

NOTES ON CEPHALEUROS VIRESCENS

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Cephaleuros virescens, an alga belonging to the family, Chrolepidaceae, is rare as a parasite, occurring only in a few rather restricted regions. It has hitherto been recorded on very small number of hosts, and the literature on the subject is very scant. The more important papers dealing with the genus *Cephaleuros*, are those by D. D. Cunningham¹, H. Marshall Ward², and N. Thomas³. The last paper deals with specimens of the alga on plants in Ceylon, The Barbados, and the Dutch East Indies, where it causes much damage, on account of its weakening effect on young tea plants.

In view of the meager data available in regard to a form of economic importance it seems wise to list and briefly describe material found on the Porto Rican collection made by Prof. F. L. Stevens during the summer of 1915. This collection was described by Miss Esther Young⁴. A specimen of the alga in question, growing on *Psidium*, was determined by Dr. W. G. Farlow⁵, and his letter, giving a brief discussion of the species, is quoted in full below. The other determinations were made by me. The *Cephaleuros* appears on some ten different hosts, superficial characters making it possible to divide the form into four distinct groups. It is with these gross details that this paper is concerned.

In group one, the alga is hypophyllous, forming a spot 8-10 mm. in diameter. The fruiting stalks are large and very green even when dry, are more or less diffuse, but occur only in the central portion of the spot. The outside uncovered zone is dark, a little discolored, and shows through to the upper side as a dull brownish-green. There are not more than three or four spots on a single leaf. To this group belong specimens on *Lomidesia lindiniana* Berg., 8380, Jajome Alto, and *Cu-pania americana*. L., 9144.

In group two, the fruiting spots are epiphyllous, 1-6 mm. in diameter, and very numerous. They are solid, very compact with definite margins, greenish-gray in color, and appear as a dark spot on the under side of the leaf. This is the condition on *Miconia laevigata* (L.) P. 7373, Mayaguez.

In group three, the spots of alga are epiphyllous, 4-8 mm. in diameter, the brownish-green color. They are compact with regular margins and have a feathery appearance due to the very long fruiting stalks. There are from one to ten spots on nearly every one of the three hundred leaves in the collection. To this group belongs specimens on *Ocotea leucoxylon* (Sw.) 7393, Mayaguez, *Inga laurania* (Sw.), Willd., 7023, Jajome Alto and *Coccolobis diversifolia* 8877, Maricao.

Group four shows the alga forming spots which are epiphyllous, averaging 4 mm. in diameter, and very scattered. These spots are flat and smooth with very few fruiting stalks. They are light in color, and are more or less regular in outline. Of this type are specimens on *Acrodilidium salicifolium*, 7360 Hormigueros, *Nectandra patens*, (Sw.) Griseb. 1750, *Jambosa vulgaris* P. 8743, Añasco, *Artocarpus incisa* L., 7196. To this group also belongs the alga on *Sergania* 2242, Cabo Rajo, except that the spots in this case are only 1-2 mm. in diameter and are very irregular in outline.

In general it may be said that the algal spots are composed almost entirely of fruiting stalks. The differences in the resisting power of the several hosts are the causes of the variations in luxuriance and gross details.

1. D. D. Cunningham, Trans. Linn. Soc., 2nd. ser., Bot., 1: 301-318, 1879.
2. H. Marshall Ward, Trans. Linn., Soc., 2nd. ser., Bot., 11: 87-115, 1883.
3. N. Thomas, Ann. Bot., 27: 781-793, 1913.
4. Esther Young, Myc., 7: 143-150, 1915.
5. Dr. W. G. Farlow, Copy of letter under date May 14, 1916. "The growth which you send on guava is a *Cephaleuros*, a genus of alga which is often associated with lichens of the genus *Strigula*. Your material is the pure algal form without admixture of lichen hyphae. It seems to be the same as the *Cephaleuros mycoidea* G. Karsten, on guava leaves distributed in Wittroch & Nordstedt's *Algae Aquae Dulcis*, No. 413, from Jamaica. I have also the same species from Jamaica, from another source. Although the specimens in Wittroch & Nordstedt were named by W. Schmidle, he stated in *Hedwigia* XXXVII, 62, 1819, that he considered it uncertain whether the form on guava really belonged to *C. mycoidea*, but at the same time did not refer it to any other species.

"The *C. mycoidea* Karsten, is the same as *Mycoidea parasitica* D. Cunningham, which is considered by Marshall Ward and Harriot to be identical with the older *Cephaleuros virescens* Kunze. The Jamaica alga on guava may be kept under the latter name for the time being. The species of *Cephaleuros* which have been described, although not numerous, are by

no means clearly defined and the Jamaica alga corresponds better with the forms of *C. virescens* than with any other species. How far the base of *C. virescens* may be changed by the substratum is not at present sufficiently known. In this connection may be mentioned No. 47 of C. L. Smith's Central American Fungi which was issued under the name of *Caemansiella nicaraguensis*, Ell. & Ever., which is not a fungus, but a species of Cephaleuros. In the second century of the above named work, a new label for No. 47, was issued with the name changed to *Cephaleuros virescens*. It seems to me that it should be referred rather to *C. candelabrum* Lageih. & Schm., which was later (Allg. Bot. Zeit. V 3, 1899) made by Schmidle the type of a new genus, *Phylloplax*. Possibly further study might show the form on guava, so far as its basal portion is concerned, is the structure of *Phylloplax*, but present available material is not in condition to determine that point. The sporangia of the guava form, Normener, are more like those of *C. virescens* than those of *Phylloplax candelabrum*, and lack the verticillate arrangement which seems to be characteristic of the latter when well developed." (Signed by W. G. Farlow.)