

Masahide KURITA* : Some Notes on the *Rhododendron*
Plants from Japan III. Hairs on Styles of
Two Species.

栗田正秀* : 日本産ツツジ属植物雑報 III, 2種における花柱の毛

It was recorded that *Rhododendron reticulatum* D. DON and *Rh. weyrichii* MAX. have their styles showing no hair. Thereafter, in each species there were found some individuals which have the hairs at the lower parts of their styles. They were proposed as *Rh. reticulatum* f. *trichostylum* MIZUSHIMA and as *Rh. weyrichii* f. *psilostylum* NAKAI. Further, in *Rh. weyrichii* some styles were described to have the hairs and the others to have no hair (KITAMURA and MURATA 1974, OHWI 1975).

From the above mentions, it could be estimated that the two species are variable in the hair of style. Then, by the present author an observation was made on the hairs in the style of the two species.

Materials and methods The materials for *Rhododendron reticulatum* were the plants growing wild in Mt. Ishizuchi and in Hozyo City, Ehime Prefecture, and those for *Rh. weyrichii* were the wild plants in Niihama City, Ehime Prefecture, besides the plants cultivated in Ehime University.

A basal end of style is covered by hairs developed on a top of ovary. In this natural aspect, it is almost impossible to certain whether the basal end has a hair or not. Then, an observation was carried out on the basal end after a separation of whole style from ovary. The flower whose style was observed was picked out at random from flowers on different branches.

Observation In a case of hair-bearing, the styles of the two species have the hairs only at their lower parts. The hairs of *Rh. reticulatum* are classified into two groups : simple unbranched unicellular hair (Abb. SUU-hair) and simple unbranched multicellular hair (Abb. SUM-hair). *Rh. weyrichii* has a multicellular glandular hair (Abb. MG-hair) in addition to the SUU- and the SUM-hair.

The SUU-hair in both the species is a projection of aerial wall of epidermal cell, and it is small, being about $55\ \mu$ in length and about $18\ \mu$ in width (Fig. 2, 3). They are not so crowded as all the epidermal cells make

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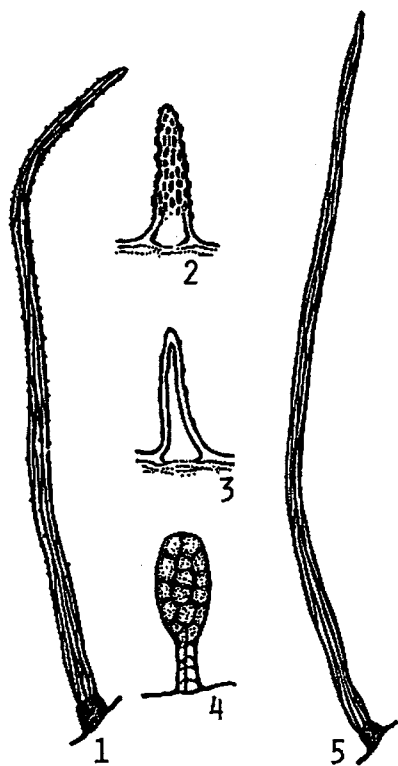


Fig. 1-5. Hairs on styles. 1, SUM-hair of *Rh. reticulatum*. 2, SUU-hair of the same. 3, SUU-hair of *Rh. weyrichii*. 4, MG-hair of the same. 5, SUM-hair of the same. 1 and 5, $\times 70$. 2 and 3, $\times 280$. 4, $\times 140$.

hairs. The SUU-hairs of *Rh. reticulatum* show many remarkable warts on their surfaces (Fig. 2), while those of *Rh. weyrichii* show no wart or a few ones (Fig. 3). There is no difference in morphology of the SUM-hair between the two species (Fig. 1, 5). This hair consists of a bundle of extremely elongated cells and an inconspicuous foot having a few small cells. The length of SUM-hair is variable, being about 1 mm at least. Its width is about 28μ . The MG-hair is composed of a glandular body and a stalk (Fig. 4), the body being of ellipsoid with about 81μ in

length and 42μ in width, and the stalk about 40μ in length and 14μ in width.

In *Rh. reticulatum*, there are found a style having only the SUU-hair and a style having both the SUU- and the SUM-hair. On single style, the SUU-hairs are always much more in number than the SUM-hairs. Further, an increase and a decrease of SUU-hair seem to be accompanied by an increase and a decrease of SUM-hair respectively. The under mentioned investigations are carried out only on the SUM-hair in disregard of the SUU-hair. From 27 flowers of one plant in Mt. Ishizuchi, ten styles have the SUM-hairs and the remaining 17 have no ones. The result of observation on the styles in Hozyo population, using ten flowers per plant, is shown in table 1. Out of 54 plants, 17 have only the styles with the SUM-hairs, seven have only the styles without the SUM-hairs, and the remaining 30 have each both the styles with and without the SUM-hairs. Further, out of 540 flowers observed, 343 (63.5%) have the styles with the SUM-hairs and the remaining

Table 1. Flowers having styles with and without SUM-hair in *Rh. reticulatum* from Hozyo City.

