

THE MARIJUANA THRIPS, *OXYTHRIPS CANNABENSIS*, A NEW RECORD FOR ILLINOIS AND NORTH AMERICA

LEWIS J. STANNARD, JR., JERALD R. DeWITT, and THOMAS C. VANCE
Illinois Natural History Survey, Urbana, Illinois

ABSTRACT. - *Oxythrips cannabis* Knechtel, host-specific to marijuana (*Cannabis sativa* L.), is newly recorded and redescribed from Illinois. Previously this thrips was known only from Siberia and Europe.

In cooperation with Dr. Alan W. Hancey, Botany Department, University of Illinois, one of the authors (J. R. DeWitt) began a survey, in July 1969, of the insects associated with marijuana as part of a larger project involving the total ecology of this introduced plant. During his investigations he discovered the marijuana thrips, *Oxythrips cannabis* Knechtel, previously unknown in Illinois and North America. In the remainder of the summer of 1969 numerous additional adult and larval specimens of *cannabis* were taken from marijuana using berlese funnels and a wash technique. Some fewer specimens of *Frankliniella tritici* Fitch and *Thrips tabaci* Lindeman were also obtained by these methods.

Apparently *O. cannabis* is host-specific to marijuana, or soft hemp, (*Cannabis sativa* Linnaeus) as it has been rarely reported from other plants. This thrips was first described by Knechtel in 1923 from Rumania and later reported from Siberia (John in Priesner 1926). A Czechoslovakian generic record (Pillich 1914) was thought by Priesner (1926) to be the same species. Here-

fore, these Palaearctic records constituted the known distribution.

The first Illinois specimens were discovered on the terminal parts of plants brought in from a large field of marijuana growing on the City of Urbana Sanitary Disposal grounds. Except for those taken by the Berlese method, plant sections were collected in plastic bags, washed in the laboratory by shaking in a weak solution of detergent water, after which the residue was filtered over a finely meshed silk cloth and then placed in 70% ETOH and examined. This wash technique, perfected by Mr. Thomas H. Wilson, Natural History Survey, for recovering thrips from soybeans, has proved to be of value in collecting many previously overlooked thrips and other small insects on various plants, particularly those with hairy leaves.

A redescription (the first in English) and new illustrations of this insect follow.

Oxythrips cannabis Knechtel
Oxythrips cannabis Knechtel (1923: 74). ♀. Type locality not given but either Chisinau (Bessarabia) or Misil (Buzău), Rumania. ♂, larva II described by Priesner (1926).

Female (macropterous).—Length 1.6 mm. General body color yellow, legs lighter yellow. Abdominal ter-

gites IX and X reddish yellow becoming brown at extreme apex of X. Antennal segments I pale yellow, II yellow clouded with brown, III to V light brown except pale at bases, VI to VIII brown. Ocellar pigment light brownish gray. Anterior lateral eye facets reddish yellow. Wings and body setae pale yellow.

Head as in Fig. 1, transversely striated. Major setae small. Ocelli placed in a fairly wide triangle. Mouth cone long and pointed. Maxillary palps each three-segmented; labial palps each two segmented, the basal segment minute. Antennal segments moderate in size, segments III and IV each with forked sense cone, style (segments VII and VIII) shorter than segment VI.

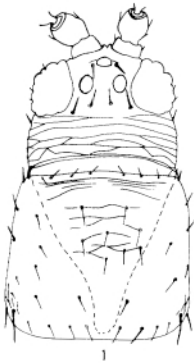


FIGURE 1. Female, head and prothorax, dorsal aspect.

Prothorax, Fig. 1, much longer than head with only the posterolateral pair of setae long, and with four pairs of smaller submarginal setae between each of the pair of posterolateral setae. Metascutum subreticulate medially. Forewings with venal setae moderately short, fore vein with three apical setae. Fore tarsi unarmed.

Abdomen with dorsal median setae not placed close together. Sternites II to VII each with several to 10 or more accessory median setae in addition to the usual three pairs of posterior setae. Abdominal tergite VIII lacking comb of setae. Tergite IX with the pair of setae anterior to the major dorsal pores reduced in size as is typical of genus, Fig. 2. Terminal segment (X) long and pointed, finely split dorsally.

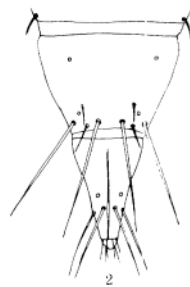


FIGURE 2. Female, abdominal terga IX and X.

Male (macropterous). — Length about 1.3 mm. Similar to female except smaller and slightly paler yellow and with the following structural differences. Abdominal sternites III to VI each with a median, sub-anterior, nearly circular glandular area averaging about 8μ . Abdominal tergite IX with two pairs of median, thorn-like setae, the posterior pair being smaller and set farther apart than are the anterior pair, Fig. 3.



FIGURE 3. Male, abdominal terga IX and X.

Larva I.—Length distended about 0.8 mm. Similar to larva II except smaller and slightly paler in color especially lighter brown on the antennae, head, pronotum and legs. Antennae each six-segmented, the annulations moderately strong. Body excrescences less prominent and much less numerous than as in larva II.

