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## Identification of *Symphoricarpus Occidentalis*

Florence D. Smith

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IDENTIFICATION OF SYMPHORICARPUS  
OCCIDENTALIS

FLORENCE D. SMITH

In 1823 Robert Brown used the name *Symphoria occidentalis* in John Richardson's "Botanical Appendix to the 'Narrative of a Journey to the Shores of the Polar Sea' by Captain John Franklin." Brown did not make the name valid by description or illustration. William Jackson Hooker, ten years later, in his "Flora Boreali Americana" first used the combination *Symphoricarpus occidentalis* which we now accept, and established the name by the following (translated) description:

"With the corolla inside and the lobes densely hairy;  
with the style and stamens sub-exserted."

Gray's "Synoptical Flora," his Manual of 1908, Howell's "Flora of Northwest America" 1897, Britton and Brown 1898, and 1913, and Rydberg 1905, and 1917 distinguish *S. occidentalis* and *S. racemosus* from *S. vulgaris* by the red fruits and the hairy style of the latter. We found some of our Iowa specimens unidentifiable because the fruits were white and the styles very hairy. Hooker in the original description did not mention the condition of the style, but Torrey and Gray in 1841, Wood in 1846, and 1856 use Hooker's name, *Symphoricarpus*, credit Brown with it, and state that the style is bearded. Eleven of nineteen authoritative manuals have no statement upon this point. We examined a number of specimens to ascertain whether the beardedness of the style is a constant recognition character, and to explain the conflicting statements of authorities.

After examining the specimens in our Grinnell herbarium it appeared probable that the typical *Symphoricarpus occidentalis* has a glabrous style and the bearded is a more or less distinct form. There seems to be some relation between the beardedness of the style and the extent of ciliation on the margins of the calyx lobes, but the relation is not stable enough to make it suitable for descriptive purposes. Among seventy-eight specimens about three-fifths had hairy styles (forty-eight hairy, thirty glabrous). Exactly two-thirds of the Iowa specimens were bearded (twenty-six

hairy, thirteen glabrous); less than three-fifths of the out of state specimens were bearded (twenty-one bearded, fifteen smooth). Wide variation occurs among the hairy styled specimens; some have a densely hairy region about the middle one-third while others have only a few scattered hairs.

In order to approach the type which Brown and Hooker knew we obtained specimens from the Saskatchewan and Manitoba regions which were on the route of the Franklin expeditions. Two specimens from around Saskatoon, Saskatchewan, had flowers with consistently glabrous styles, but they were otherwise no more typically *S. occidentalis* than the Manitoba representative from St. Norbert near Winnipeg, which had hairy styles; the number of hairs varied from eighteen to six. One flower from Saskatoon had two partly fused styles, one rather hairy and the other glabrous.

One of Dr. Pammel's specimens collected at Battle Creek, Iowa, in 1896, had a glabrous style and one which was collected there in 1928 was very bearded. (The 1896 specimen probably came from near the Maple River while the later grew on higher, somewhat hilly ground, but there is no connection between the style condition and the immediate environment. Hairy styled specimens occur equally distributed between hilly and more moist locations.) The style of one flower from St. Ansgar, Iowa, was glabrous and that of another from the same plant had one, long hair, a rather convincing indication that the condition of the style is not a constant recognition character but an extremely variable one and unsuitable for key distinctions or even for distinguishing a "form."

Geographic distribution has no evident bearing on the condition of the style. This investigation has not been exhaustive but there is no apparent reason for the difference in styles among plants, and among flowers on the same plant.