Plant	Flower No.	Plant	Flower No.	Plant	Flower No.
1	0* : 10**	19	9 : 1	37	9 : 1
2	10 : 0	20	2 : 8	38	10 : 0
3	3 : 7	21	8 : 2	39	10 : 0
4	10 : 0	22	9 : 1	40	6 : 4
5	10 : 0	23	4 : 6	41	10 : 0
6	7 : 3	24	6 : 4	42	9 : 1
7	8 : 2	25	10 : 0	43	0 : 10
8	9 : 1	26	0 : 10	44	6 : 4
9	9 : 1	27	0 : 10	45	8 : 2
10	10 : 0	28	10 : 0	46	0 : 10
11	9 : 1	29	10 : 0	47	6 : 4
12	2 : 8	30	8 : 2	48	10 : 0
13	5 : 5	31	10 : 0	49	1 : 9
14	2 : 8	32	2 : 8	50	10 : 0
15	6 : 4	33	2 : 8	51	10 : 0
16	8 : 2	34	7 : 3	52	0 : 10
17	1 : 9	35	10 : 0	53	2 : 8
18	0 : 10	36	10 : 0	54	10 : 0

* (left figure), having styles with SUM-hairs. ** (right figure), having styles without SUM-hair

197 (36.5%) the styles without the SUM-hairs.

The following investigations were made only on the SUM-hair of *Rh. weyrichii* in defiance of the other hairs. In *Rh. weyrichii* from Niihama City, 42 plants show the styles with the SUM-hairs and 16 the styles without the SUM-hairs. In the same species from Ehime University, ten and two plants show the styles with and without the SUM-hairs respectively. These results have been obtained from the observation on ten flowers per plant.

In *Rh. weyrichii*, there are usually found the three kinds of hair, namely the SUM-, the SUU- and the MG-hair, on single style. Within the lower part of style which is of hair-bearing, the basal segment has usually all the three kinds of hair, the middle segment has both the SUU- and the MG-hair, and the upper segment has only the SUU-hair. In the style lacking only the SUM-hair, the hair-bearing part is divided into two segments. The basal segment shows both the SUU- and the MG-hair and the upper segment only

Table 2. Hairs on styles of some *Rh. weyrichii* plants from Niihama City.

Plant	Flower No.	Hair		
		SUM	MG	SUU
A	1	-	-	-
	2	-	-	-
	3	-	-	-
	4	-	-	-
	5	-	-	-
	6	-	-	-
	7	-	-	-
B	1	-	-	-
	2	-	-	-
	3	-	-	-
	4	+	-	-
	5	+	-	-
	6	-	+	-
	7	-	+	+
	8	+	+	+
C	1	-	+	+
	2	-	+	+
	3	-	+	+
	4	-	+	+
	5	-	+	+
	6	-	+	+
	7	-	+	+
D	1	-	-	+
	2	-	-	+
	3	-	-	+
	4	-	-	+
	5	-	-	+

the SUU-hair.

Table 2 shows four uncommon plants in Niihama population. In the A-plant, the flowers have the styles showing not any hair. The B has the five kinds of styles which are different from one another in combination of hair. In this plant, the hairs on a single style are a very few. The C has the flowers with styles lacking only the SUM-hair. The D has the flowers with

styles having only the SUU-hair.

Discussion Out of 54 plants of *Rh. reticulatum* in Hozyo population, 30 (55.6%) have each both the styles with and without the SUM-hair. They mingle with 17 plants (31.5%) having only the styles with the SUM-hair and 7 plants (13.0%) having only the styles without the SUM-hair. Then, the Hozyo population may be said to consist of f. *trichostylum*. It is, however, difficult to distinguish sharply f. *trichostylum* in *Rh. reticulatum*, because of finding many individuals having both the styles with and without the SUM-hair. By reason of similar finding (cf. B-plant in table 2), it is also difficult to distinguish sharply f. *psilostylum* in *Rh. weyrichii*.

The above mention is described only on the basis of the SUM-hair. If the term "Hair on style" includes the SUU- and the MG-hair besides the SUM-hair, the plants identified as *Rh. reticulatum* f. *trichostylum* as well as *Rh. weyrichii* f. *psilostylum* are extremely increased in number, so far as the present study concerns. The term "Hair" must be used as the basis for a classification after designating the kind of hair in detail.

The MG-hairs were rarely observed in leaves of *Rh. reticulatum* from Hozyo City (unpublished). This hair, however, was not yet found to occur in style of the species. The occurrence may be more difficult in style than in leaf.

References

KITAMURA, S. and MURATA, G. 1974. Coloured illustrations of woody plants of Japan. Hoikusha, Tokyo. ; OHWI J. 1975. Flora of Japan. Shibundo, Tokyo.

摘 要

コバノミツバツツジとオンツツジにおいて、花柱の毛が観察、調査された。前者の花柱では単細胞の短毛 (SUU-毛) と多細胞不分岐の長毛 (SUM-毛) が、後者のそれでは、上記2種の毛のほかに、多細胞で有柄の腺毛 (MG-毛) がみとめられた。コバノミツバツツジ群落ではナギソミツバツツジにあたる個体が、オンツツジ群落ではタンナアカツツジにあたる個体がおおくみられた。3種の毛を考慮した場合は勿論、SUM-毛のみからみた場合でも、両種において有毛花柱と無毛花柱をとにもった個体があり、その数もおおかった。したがってコバノミツバツツジ中にナギソミツバツツジを、オンツツジ中にタンナアカツツジを区別することは困難である。

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 収録された植物は茨城大学を卒業したメンバーが数年間にわたってフローラ研究のため採集したシダ以上の植物標本がもとになっている。(里見信生)