PERONOSPORA SPECIES IN ARIZONA 1)

by

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One might not expect to find an abundance of downy mildews in the southwestern desert. That this surmise may be wrong is amply demonstrated by collections made during the period of March 7 to April 11, 1968.

No special effort was made to search for downy mildews. Nevertheless, several collecting trips yielded 23 specimens involving six species of Peronospora on 10 different wild hosts. One of these, *Peronospora eriogoni*, is described as new. All of these collections were made in Pima County. Most are from the general vicinity of Tucson but a few are from west of the Baboquivari Mountains. An additional species, *Peronospora destructor* (BERK.) CASP. on onion (*Allium cepa* L.), was collected by RICHARD B. HINE in Dome Valley, Yuma County, March 13, 1968.

No doubt the profuse development of these fungi was due to very favorable moisture conditions. The winter of 1967-68 was characterized by considerably higher precipitation than normal. In addition the temperatures were relatively cool, resulting in high humidity, at least at night and during the morning. These conditions could lead to a rich development of these fungi only if ample inoculum in the form of zoospores or conidia or both was present. It would be interesting to know how these fungi survive through dry spring periods for several years and whether or not parasitization of the several hosts is of annual occurrence.

In addition to the species of *Peronospora* collected in 1968, two specimens of *P. trifoliorum* DEBy. on alfalfa (*Medicago sativa* L.) from earlier years are included in this report. Other species of *Peronospora*, as well as other host species, no doubt occur in Arizona but are at present not represented in the mycological herbarium of the University of Arizona.

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The species of *Peronospora* encountered on the various hosts are given below.

*Peronospora arthuri* Farl.

Conidiophores (Fig. 1) 148—337 × 5.5—9 μ, ultimate branches 4.4—35 μ long; conidia 17.5—26.4 × 13.5—18.5 μ.

Fig. 1. conidiophore of *Peronospora arthuri*. Fig. 2. conidiophore of *P. destructor*. Fig. 3. conidia of *P. destructor*. Fig. 4. conidiophore of *P. echinospermi*. Fig. 5. conidia of *P. echinospermi*. Figs. 1, 2, and 4 × 600; Figs. 3 and 5 × 1000.