With Hooker's description he states:

Habitat, woody country, between latitude fifty-four and sixty-four degrees, and known under name of "Wolfberry." Dr. Richardson. Abundant about the Saskatchewan and Red River. Drummond. Douglas. Ft. Vancouver, on the Columbia. Douglas. — Dr. Richardson has justly remarked of this plant "*S. racemosi proximus*"; and among the numerous specimens in the herbarium, are some which appear almost as much allied to the one species as the other. But the majority of individuals of the two species are readily enough distinguished; those belonging to the *S. occidentalis*, by their larger, less glaucous, more rigid, and denser foliage, (some of the leaves being two and one-half inches long.), by the flowers arranged in dense drooping spikes, larger than in *racemosus*, and by the prominent style and stamens.

Piper in his "Flora of the State of Washington" states that

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*S. occidentalis* (Hook. Fl. Bor. Am. 1: 285, 1840) is said in the original description to have been collected at "Ft. Vancouver" by Douglas; Cooper also lists this species as "common."

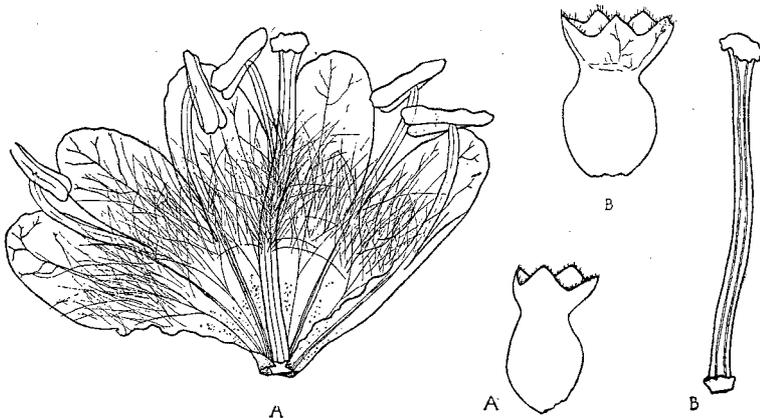
With little doubt these references belong to *S. racemosus*, as no trace of *S. occidentalis* has been found by recent collectors in Washington.

Pritzel's "Thesaurus Literaturae Botanicae" states that Hooker's Flora was

compiled chiefly from the plants collected by Dr. Richardson and Mr. Drummond on the late northern expeditions from the shores of Hudson's Bay and the Polar Sea under the command of Franklin. Mr. Douglas' collection from northwest America and some others were added.

One can easily imagine that the labels of Hooker's specimens may have been mixed so that the material which he listed for Ft. Vancouver was from the Richardson-Drummond collection. We may conclude that *S. occidentalis* does not occur west of the Rocky mountains.

Perhaps the best distinction between *S. occidentalis* and *S. racemosus* is that *occidentalis* suckers by underground runners while *racemosus* forms a close clump but does not spread. The most obvious herbarium difference is that the style and stamens of *occidentalis* are exerted and those of *racemosus* are included. (Exserted may be defined as extending beyond the tip of the corolla lobes when they are spread open as diagram A shows.) The style of *racemosus* is comparatively short so that the stigma reaches only to the sinus of the corolla lobes. The filaments are about half as long as those of *S. occidentalis* so that in a dissected



A Flower of *S. occidentalis* showing extremely bearded style and exerted style and stamens.  
 A' Ovary of A with typically ciliated calyx margin.  
 B Glabrous style of a *S. racemosus* flower.  
 B' Ovary and calyx of B.

flower the anthers lie about the middle of the lobes. The *S. racemosus* flowers do not spread open, a position which makes the style and stamens appear even more included. The broad lobes of *S. occidentalis* tend to lap in the sinus which occurs midway between the base and the tip of the petals. A glandular-looking thickening often occurs at the base of some or all of the *S. occidentalis* petals. The style of *racemosus* is never hairy and that of *occidentalis* may be.

I am indebted to Dr. Henry S. Conard for suggesting this problem, to Iowa State College for the use of the herbarium and the library, to Mr. Cratty for assistance, to Dr. A. H. Reginald Buller of Winnipeg, to Drs. Thompson and Fraser of Saskatoon for specimens, and to the Hendrixson Memorial Fund for financial aid.

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