

NOTES ON THE OCCURRENCE OF *SCLEROTINIA FRUCTIGENA*.

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The rotting of the peach and plum fruit at the beginning of the ripening period is a rather familiar occurrence. Soft, brown spots appear, which usually grow until the whole fruit becomes rotten and finally shrivels up, becoming mummified. Twigs, leaves and flowers may also be attacked and exhibit discolored areas.

The rot is caused by a fungus, doubtless best known as *Monilia fructigena*, a name given it by Persoon¹ in 1801. That it was simply the conidial form of some ascomycetous species, was strongly suspected by several investigators and Schroeter² was even confident enough to transfer it to the genus *Sclerotinia* in 1893. This, however, remained a mere assumption until 1902, when Norton³ collected the apothecia at several localities in Maryland, and established, by means of cultures, their relation to the conidial form.

Although the perfect stage had been diligently searched for before this was the first time it had ever been reported. Because this form has been so rarely seen, and because of the economic importance of the fungus in the other phase of its life history, it was with unusual delight and interest that the apothecia were discovered in the spring of 1906 in Indiana. Two collections were made, both at Lafayette, and by Prof. J. C. Arthur, on buried peaches, under trees in his garden, April 21; another by Dr. E. W. Olive and the writer, on buried plums, in a trash heap on a vacant lot, May 3. The earlier collection was in perfect condition, while the latter was somewhat dried. Both discharged clouds of spores when first disturbed, and when jarred even after partial drying made several subsequent discharges.

Only the mummied fruits which were buried or partially covered bore apothecia. On the plums one to three or four arose from a single fruit, while on the peaches as high as thirty or forty appeared about the sides of

¹ Persoon, Syn. Fung., 693, 1801.

² Schroeter, Krypt. Fl. Schles., 3²:67, 1893.

³ J. B. S. Norton, Irons. Acad. Sci., Sb. Louis, 12:91-97, pls. 18-21, 1902.

one fruit. (Illustration.) The disks are light brown, at first compauulate, becoming cup-shaped, averaging about one-half to three-fourths of a centimeter broad when full grown. The stipes are comparatively slender and usually about one to two centimeters long, where that is sufficient to bring the disks above the surface.

In every case there was reason to suppose that the fruits bearing the ascus stage were not from the crop of the immediate preceding season, but that they were one year older. In a recent conversation, Prof. Norton confirmed this opinion. Schellenberg⁴ has found this to be true, also, of two other species of *Sclerotinia* in Europe. The length of the period required for the development of the apothecia is doubtless the factor which is responsible for their scarcity, since it affords so much time and opportunity for the mummied fruits to be destroyed or removed from the vicinity of the trees. The above collection in a trash heap shows that development takes place wherever the dried rotted fruits are covered by soil or humus a sufficient length of time, but in such a location it is only by accident that they would be discovered.

While the ascoporic form is so exceedingly rare, the conidial form is just the opposite. As the cause of the *brown rot* of peaches and plums, it is the most common and destructive enemy of these crops.

In 1905 it was estimated that *brown rot* caused a loss of one-fourth of the peach crop in the southern counties of the State. In 1906 the rot has been reported from twenty-six counties representing all parts of the State. Estimates as to the amount of damage vary from 10 to 50 per cent. of the entire crop. In the northern half of the State the early varieties seemed to sustain almost double the loss of the later ones. This is an illustration of the rapidity with which the rot spreads when the weather conditions are favorable. The fungus is dependent for a start at the beginning of a season chiefly upon conidiospores produced upon the mummied fruits lying on the ground or hanging in the trees. Warm, moist weather in August, at the ripening time, caused such a production of conidiospores from these nummy fruits that the fungus spread and caused more notable effects at that time than later, when the weather conditions were less favorable.

Plums in all parts of the State have been attacked during the present season, and a loss amounting in many instances to 75 per cent. of the crop has been suffered.

⁴H. C. Schellenberg, Ueber *Sclerotinia Mespili* und *S. Ariae*, *Centr. f. Bak.* 17:188-202, pls. 1-4, 1906.

All of the facts thus far presented, which pertain to the life-history of the *brown rot* fungus and its methods of passing through unfavorable seasons, emphasize the importance of collecting and destroying the so-called mummied fruits as a means of control. If these infected fruits are allowed to remain hanging to the trees or upon the surface of the ground the conidial stage begins its destruction at once the following season, while if they are permitted to become buried beneath the trees, ascospores form the second season which are capable of producing in turn the conidial stage.