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LIFE HISTORIES ON VIRUS-INFECTED AND ON HEALTHY PLANTS

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Genital characters, which are described and illustrated, indicate that the species occurring in California is identical with that occurring in Mexico. Color and markings are described in detail.

II. Transmission of California Aster-Yellows Virus . . . 544

Texananus incurvatus is the seventh phlepsid leafhopper that has been demonstrated to carry this virus. In single-insect tests, its efficiency in transmitting the virus was 22 per cent with celery, 1 per cent with asters. The virus was retained by single adults from 11 to 14 days.

III. Life History on Virus-infected and on Healthy Plants . . 546

The length of nymphal stages of *Texananus incurvatus* reared on healthy and on virus-infected plants did not differ significantly. On healthy plants, nymph mortality was high; on infected ones, negligible.

COLLADONUS GEMINATUS AND *C. MONTANUS*:

Life Histories on Virus-infected and on Healthy Plants . . 553

Comparative life-history studies of these two species (selected for study because they experience no nymph mortality on either healthy or diseased celery plants) show no significant differences in the duration of nymphal stages between specimens reared on healthy celery and those reared on diseased celery. In *Colladonus montanus* the total duration of nymphal stages is shorter for the males than for the females. In both species, males were smaller than females. *C. geminatus* and *C. montanus* do not interbreed.

TEXANANUS INCURVATUS

II. TRANSMISSION OF CALIFORNIA ASTER-YELLOWS VIRUS¹

HENRY H. P. SEVERIN

In 1945, six leafhopper species of the phlepsid group were reported as vectors of the California aster-yellows virus (Severin, 1945). *Texananus incurvatus* is a newly discovered vector of the virus and represents the seventh phlepsid leafhopper. In a companion paper (DeLong and Severin, 1950), the taxonomy is discussed.

An investigation was undertaken on the transmission of the California aster-yellows virus to celery and asters by single males and females, and on the retention of the virus by single adults.

TRANSMISSION OF VIRUS TO CELERY AND ASTERS

By Single Males and Females. The efficiency of the vector in transmitting the virus to healthy celery or asters was determined with 100 males and 100 females, each kept singly on a healthy plant. The males and females completed the nymphal stages on diseased celery plants, requiring an average of 48.5 and 50.3 days, respectively. Each leafhopper was kept on a healthy celery plant or aster until symptoms of the disease developed, or during adult life if no symptoms developed. The virus was transmitted to healthy celery by 9 males and 12 females, or 22 per cent, and to asters by only 1 female.

RETENTION OF VIRUS BY SINGLE ADULTS

Virus retention was determined with single males and females that had transmitted virus in tests of vector efficiency. Each leafhopper, after producing the first infection, was transferred daily to healthy celery, during its adult life. The results appear in table 1.

TABLE 1
RETENTION OF VIRUS BY SINGLE ADULTS OF *TEXANANUS INCURVATUS*
WITH CELERY AS THE HOST PLANT

Insect no. and sex	Days on first plant before symptoms developed	Plants inoculated after initial infection	Plants infected after initial infection	Days after initial infection on which successive infections occurred	Longevity of adults, days
No. 1, male.....	17	28	2	4, 22	45
No. 2, male.....	15	39	1	11	54
No. 3, female.....	31	48	2	9, 29	79
No. 4, female.....	32	58	1	44	90

¹ Received for publication July 6, 1948.

Two males retained the virus from 11 to 22 days, and two females from 29 to 44 days. The period before symptoms developed on the first celery plant is not included in virus retention, since the adults were able to acquire the virus again. One male and one female produced only the initial infection in celery.

LITERATURE CITED

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