

**KATYDISEIUS NADCHATRAMI N.G., N.SP. (ACARI, OTOPHEIDOMENIDAE)
FROM THE TRACHEAE OF A MALAYSIAN KATYDID *CHLORACRIS BRULLEI*
PICTET & SAUSSURE, 1892 (ORTHOPTERA, PSEUDOPHYLLIDAE)**

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ABSTRACT—*Katydiseius nadchatrami* n.g., n.sp. (Acari, Otopheidomenidae) is described from the tracheae of a Malaysian katydid (*Chloracris brullei* Pictet & Saussure, 1892 (Orthoptera, Pseudophyllidae)). A new subfamily Katydiseiinae is created for this genus.

INTRODUCTION

We describe herein a new mite *Katydiseius nadchatrami* n.g., n.sp. discovered by F.S.L. in the thoracic tracheae of a katydid *Chloracris brullei* (Orthoptera, Pseudophyllidae) from Malaysia. This mite is most close to the members of the family Otopheidomenidae. However, it does not fit exactly with any of the genera described so far in this family and, therefore, we erect for it a new genus and a new subfamily. All measurements are in microns.

Family *Otopheidomenidae* Treat, 1955
Subfamily, *Katydiseiinae* nov. subfam.

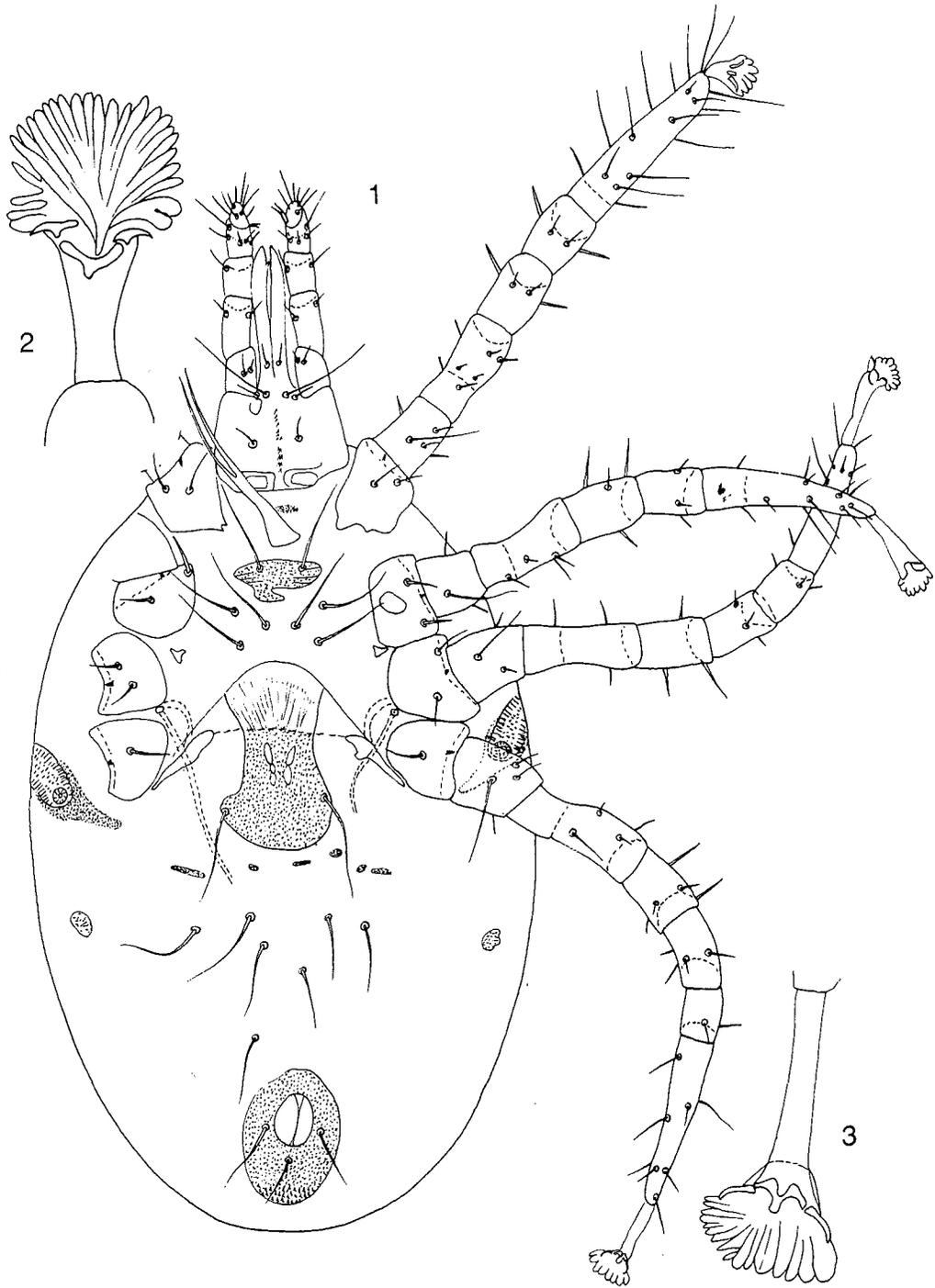
DEFINITION—Only the female and the immatures are known. *Female*: Dorsum with one median reduced but non incised shield, bearing 11 - 12 pairs of spinous shortly barbed setae. Rest of dorsum bears 5 to 6 pairs of setae. Pygidial shield absent. Spiracle with a very short peritreme about twice as long as wide. Sternal plate very small, wider than long and bearing only first pair of sternal setae. Two other pairs of sternal setae and metasternal setae are on soft cuticle. Accessory plates absent or vestigial. Genital plate relatively small, bearing or not bearing pair of genital setae. Anus ventral, situated on a punctate plate bearing three usual setae. *Gnathosoma*: hypostome prolonged anteriorly by two narrow paramedian processes reaching level of palptibia. These processes bear at their base anterior pair of hypostomal setae. Chelicerae narrow, with basal third bulbous. Fixed digit reduced, without pilus dentilis; moveable digit, with four teeth. Chaetotaxy of pedipalp and legs strongly reduced. Base of gnathosoma with one pair of setae; hypostome with 3 pairs of setae.

