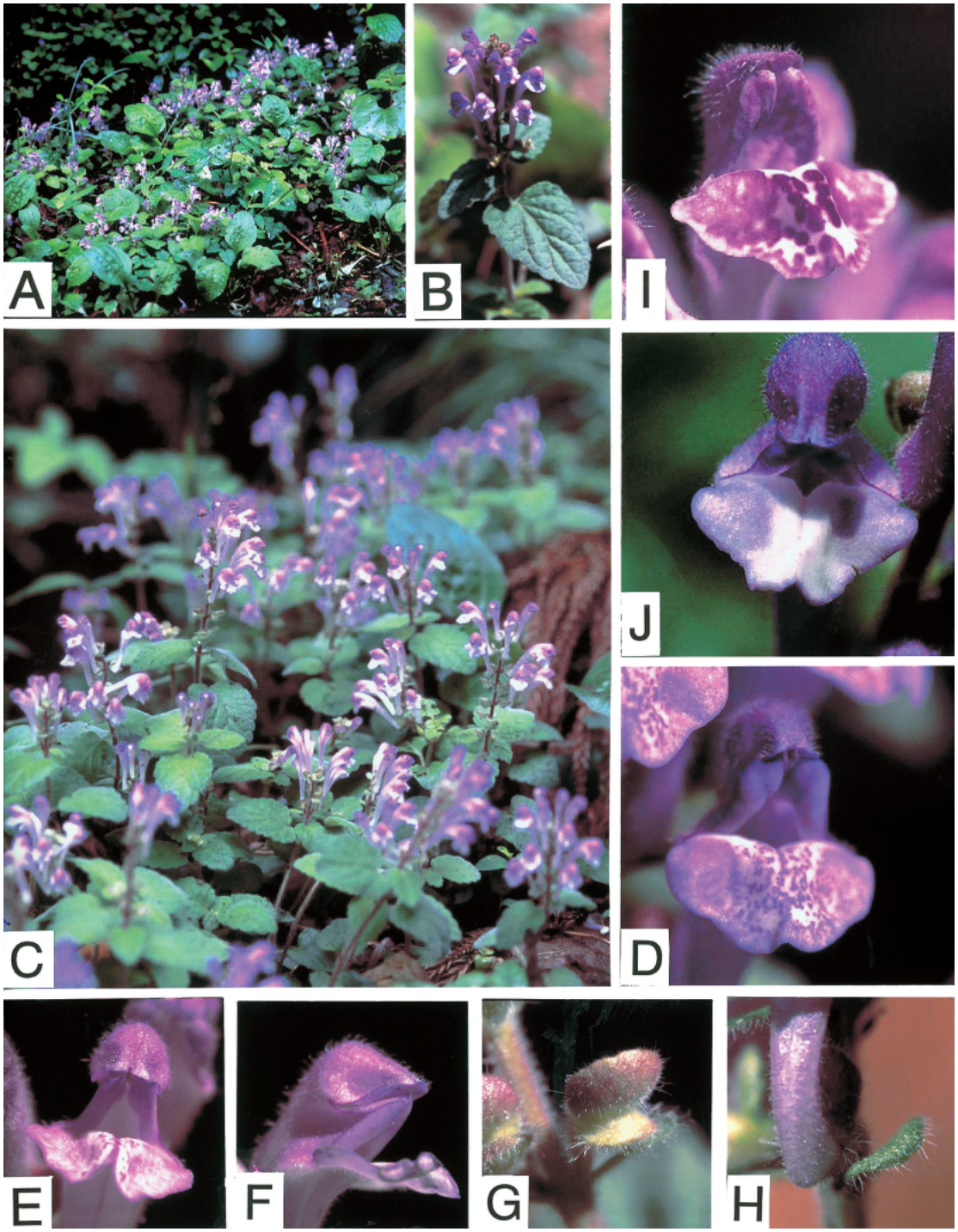


Fig. 5. *Scutellaria indica* var. *satokoae*, A～H. A : Habitat (Mt. Ochi). B : Inflorescence (Horinji). C : Flowering plants (Ozohara). D : Lower lip of corolla (Toyama Univ. cult. originated from Aono). E : Front view of upper part of corolla (Horinji). F : Side view of upper part of corolla (Horinji). G : Calyx after flowering (Horinji). H : Basal part of corolla tube and bract (Horinji). *Scutellaria indica* var. *parvifolia*, I : Lower lip of corolla (Toyama Univ. cult. originated from Toba). *Scutellaria muramatsui*, J : Lower lip of corolla (Murota).

