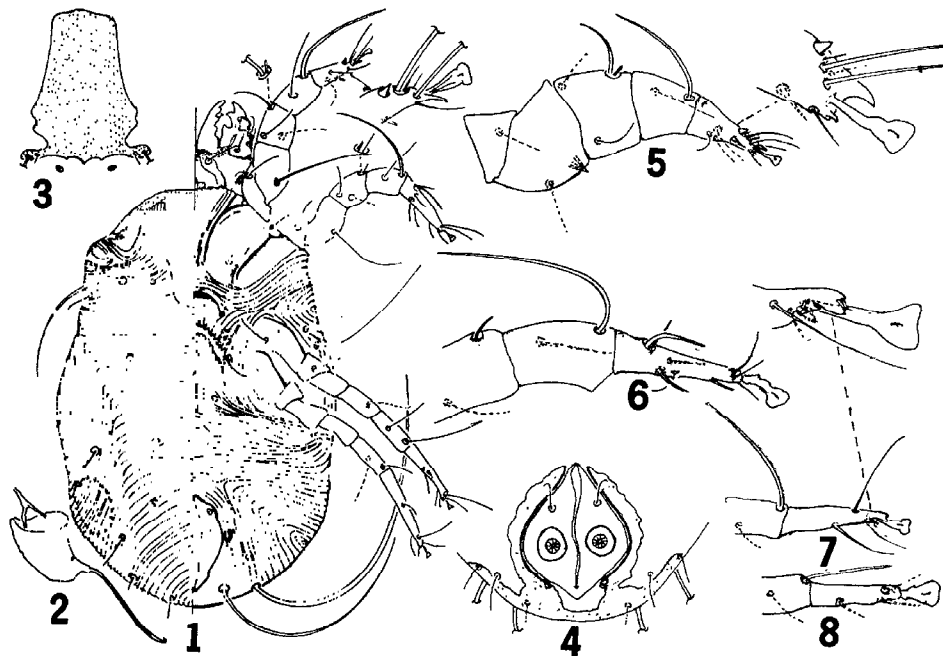


A NEW *DERMATOPHAGOIDES*: IT PREVENTS
THE RISING OF SELF-RISING FLOUR
(ACARINA: EPIDERMOPTIDAE)¹

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Mites of the genus *Dermatophagoides* Bogdanov, 1864, have varied habits. Some are parasites on birds and on man, some are free living, feeding on a wide variety of food. The *Dermatophagoides* described below came from self-rising, biscuit flour in a kitchen flour bin used almost daily.

In the course of conversation with a housewife one day, she remarked that every summer for some years past she had trouble with her biscuits often not rising properly. "This summer", she said, "is no exception." An examination of a sample of the flour in the bin revealed a heavy mite infestation. It was not determined whether the mites fed on the baking powder in the flour and thus prevented its rising or whether some chemical in the mites counter-acted the baking powder, but it seems almost certain from the information given me by the housewife that the mites in some way caused the difficulty.



EXPLANATION OF FIGURES

Dermatophagoides culinae, n. sp. Fig. 1, dorsal (left) and ventral (right) views of female; fig. 2, anal gland of female; fig. 3, dorsal propodosomal shield of male (note posterolateral extensions which include setae sce and sci); fig. 4, posteroventral area of male hysterosoma; figs. 5-8, legs I-IV respectively of male.

¹ Cost of engravings borne by a grant from the Pinellas Foundation, Inc., St. Petersburg, Florida.

In the description all measurements are in microns and I have followed Hughes (1961) in the names used to designate setae.

Dermatophagoides culinae, new species²

Dermatophagoides culinae appears to be most closely allied to *D. farinae* Hughes. It differs most noticeably from that species in that it is a larger mite, the apex of tarsus III of the female bears a flattened, notched expansion, tibia IV bears a solenidion and a seta, and apodemes I of the male join medially to form a Y-shaped structure.

FEMALE: Idiosoma lightly sclerotized, 390 long, 300 wide with pattern of striation and setae arranged as shown in figure 1, left. Seta ps apparently absent; seta sce 130, he 15, 1a 11, 1p 35, sae 18, sai 300, and pa1 196 long. Some specimens have a large, brown, oval area between setae 1a and 1p; all specimens bear, slightly posterolateral of seta 1a, a small, oval sclerotized ring in the cuticula. Lateral of the anal flap is a gland or gland-like body (Figure 2) about 14 long, the duct of which can be followed down to near the base of seta pa1. Fixed digit with a double row of teeth, 3 teeth in the outer row, 2 in the inner row. Legs with setae and solenidia as shown in figure 1, right. Tarsus I in some specimens, as shown in figure 1, bears a coarse, short, ventral spur at about midlength; in other specimens this spur is replaced by a long seta.