DEUTONYMPH—Dorsum with one median, poorly sclerotized, shield bearing 11 pairs of setae. Hypostome much shorter than in female. Chelicerae not inflated basally; fixed digit vestigial; moveable digit as in female but with 3 teeth.

PROTONYMPH—Dorsum with two median shields, podonotal with 7 pairs and pygidial with 3 pairs of setae.

LARVA—Dorsum as in protonymph. Base of gnathosoma without ventral setae. Hypostome with two pairs of setae.

TYPE GENUS: *Katydiseius* n.g.



Figs. 1-3. *Katydiseius nadchatrami* n.sp.—1, holotype female in ventral view; 2, ambulacrum of leg I; 3, ambulacrum of leg IV.

Genus *Katydiseius* nov. gen.

DEFINITION—With the characters given for the subfamily Katydiseiinae. In addition: *Female*: Inseminating organs consisting of a pair of narrow and long, poorly sclerotized, tubes originating between coxae III and IV. Legs long and slender, all ending in a multilobate sucker and two small claws situated on a long pretarsus except for leg I whose pretarsus is short. Gnathosomal base wider than long. Hypognathal groove with 10 rows of

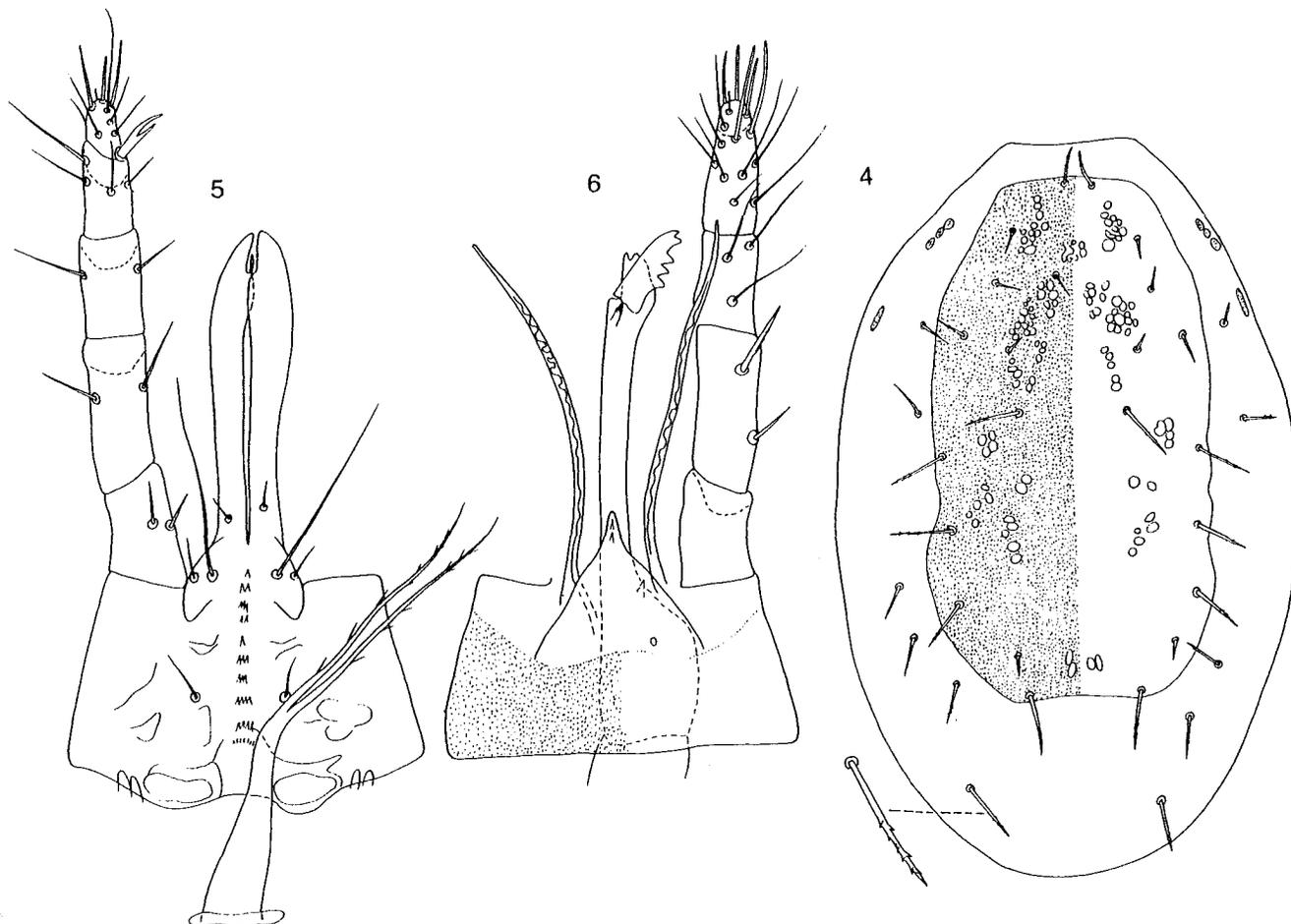
denticles. Tectum triangular, poorly sclerotized. Pedipalps long and narrow, with five free articles, tarsus with a two-tined apotele. A pair of long and narrow salivary styli situated between elongate hypostome and pedipalps.

TYPE SPECIES—*Katydisseius nadchatrami* nov.spec.

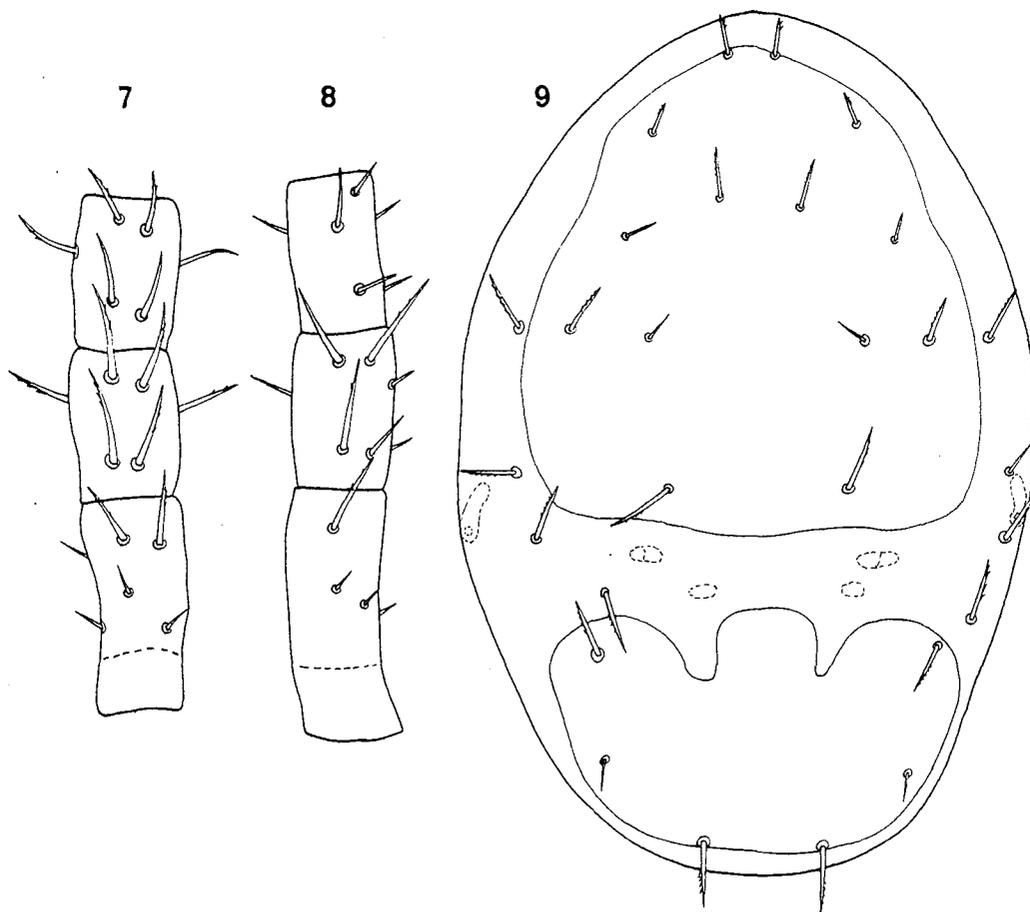
Katydisseius nadchatrami nov. spec.
(Figs. 1-9)