Nishitonami-gun : Chosei-kyo, Fukumitsu-machi 700 m alt., H. Ohta 47270, Jun. 18, 1982 (TOYA), Hourinji, Fukumitsu-machi 120 m alt., T. Sawanomukai 00060501, Jun. 5, 2000 (TYM), T. Sawanomukai 00071201, Jul. 12, 2000 (TYM), Mt. Iou, Fukumitsu-machi, K. Shinno 2835, Jul. 4, 1965 (TOYA), Tori, Fukumitsu-machi 350 m alt., K. Shinno 4434, May 17, 1964 (TOYA). Shimoniikawa-gun : Ogawaonsen, Asahi-machi 280 m alt., H. Ohta 49075, 49076, May 1958 (TOYA). Takaoka-shi : Mt. Futagami, K. Shinno 3461, Jul. 1959 (TOYA), Ohsugi-jinja, Futagami 50 m alt., T. Sawanomukai 00060901, Jun. 9, 2000 (TYM), Mt. Daishigadake, S. Komaki, s.n., Jun. 11, 1961 (NANAO).

Gifu Pref. Takayama-shi : Matsukura-tanisuji, Matsukura-cho, 680 m alt., H. Nagase 90899, no date (KYO).

Ishikawa Pref. Suzu-shi : Suzu-jinja, Jike, Misaki-machi, S. Komaki, s.n., Jul. 14, 1971 (NANAO), T. Nishii 2056, Jul. 11, 1983 (NANAO), Iida-machi, S. Komaki, s.n., Dec. 20, 1975 (NANAO). Suzu-gun : Shinbo, Uchiura-machi, S. Komaki, s.n., Nov. 4, 1979 (NANAO), Tsubone, Uchiura-machi, S. Komaki, s.n., Jun. 22, 1979 (NANAO), Kunishige, Uchiura-machi, S. Komaki, s.n., Jun. 22, 1979 (NANAO), Akiyoshi, Uchiura-machi, S. Komaki, s.n., Jun. 23, 1979 (NANAO), Koshisaka, Uchiura-machi, S. Komaki, s.n., Oct. 27, 1971 (NANAO), Kamiichinose, Uchiura-machi, S. Komaki, s.n., Jul. 27, 1978 (NANAO), Ichinose, Uchiura-machi, S. Komaki, s.n., Sep. 16, 1975 (NANAO), Kagatani, Uchiura-machi, T. Nishii 2030, Jun. 13, 1982 (NANAO). Fugeshi-gun : Anamizu-machi, F. Tanii, s.n., Jul. 12, 1984 (NANAO), Meragawa, Anamizu-machi, S. Komaki, s.n., Aug. 8, 1983 (NANAO). Kashima-gun : Nishigishi, Nakajima-machi, T. Nishii 2075, Dec. 9, 1984 (NANAO), Karigoshitoge, Nakajima-machi, S. Komaki, s.n., Jun. 23, 1984 (NANAO), Fukaura, Nakajima-machi, S. Komaki, s.n., Jun. 8, 1980 (NANAO), Searashi, Nakajima-machi, S. Komaki, s.n., Jun. 8, 1980 (NANAO), Sotohara, Nakajima-machi, S. Komaki, s.n., Jun. 13, 1978 (NANAO), Mushigamine, Nakajima-machi, S. Komaki, s.n., Nov. 10, 1974, May 25, 1976 (NANAO), Nakakasashi, Nakajima-machi, S. Komaki, s.n., Jun. 