

NOTES ON *UNCINULA CIRCINATA* COOKE AND PECK

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This mildew occurs on the leaves of *Acer saccharinum* Marsh., on the campus of Indiana University. On account of its abundance it was found to be particularly favorable for study.

Appendage variation in this species is of exceptional importance in separating it from *Uncinula aceris*, also found on *Acer saccharinum* outside of the United States. The latter species is generally known to show appendage variation. The identity of *Uncinula circinata* has formerly been determined in part by its always simple appendages. This difference is brought out in the original description by Cooke and Peck (Erysiphaceae of U. S. Journal of Botany, 1872).

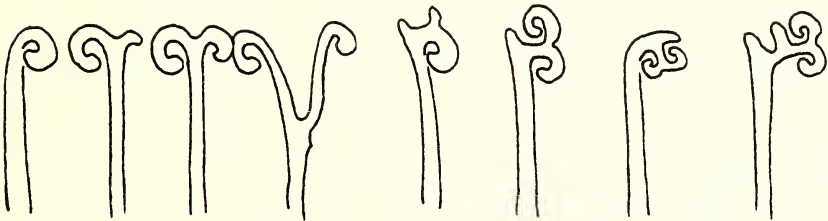


Fig. 1

Fig. 1—Represents a typical coiled appendage. From the drawings it will be noted that the variation in general seems to be toward dichotomous branching, one of which may branch or tend to branch again.

The appendages of this species were found to vary from the simple ones, to those that are of a dichotomous nature. This observation led to the following study to determine the manner and amount of variation of this species.

Material for the study was collected Oct. 15, 1927; Oct. 17, 1929; and at various times during October, 1930. It was noted that the variations, measurements, etc., were very consistent in all collections. Dried material was mounted in a three eighths percent solution of potassium hydroxide to restore them as nearly as possible to normal size.

In order to determine perithecial as well as appendage variation some 200 well-developed fruit bodies were examined. The number of appendages on each perithecium was counted and found to range from 98-165, of which an average of 2.7 per cent were divided in some manner. The appendage measurement ranged from 115-175 microns in diameter. The measurement of a given perithecium was always greater than the length of its appendages. The perithecia were then crushed and the number of asci measured and counted. The asci ranged from 12-21 in each perithecium, and contained 8 spores. The measurement of the spores ranged from 62-77 by 30-40 microns.

The appendages varied from a single fork somewhere above the middle to a dichotomous branching near the end. Many were also found to be enlarged at various places from base to tip. The branching resembles the appendages of

*Uncinula aceris* (D.C.) Sacc., and the two species can therefore be best separated by the fact that *Uncinula circinata* is hypophyllous, while *Uncinula aceris* is amphigenous. The number of asci in a perithecium will also separate them, *Uncinula aceris* has from 8-12 while *U. circinata* has from 12-21 in each perithecium.

Those that were forked only once were normal as to tips, (fig. 4), or with coil on one side, (fig. 2). In the case of twice dichotomously divided appendages, the more developed branch was again divided as in the first division, while the other fork was represented on the opposite side by an enlargement of varying size, (fig. 5, 6). The second difference between the simple and forked appendages, is that the latter are often much longer than the former. In some instances this difference is as much as 57 microns.