Chaetotaxy: Prothorax with 6 pairs of setae arranged as in larvae II, except lacking the posterolateral pair. Meso and metanotum each with four pairs of setae arranged in two rows of one pair anteriorly and three pairs posteriorly. Abdominal tergite I with two pairs of setae, tergites II to VIII each with three pairs of setae and corresponding sternites each with one pair of median setae. Abdominal segment IX, Fig. 5, with 2 pairs of dorsal setae and one pair of lateroventral setae (females); or

with 2 pairs of dorsal setae, one pair of lateroventral setae and one pair of ventral setae (males). Abdominal segment X, Fig. 5, with 3 pairs of dorsal setae and one pair of ventral setae in both sexes.

Larva II.—Length distended about 1.4 mm. Body pale yellow with some brown patches. Apex and sides of head, spots on prothorax, legs except apical half of femur which is gray, and most of abdominal segment IX and X light brown. Antennal segment I, apex of II, and base and apex of III pale gray, remainder of segments brown. Body with much orange subintegumental pigment. Eyes crimson red. Setae hyaline.

Head, Fig. 4, shorter than prothorax, cheeks slightly constricted. Antennae each seven segmented. Pronotum with prominent apodemes

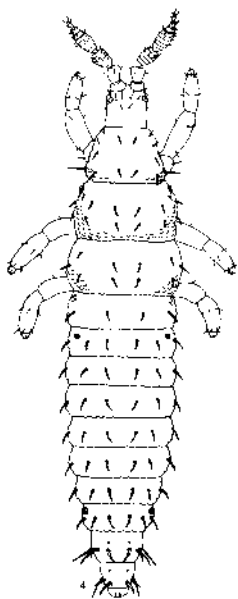


FIGURE 4. Larva II, dorsal aspect.



FIGURE 5. Larva I, terminal abdominal tergites.

running medio-posteriorly from the mid lateral margins. Head, anterior two-thirds of prothorax, and abdominal segments IX and X smooth, remainder of integument with simple raised excrescences, irregularly oval, larger dorsally than ventrally, arranged in six or seven more or less even rows dorsally and eight or nine rows ventrally. A pair of stigmatal plates each present on the anterolateral angles of the mesothorax and

on the lateral margins of abdominal tergites II and VIII.

Chaetotaxy: Head with a pair of preocular setae, two pairs of interocular setae, and one pair each of median and lateral postocular setae, all of which are pointed, as also are the antennal setae. Pronotum with seven pairs of peripheral setae, blunt to slightly knobbed, except posterolateral pair which is pointed and longest in size. Mesonotum with seven pairs of setae, arranged in two transverse rows of three pairs of blunt setae each and one minute pair of pointed setae just posterior to the spiracles. Metanotum with five pairs of blunt setae arranged in two transverse rows of two pairs each and one pair of midlateral setae. Setae on legs pointed.

Abdominal tergite I with two pairs of blunt setae arranged in a median transverse row and two pairs of minute, pointed setae on the anterolateral angles. Abdominal segments II to VIII dorsally each with three pairs of blunt setae arranged in a median transverse row and with a similar set of setae ventrally but these pointed. Abdominal segment IX, Fig. 6, with four pairs of pointed, dorsal setae arranged in a median transverse row, the median pair stoutest, with one pair of ventral setae in females, and two pair of

ventral setae in males; segment X, Fig. 6, with three pairs of pointed, dorsal setae, the median pair stoutest, and with one ventral pair of setae, occasionally (abnormally) with two ventral setae.

The sexes in both larva I and II appear to be nearly equal in the samples examined. Priesner (1958) suggested that in the Thripidae in larva II 4 pairs of setae on abdominal segment IX represent females and those with 5 pairs represent males. In the larvae of *O. cannabensis*, the numbers of pairs of setae are one more than given by Priesner and we have presumed that those with the fewest setae likewise produce females, whereas those with the most produce males.

Pupae. — Unknown. Not present on host plant and presumed to occur in the surrounding soil.

Illinois records. — Collected from mid July to mid September 1969 in the following northern counties: ADAMS, BUREAU, CARROLL, CHAMPAIGN, HENRY, KNOX, LEE, LOGAN, MASON, PEORIA, ROCK ISLAND, STARK, AND WHITESIDE. Marijuana was not found in the southern part of the state and there are few records of its former presence there (Winteringer and Evers 1960).

The only other species of *Oxythrips* in Illinois is *O. divisus* Hood, which is found on yellow pine in the southwestern tip of the state. The species *divisus* can be separated from *cannabensis* by the shorter mouthcone, red ocellar pigmentation, darker antennal segments with III to VIII almost entirely brown, and by the fewer (one or two pairs only)

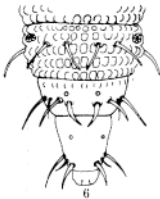


FIGURE 6. Larva II, terminal abdominal tergites.

accessory setae on the abdominal sternites.

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