9, 1978 (NANAO), Nozaki, Notojima-machi, S. Komaki , s.n., Apr. 13, 1950 (NANAO), Mt. Akakura-yama, Tatsuruhama-machi, S. Komaki, s.n., Jun. 14, 1971, Jul. 13, 1975, Nov. 5, 1975, Jun. 10, 1984, Nov. 5, 1978 (NANAO), Fukami, Tatsuruhama-machi, S. Komaki, s.n., Jul. 26, 1981 (NANAO), Yoshita, Tatsuruhama-machi, S. Komaki, s.n., Oct. 14, 1975, Jun. 8, 1980 (NANAO), Okuyama-toge, Tatsuruhama-machi, S. Komaki, s.n., Jun. 14, 1979 (NANAO), Tatsuruhama, Tatsuruhama-machi, S. Komaki, s.n., Jun. 4, 1961 (NANAO), Notobe, Rokusei-machi, S. Komaki, s.n., Jun. 6, 1970 (NANAO), Tokumatu-toge, Notobe, Rokusei-machi, T. Nishii 2045, May 27, 1983 (NANAO), Amenomiya-kofun, Rokusei-machi, T. Nishii 2017, Jun. 14, 1981 (NANAO), Koganemori, Kashima-machi, S. Komaki, s.n., Sep. 18, 1980 (NANAO). Hakui-gun : Sasanami, Togi-machi, S. Komaki, s.n., Jun. 24, 1973 (NANAO), Ikoinomura, Shika-machi, T. Nishii 2052, Jun. 2, 1983 (NANAO), Sueyoshi, Sika-machi, S. Komaki, s.n., Jun. 1, 1984 (NANAO), Nishonomiya, Shika-machi, S. Komaki, s.n., Jun. 14, 1979 (NANAO), Kurakaki, Shika-machi, S. Komaki, s.n., Nov. 16, 1978 (NANAO), Aotani, Shika-machi, S. Komaki , s.n., Jun. 12, 1973 (NANAO), Koura, Shika-machi, S. Komaki, s.n., Jul.16, 1972 (NANAO), Izumo, Shika-machi, S. Komaki, s.n., Jun. 3, 1973 (NANAO), Azumi, Shika-machi, S. Komaki, s.n., Jun. 4, 1961 (NANAO), Besso-taniuchi, Shika-machi, S. Komaki, s.n., Sep. 28, 1973 (NANAO), Shimizuhara, Shio-machi, S. Komaki, s.n., Aug. 1, 1975 (NANAO). Nanao-shi : Aoyama-machi, T. Nishii 1051, Sep. 26, 1982 (NANAO), Sami-machi, S. Komaki, s.n., Aug. 15, 1976 (NANAO), Nukui-machi, S. Komaki, s.n., Oct. 14, 1969 (NANAO), Ikezaki-machi, H. Ichikawa 49240, Mar. 21, 1988 (NANAO). Kanazawa-shi : Terazu-machi, S. Komaki, s.n., Sep. 13, 1985 (NANAO), Mt. Io-zen, Hirashimo (=Shibahara-machi), M. Fuwa 883, May 27, 1961 (TYM). Nomi-gun : Kokuzoyama, Tatsunokuchi-machi, S. Komaki, s.n., Jun. 19, 1983 (NANAO). Komatsu-shi : Hanasaka-machi, S. Komaki, s.n., Nov. 1, 1981 (NANAO), T. Nishii 3017, Nov. 1, 1981 (NANAO).