MALE: Idiosoma 308-401 long, 217-281 wide; hysterosoma with a large shield extending forward to between d2 and d3, laterally to slightly anterior of seta 1p, and posteriorly to the ventral surface with a pair of arms bordering the anal flaps. Lateral pore of hysterosoma present. Leg I is greatly enlarged, leg III is enlarged, but not as much as leg I, leg II slightly smaller than leg III, and leg IV is much smaller and shorter than leg III. The chaetotaxy of the legs is shown in figures 5-8.

Holotype: Female, Erwin, Tenn., August 6, 1961 (D. De Leon), from self-rising biscuit flour in household kitchen. **Paratypes:** 3 females, 2 males collected with holotype.

The following key to the species of the world has been prepared almost entirely from descriptions in the literature. Hughes (1961) suppresses *Pyroglyphus* Cunliffe, 1958, placing it in *Dermatophagoides*. I have examined specimens of *P. morlani* Cunliffe, 1958; it does not appear to me to belong to *Dermatophagoides* and so it has not been included in the key. I doubt that *D. africanus* Hughes, 1961, belongs here and so it too has been omitted.

KEY TO *Dermatophagoides* BOGDANOV, 1864

(Males)³

1. Hysterosoma without or with only 1 pair of long setae at posterior end.....2

²Dr. E. W. Baker, A.R.S., U.S.D.A., made the primary identification of the new species.

³*D. toxopei* (Oud.) is not included in the key as the male appears to be unknown. Dubinin (1953) includes it in his key, but the characters he gives for distinguishing it from *D. pteronyssinus* (posterior part of propodosomal shield rounded) are those given by Oudemans (1928) for the female. *D. toxopei* was taken from the webs of *Schizotetranychus asparagi* (Oud.) on *Asparagus sprengeri*.

- Hysterosoma with at least 2 pairs of long setae at posterior end.....3
2. Hysterosoma with posterior end evenly rounded; outer pair of posterior setae not much coarser than inner pair. (On rats and birds).....*crassus* (Can.)
- Hysterosoma with posterior end produced and somewhat bilobed; outer pair of posterior setae much coarser than inner pair. (On mold, mammal skins, and from granary).....*longior* (Berl.)
3. Apodemes III united transversely anterior of genitalia (From woodpecker nares, Korea).....*sorensoni* Tibbetts
- Apodemes III not united with each other.....4
4. Leg I very much thicker than leg II.....5
- Leg I about the same size as leg II.....6
5. Apodemes I joining at midline to form a V. (In poultry and pig meal).....*farinae* Hughes
- Apodemes I joining at midline to form a Y. (In self-rising flour).....*culinae*, n. sp.
6. Shield surrounding anus round or broadly oval. (On mammal skins and dried insects).....*pteronysinus* (Trous.)
- Shield surrounding anus constricted or abruptly narrowed anteriorly....7
7. Apodemes I uniting at midline to form a Y. (From human urine).....*takeuchii* (Sasa)
- Apodemes I not forming a Y.....8
8. Leg IV very much smaller than legs I-III. (From sputum) *saitoi* (Sasa)
- Leg IV of about the same size as legs I-III. (From feathers & human skin).....*scherebetewskyi* Bogdan.

(Females)*

1. Hysterosoma without or with only 1 pair of long setae at posterior end..2
- Hysterosoma with at least 2 pairs of long setae at posterior end.....3
2. Leg I with solenidion near distal end of tarsus about $\frac{1}{3}$ as long as solenidion at distal end of tibia; ventral humeral seta much shorter than half the width of the body.....*longior* (Berl.)
- Leg I with solenidion near distal end of tarsus nearly as long as solenidion at distal end of tibia; ventral humeral seta about half as long as width of body.....*crassus* (Can.)
3. Dorsal propodosomal shield greatly widened anteriorly, the lateral extensions each with a pore and a seta.....*sorensoni* Tibbetts
- Dorsal propodosomal shield not greatly widened anteriorly or if widened the lateral extensions without pores or setae.....4
4. Ventral humeral seta about as long as width of body.....5
- Ventral humeral seta not much more or shorter than half the width of the body.....6
5. Dorsal propodosomal shield narrow, the sides nearly parallel; posterior margin of shield forming an ogival-shaped point.....*pteronysinus* (Trous.)

* The female of *D. takeuchii* (Sasa) is not known.

- Dorsal propodosomal shield widening suddenly posteriorly, the posterior margin rounded, semicircular.....*toxopei* (Oudemans)
6. Leg IV much smaller and shorter than leg III; lateral margins of dorsal shield strongly concave.....*saitoi* (Sasa)
 Leg IV of about the same size as leg III; lateral margins of dorsal shield slightly convex or weakly concave.....7
7. Tibia IV without either a seta or solenidion.....*farinae* Hughes
 Tibia IV with a seta and/or a solenidion.....8
8. Femur I with a seta about as long as solenidion at distal end of tibia I.....*culinae*, n. sp.
 Femur I with a seta very much shorter than solenidion at distal end of tibia I.....*schereometewskyi* Bogdanov

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