This new species is named for the prominent acarologist, Mr. M. Nadchatram, Institute for Medical Medical Research in Kuala Lumpur, Malaysia.

FEMALE (Figs. 1-8)—Idiosoma 840 long and 500 wide. In 3 paratypes: 825 x 450; 720 x 460; 660 x 430. Dorsal shield 630 long and 330 wide, bearing 23 spinous, slightly barbed setae. Soft cuticle of dorsum finely striated, with 5 to 6 pairs of setae located laterally or posteriorly. A pair of small metapodal plates and several very small postgenital platelets. First pair of sternal setae 90 long. Tritosternum biramous, total length 210. Genital shield 195 long and 120 wide. Peritreme 60 long and 32 wide; in two paratypes 60 x 26 and 60 x 23. Opisthogaster with 3 or 4 pairs of setae 50 to 90 long. Anal plate ventral, 135 long and 105 wide. *Chaetotaxy*: Pedipalp (trochanter to tarsus) 2-4-5-13-16. Legs (I to IV): Trochanters 1 -1/3- 1; 1 -0/2- 1; 1 -0/2- 1; 1 -0/3- 1. Femora 2 -4/5- 0; 1 -4/3- 1; 1 -3/1-0; 0 -3/2- 1. Genua 1 -4/2- 1; 1 -4/0- 1; 1 -4/0- 1; 1 -4/1- 2. Tibiae 1 -4/2- 1; 1 -3/2- 1; 1 -3/2- 1; 0 or 1 -3/2- 2. Dorsal surface of tibiae, genua and femora I-IV with macrosetae.



Figs. 4-6. *Katydisseius nadchatrami* n.sp.; holotype female—4, dorsal surface; 5, gnathosoma and tritosternum in ventral view; 6, gnathosoma dorsally. (Remark: The chelicera is somewhat skewed in this specimen so that the moveable digit overlaps the fixed digit dorsally.)



Figs. 7-9. *Katydiseius nadchatrami* n.sp.—Figs. 7-8, female, dorsal surface of tibia, genu and femur of leg I (n°7) and leg IV (n°8). — Fig. 9, protonymph in dorsal view.

DEUTONYMPH—Idiosoma 570 long and 390 wide. Dorsum as in female. Peritreme 60 long and 16 wide. *Chaetotaxy*: Pedipalp 2-4-5-12-13 setae. Legs (I-IV): Trochanters 6-5-4-5. Femora 11-9-5-6. Genua 8-6-6-8. Tibiae 9-7-7-8. Base of gnathosoma and hypostome: setae as in female.

PROTONYMPH (Fig. 9)—Idiosoma 450 long, 330 wide; soft cuticle of podonotum with 3 pairs of setae, that of the opisthonotum with 1 pair of setae. Pedipalp with 0-4-5-11-12 setae. Legs (I-IV): Trochanters 4-4-4-4. Femora 10-8-5-4. Genua 8-6-6-6. Tibiae 8-7-7-7. Hypostome and base of gnathosoma: setae as in female.

LARVA—Idiosoma 390 long and 290 wide. Chelicerae as in protonymph but moveable digit with only 2 teeth. *Chaetotaxy* of legs as in protonymph but femur II with only 7 setae. Pedipalp with 0-4-5-11-11 setae.

TYPES—Holotype and 13 paratype females, 1 deutonymph, 5 protonymphs and 4 larvae, all types from the thoracic tracheae on both sides of a katydid, *Chloracris brullei* Pictet & Saussure, 1892 (Orthoptera, Pseudophyllidae), Taman Negara, Malaysia, 22.X.1982 (Coll. F.S.L.). All these mites were inside the tracheae. Holotype is deposited in the British Museum (Nat. Hist.), London.