Fukui Pref. Sakai-gun : Sawa, Kanadzu-cho, T. Wakasugi 5137, Jun. 1, 1976 (KYO), T. Wakasugi s.n., Jun. 17, 1986 (KYO). Fukui-shi : Fukatani-cho 100 m alt., S. Watanabe s.n., May

28, 1973 (FUKUI, KYO), Fukatani-cho, T. Wakasugi 5143, Jun. 16, 1968 (FBG), Mera 120 m alt., S. Watanabe 11001, Jun. 19, 1971 (KYO), Kawachi-Kamigo 100 m alt., S. Watanabe 35429, Jun. 13, 1992 (KYO). Nyu-gun: Asahi, Asahi-cho, T. Wakasugi 930710, Jul. 10, 1993 (FBG), Aono, Asahi-cho 80 m alt., N. Ogawa 020696, Jun. 2, 1996 (FBG), T. Wakasugi and S. Aoki 960605, Jun. 5, 1996 (FBG), S. Aoki 020517, May 17, 2002 (FBG), S. Aoki 040518, May 18, 2004 (FBG), T. Wakasugi, N. Naruhashi & T. Sawanomukai 00060101, Jun. 1, 2000 (TYM), T. Wakasugi, N. Naruhashi & T. Sawanomukai 00060102, Jun. 1, 2000 (TYM), S. Aoki s.n., Sep. 29, 2000 (TYM), Asahi Nyugaoka, Asahi-cho, T. Wakasugi 930612, Jun. 12, 1993 (FBG), Kashiradani, Asahi-cho, S. Aoki 020511, May 11, 2002 (FBG). Mt. Ochi, Maki, Asahi-cho 160 m alt., T. Wakasugi, N. Naruhashi & T. Sawanomukai 00060103, Jun. 1, 2000 (TYM), Kotohira-jinja, Ozohara, Miyazaki-mura 140 m alt., T. Wakasugi, N. Naruhashi & T. Sawanomukai 00060604, Jun. 1, 2000 (TYM), Hatta, Miyazaki-mura, T. Wakasugi 5145, Jun. 17, 1984 (KYO), T. Wakasugi 5146, Jun. 17, 1984 (FBG), Semiguchi, Miyazaki-mura, N. Ogawa 000530, May 30, 2000 (FBG), Uwado, Ota-cho 60 m alt., T. Wakasugi, N. Naruhahi & T. Sawanomukai 00060601, Jun. 6, 2000 (TYM). Takefu-shi: Nakayama-cho, T. Wakasugi 980514, May 14, 1998 (FBG), Ikeizumi, T. Wakasugi 5151, Jun. 3, 1984 (KYO). Nanjo-gun: Kaburagi, Kono-mura, T. Wakasugi 861025, Oct. 25, 1986 (FBG). Tsuruga-shi: Jogu-jinja 30 m alt., T. Wakasugi s.n., Jun. 25, 2001 (TYM), Mt. Tezutsuyama, Y. Kato, May 18, 1939 (KYO), Kuroko-kokuyurin, Z. Tashiro s.n., Jun. 17, 1934 (KYO), Z. Tashiro 51692, Jun. 9, 1935 (KYO, TNS), S. Watanabe 35516, May 31, 1992 (KYO), Mt. Nosakadake, T. Wakasugi 5154, Jun. 17, 1973 (KYO), T. Wakasugi 5161, May 29, 1977 (KYO), Shiraki, T. Wakasugi 5157, 5158, Aug. 17, 1972 (FBG), T. Wakasugi 990612, Jun. 12, 1999 (FBG), Shiraki to Tateishi, N. Satomi s.n., May 27, 1970 (TYM). Mikata-gun: Kiyama, Mikata-cho, T. Wakasugi 5155, 5156, 5159, Jun. 10, 1973 (FBG), Miyashiro, Mihama-cho, T. Wakasugi 37449, Nov. 15, 1992 (FBG), Sinjyo (Yokotani) 400 m alt., Mihama-cho, S. Watanabe s.n., Jun. 17, 1973 (FUKUI, KYO). Ooi-gun: Inumi, Ooi-cho, T. Wakasugi 851127, Nov. 27, 1985 (FBG). Onyu-gun: Ageno 100 m alt., Natasho-mura, M. Watanabe 45958, Jun. 10, 2003 (KYO), Doumoto, Natasho-mura, S. Komaki, s.n., Oct. 16, 1974 (NANAO).

Shiga Pref. Ika-gun: Kinomoto-cho, C. Hashimoto 6078, May 28, 1940 (TI). Higashiasai-gun: Kamiyamada, Kohoku-cho, C. Hashimoto 9360, May 24, 1942 (KYO, TI). Takashima-gun: Shiratani to Mt. Mikuni, Makino-cho 300-800 m alt., G. Murata 68294, Jun. 5, 1988 (KYO), Mt. Norikuradake, Makino-cho, C. Hashimoto 786, Aug. 30, year? (KYO). Gamou-gun: Juzenji, Hino-cho, C. Hashimoto 17971, May 22, 1955 (KYO, TI, TNS), Yotsukaze-yama, Juzenji, Hino-cho, C. Hashimoto 13847, May 22, 1949 (TNS). Otsu-shi: Ishiyama, C. Hashimoto 9418, May 29, 1942 (TI, TNS).

Kyoto Pref. Miyazu-shi: Yuragadake, T. Wakasugi 5176, May 27, 1973 (FBG). Kumano-gun: Yamauchi, Kumihama-cho 160 m alt., S. Tsugaru, G. Murata & T. Takahashi 21057, Oct. 1, 1994 (KYO), Minatoya to Asahi, Kumihama-cho, G. Murata 67430, May 24, 1987 (KYO). Kasa-gun: Naigu, Ooe-cho 120 m alt., G. Murata & H. Takahashi 187, May 21, 1972 (KYO, TNS), S. Kitamura s.n., May 30, 1953 (KYO), G. Murata 6154, May 30, 1953 (KYO), Shiroyama, Naigu, Ooe-cho, 200 m alt., G. Murata & T. Takagi 44968, May 31, 1983 (KYO). Amada-gun: Tatani-Mt. Kanatoko, Yakuno-cho 300-700 m alt., G. Murata 44483, Jun. 7, 1981 (KYO).

Hyogo Pref. Toyooka-shi: Myoraku-ji, H. Imai 20, Jun. 6, 1981 (TI). Yabu-gun: Mt. Toji, Yoka-cho, M. Hiroe 6053, Jun. 3, 1950 (TNS). Sisogun: Mt. Funakoshi, Chikusa-cho, G. Murata, Jun. 9, 1957 (KYO).

