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Notes on the North American Forms of *Podosphæra*.

BY F. S. EARLE.

I have lately examined a number of specimens of this genus, from different localities and on different host plants, with a view of trying to determine their specific relations.

Although quite a marked difference may be observed between perithecia taken from the same leaf, specimens on the same host plant from different localities resemble each other quite closely, and these forms may be characterized as follows :

1. Form on *Prunus Cerasus*.

(From four specimens, different parts of Illinois.)

Amphigenous, fruiting plentifully on the lower side of the leaf; perithecia dark brown, from .00275 in. to .00375 in. in diameter; appendages dark brown for more than half their length, sometimes forking near the base, varying in number from 8 or 10 to as many as 18 or 20, placed irregularly on the upper surface and ascending at different angles, varying greatly in length, even on the same perithecium, $1\frac{1}{4}$ to $3\frac{1}{2}$ times the diameter; tips hyaline, 3 to 5 parted, much swollen.

2. Form on *Prunus Americana*.

(One specimen, Dixon, Ill.)

Amphigenous, fruiting below; perithecia .0025 in. to .00325 in.; appendages few, about 6 or 8, placed irregularly, but sometimes ascending nearly parallel, $1\frac{1}{4}$ to 2 times the diameter, 4 or 5 times parted, tips not much swollen.

3. Form on *Amelanchier Canadensis*.

(Two specimens from Massachusetts and Connecticut. Coll. A. B. Seymour.)

Amphigenous, or epiphyllous; perithecia .00275 in. to .00325 in.; appendages 8 to 16, 2 to 3 times the diameter, much as in the form on *Prunus Cerasus*, but rather darker and less variable, tips swollen.

4. Form on *Spiræa tomentosa*.

(Two specimens, Massachusetts. Coll. A. B. Seymour.)

Amphigenous, fruiting both sides of leaf or more abundantly above; perithecia small, .0025 in. to .00325 in.; appendages numerous, 12 to 24, radiating from all parts of the upper surface, 1 to 2 times the diameter, 3 to 5 times parted, tips only slightly swollen.

5. Form on *Crataegus*—

(Three specimens from Illinois.)

Amphigenous or epiphyllous; perithecia small, .0025 in. to .003 in.; appendages 8 to 12, mostly curving upward, but not fasciated, 1 to $2\frac{1}{2}$ times the diameter, 3 to 4 times parted, tips somewhat swollen.

These forms all have septate appendages and do not differ materially in their spores and asci. The differences that do appear are chiefly in the size of the perithecia and in the number and length of the appendages. As these vary more widely in perithecia from the same leaf than do the averages of the different forms, there seems no ground for their separation into distinct species, unless we allow more weight to the difference of host plant than is usual in the *Erysiphei*; but they should be considered as belonging to a large, widespread, variable species, comparable with *Erysiphe lamprocarpa*, Lev. and *Microsphaera penicillata*, Lev.

Saccardo, in his "Sylloge Fungorum," gives *Podosphaera Oxyacanthæ* (DC.) De Bary, with "appendages 8 to 10, about equal to the perithecium," on species of *Cratægus* in Europe, Algeria, etc. Our form on *Cratægus* agrees well with this description, except that the appendages are sometimes a little longer, which we have seen to be an unimportant character.

He divides the forms that have usually been referred to *P. Kunzei*, Lev. between *P. myrtilлина*, Kunze, having "6 to 10 appendages, three times the diameter, radiating divergently," on *Vaccinium* in Europe; and *P. tridactyla*, (Wallr.) De Bary, having "few, 3 to 7 appendages, three times the diameter, rising in a parallel bundle," on species of *Prunus* in Europe and North America.

Two European specimens in my collection on *Prunus domestica* and *Prunus Padus* show the peculiar character of *P. tridactyla*, having the few appendages clustered at the summit of the perithecium and rising in a parallel bundle. A part of the perithecia from the specimen on *Prunus Americana* (see above), approached this form rather closely, but in all the other specimens examined the appendages are more or less widely divergent, thus seeming to bridge the difference between this form and *P. myrtilлина* Kunze¹.

The form on *Spiræa* has been described by Howe in Vol. 5, of the *Torrey Bulletin*, under the name of *P. minor*.

As *Erysiphe Oxyacanthæ* DC., was the earliest name given

¹Having never seen specimens on *Vaccinium*, I can not, of course, say that this is to be included with the other forms, but there is nothing in the description by which it can be separated.

to any of these forms¹, that specific name will have to be retained for the combined species which may be characterized by the following description :

PODOSPHÆRA OXYACANTHÆ (DC.)

Erysipte Oxycanthæ, DC.; *Podosphæra clandestina* (Wallr.) Lev.; *P. myrtellina*, Kunze (?); *P. tridactyla* (Wallr.) De Bary; *P. Kunzei*, Lev.; *Alphitomorpha tridactyla*, Wallr.; *Podosphæra minor*, Howe.

Mostly amphigenous; perithecia .0025 in. to .00375 in. in diameter, dark brown, reticulations large and prominent; appendages variable, from four or five to twenty or more, septate, colored for half or more of their length, variously parted, tips sometimes much swollen; ascus oval, thick walled; spores 8.

Podosphæra biuncinata, C. and P. on *Hamamelis*, is a distinct, well marked species, having long, slender hyaline appendages.

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Additions to the Habitats of N. American Sphagna.

For several years past the writer has made excursions into the southern parts of New Jersey in order to examine and note the distribution of the various species of *Sphagnum*, and the most important results are herewith given. The varieties new to this country are indicated in small caps.

Sphagnum Portoricense, Hampe, occurs in ponds at Pleasant Mills, Atlantic Co.; at Atsion & Brown's Mills, Burlington Co.; at Malaga, Cumberland Co., and at Willow Grove, Gloucester Co.

Sphagnum imbricatum, Hensch. (*S. Austini*, Sull.), occurs in swamps at Toms River, Ocean Co.; at Atsion, Burlington Co.; near Newfield, Gloucester Co.; also in the northern part of New Jersey, at Budds Lake, Morris Co.

Dr. G. Martin, of West Chester, Pa., while in Florida, during the month of March, this year, sent me a lot of Sphagna for identification, amongst which I was fortunate enough to detect a number of plants of *S. imbricatum*, Hensch. This species has not, to my knowledge, been heretofore found south of New Jersey.

Sphagnum papillosum, Lindbg., is found in bogs near Toms River, Ocean Co.; Atsion and Quaker Bridge, Burlington Co., and in fruit near Newfield, Gloucester Co.

¹I am under obligation to my friend Mr. A. B. Seymour, of Cambridge, Mass., for aid in establishing the nomenclature of this subject, as well as for many of the specimens from which the above descriptions are taken.