CLASSIFICATION OF THE OTOPHEIDOMENIDAE

The family Otopheidomenidae was created by Treat (1955) for the single genus *Otopheidomenis* Treat, 1955 (type species: *O. zalelestes* Treat, 1955, parasitic on a noctuid moth). Krantz and Khot (1962) expanded this family by including in it two new genera: *Dicrocheles* n.g. (type species: *Myrmonyssus phalaenodectes* Treat, 1954, from moths) and *Treatia* n.g. (type species: *Laelaptonyssus phytoseioides* Baker and Johnston, 1959, from an hemipteran).

According to Evans (1963), this family is closely related to the Phytoseiidae. He removed *Dicrocheles*, of uncertain affinities, from the Otopheidomenidae and included in it with the typical genus, the genus *Treatia* and a new genus *Hemipteroseius* Evans, 1963 (type species: *H. womersleyi* Evans, 1963, from a pyrrochorid Hemiptera). Chant (1965) considered the otopheidomenids to be a subfamily in the Phytoseiidae. He redefined the Otopheidomeninae and included in it a fourth genus *Entomoseius* n.g. (type species: *Treatia dysderci* Evans, 1963, from a pyrrochorid hemiptera). Chant and Lindquist (1965) described a new genus *Nabiseius* that they included in the Otopheidomeninae (type species: *Nabiseius duplicisetus* n.sp. from a nabid bug).

Prasad (1968) described a new genus *Noctuisseius* in the Otopheidomeninae (type species: *N. treati* Prasad, 1968, from a noctuid moth), but in 1970 he synonymized this name with *Otopheidomenis*. Wainstein (1972), apparently ignoring the last paper of Prasad, restricted the Otopheidomenidae to the three genera parasitic on noctuids and sphingids (Lepidoptera), e.g. *Otopheidomenis* Treat, *Noctuisseius* Prasad and *Prasadiseius* Wainstein, 1972 (type species: *Otopheidomenis pholusis* Prasad, 1970). He created a new subfamily Treatiinae, in the Phytoseiidae, for the genera parasitic on Hemiptera (*Treatia* and *Nabiseius*) and synonymized *Hemipteroseius* and *Entomoseius* with *Treatia*.

We follow here the proposal of Wainstein to exclude the hemipteran parasites from the Otopheidomenidae but we include in this family the new genus *Katydiseius* in a new subfamily Katydiseiinae. We think that the genera parasitizing the Hemiptera are morphologically much more closer to the Phytoseiidae (presence of a large ventrianal plate bearing more than three setae, same structure of the inseminating tubes) than to the Otopheidomenidae.

NEW DEFINITION OF THE OTOPHEIDOMENIDAE TREAT (based on females)—Podonotal shield reduced, either entire or incised medio-laterally. Pygidial shield present or absent. Sternal shield well developed and bearing three pairs of sternal setae or reduced and bearing a part or no sternal setae. Metasternal plates absent. Genital shield longer than wide, with or without a pair of setae. Anal shield small bearing three setae. Hypostome either normal or strongly elongate. Peritreme reduced. Tritosternum either well developed and with two long laciniae or vestigial or completely lacking. Fixed digit of chelicera reduced or lacking, moveable digit with several teeth. All legs ending in poorly developed claws. Inseminating organs consisting of a pair of long and narrow, poorly sclerotized, tubes originating between coxae III and IV. Chaetotaxy of idiosoma, legs and pedipalps strongly reduced. Metasternal setae present or lacking. Parasitic on noctuids and sphingids (Lepidoptera) and on Orthoptera.

TYPE GENUS—*Otopheidomenis* Treat, 1955

The family Otopheidomenidae may be divided into two subfamilies (from females): (1) OTOPHEIDOMENINAE Treat, 1955: Podonotal shield either entire or incised mediolaterally. Pygidial shield present or absent. Sternal shield either well developed or reduced. Metasternal setae lacking. Peritreme variable in length, either relatively long or very short. Tritosternum either vestigial (only a basal plate) or completely lacking. Hypostome short. **TYPE GENUS**—*Otopheidomenis* Treat, 1955. Parasitic on noctuid or sphingid moths. (2) KATYDISEIINAE nov. subfam.: Podonotal shield entire. Pygidial shield absent. Sternal shield strongly reduced bearing only first pair of sternal setae. Metasternal setae present. Peritreme very short. Tritosternum biramous and with long laciniae. Hypostome very long and narrow. **TYPE GENUS**—*Katydiseius* n.g. In the tracheae of Orthoptera.

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