Tottori Pref. Tottori-shi: Mt. Hisamatsu, A. Tanaka 12533, May 14, 1972 (KYO), S. Ishihara s.n., Jun. 15, 1958 (KYO), Ue-machi, T. Sawanomukai 01061001, Jun. 6, 2001 (TYM). Tohaku-gun: Mt. Mitoku-san, Misasa-cho ca. 500 m alt., G. Murata, H. Nishimura, M. Okamoto & H. Takasu 205, May. 28, 1973 (KYO). Saihaku-gun: Kinoe-gawa, Nakayama-cho, A. Tanaka, Jul. 29, 1973 (KYO).

Shimane Pref. Hirata-shi: Ofunayama, Taku-cho, Y. Sugihara 231, May 21, 2002 (KYO).

〔FBG, the herbarium of Fukui Botanical Garden ; FUKUI, the herbarium of Fukui City Museum of Natural History ; NANAO, the herbarium of Nanao Science Museum for Boys〕

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鳴橋直弘[1]・沢之向　隆[1,3]・若杉孝生[2]・岩坪美兼[1]：シソ科タツナミソウ属の新変種，ホクリクタツナミソウ

ホクリクタツナミソウは山地の林縁や疎林下に生育する多年草である。茎の断面は四角形で角には鈍稜が見られ，一辺の長さは 1-1.5 mm。茎は下部がやや長く匍匐し，途中で立ち上がり，高さは 10-20 cm，色は緑白色で，部位により赤褐色を帯び，開出毛で密に覆われる。下部は冬期でも枯れない。葉は単葉，十字対生。葉身は三角状卵形で，先端は鈍く，基部は浅い心形，長さ 20-25 mm，幅 15-25 mm，縁には粗い鋸歯を 10-12 個持ち，表裏ともに光沢はなく，開出毛で密に覆われる。また，葉身は表面が緑色，裏面は淡い緑色で，腺点がみられる。葉柄は長さ 5-15 mm で開出毛に覆われる。花は茎の上部の葉腋に 2 個ずつ 3-5 対つき，3-5 cm の花穂をつくる。萼は唇形で，長さ 1.8-2.2 mm，上唇には直径 3 mm 程度の円盤状の付属物（scutellum）が見られ，それらは軟毛で覆われている。花冠は筒部が基部で折れ曲がって立ち上がり，開口部は唇形，上唇はかぶと状となり，軟毛で覆われ，長さ 18-19 mm。花冠の色は赤紫～紫色で，下唇には小さな紫点があるが，時にこの紫点は見られない。花冠上唇と下唇は弱く紫外線を吸収し，開口部にあたる側壁

と下唇基部に弱い反射を示す。雄蕊は4本で長短2対となり，花糸下部には軟毛が疎らに生える。葯は濃い赤紫色を呈し，長楕円形で縦に裂開し，裂開している縁には毛が密生する。花冠背面の雄蕊に着く葯は2室，前面の雄蕊に着く葯は1室である。花柱は1本で透明白色，部位によっては青紫色を帯び，萼内にある子房中央基部から花冠の開口部まで伸び，先端で上下に2裂開する。果実は小堅果，萼内に4個つける。小堅果は卵形，濃い茶色で，長さ 1.5-1.7 mm，幅 1.2-1.3 mm，表面は低い円錐状突起で覆われ，円錐状突起の表面はいぼ状で，先端周辺はいぼ状突起が高くなり，乳頭状～角状突起となる。5-6 月には開放花をつけ，夏から秋にかけては，茎の先端部に，開放花のつぼみと形態的に類似する閉鎖花が見られることもある。

ホクリクタツナミソウは，コバノタツナミやデワノタツナミソウと形態的に類似するが，前者は葉と小堅果が小さく，花冠下唇中央に大きな紫点があるという点で，後者は葉の裏面の脈状にのみ，疎らに開出毛が存在する点で区別される。また，タツナミソウは，茎が直立すること，下部が冬期に枯れること，下唇に紫色の大きな紫点があること等で区別される。ホクリクタツナミソウは，本州の主として日本海側（富山県～島根県）の山地に生育する。染色体数は 2n=26 である。

学名は，この植物が新しい分類群であることを認識された松本聡子氏を記念して名付けられた。

「福井県植物誌」（渡辺　2003）のコバノタツナミ，及び「図鑑　能登の植物」（小牧　1976），「石川県植物誌」（石川の植物の会 1983），「富山県植物誌」（大田他　1983）のタツナミソウはホクリクタツナミソウに当たるものと思われる。また，「滋賀県植物誌」（北村　1968）と雑誌兵庫生物の「近畿地方植物誌 7」（村田　1983）のコバノタツナミの中にはホクリクタツナミソウが含まれている。

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