

ON A NEW SPECIES OF *DERMATOPHAGOIDES* (*D. NEOTROPICALIS*)
FROM HOUSE DUST, PRODUCING BOTH NORMAL
AND HETEROMORPHIC MALES
(SARCOPTIFORMES : PYROGLYPHIDAE)¹

BY

A. FAIN² and J. E. M. H. VAN BRONSWIJK³.

All the species of the Pyroglyphidae, except one, are known to produce only homeomorphic males. The exception is *Dermatophagoides halterophilus* (FAIN and FEINBERG, 1970). That species has been described from a single heteromorphic male found in house dust in Singapore. It had been provisionally placed in the genus *Sturnophagoides* owing to the punctate aspect of a great part of the cuticle. The discovery of a new species *D. neotropicalis*, very close to *halterophilus* and represented by normal females showing the characters of *Dermatophagoides* and by males of either normal and heteromorphic types, suggests that the Asiatic species should also be placed in the genus *Dermatophagoides*.¹

It is to be noted that a slight tendency to produce heteromorphism in the males exists also in *Dermatophagoides farinae* HUGHES. In that species there are males with epimera I completely separated and others with these epimera fused into a V or a Y. As the specimens with fused epimera I were more sclerotized than those with separate epimera we have surmized (FAIN, 1967) that this fusion was in relation with the degree of sclerotization and thus with the age of the specimens. We think now that this fusion is merely the expression of a tendency to heteromorphism. However true heteromorphism with modification of the leg I has not been observed in that species, and the bifid process on femora I is only very seldom present, and even then very poorly developed.

Dermatophagoides neotropicalis sp. n. is represented by 16 females and 14 males. The males are of two types :

a) *Normal, homeomorphic type* : in the ten specimens that belong to this type the legs I are normal in shape and variably inflated, generally slightly, and their femora are devoid of bifid ventral processes. The mode of fusion of the epimera I is variable in these specimens : in six specimens they remain separate, in two specimens they are contiguous in a V, in one specimen they are united near their tips by means of a sclerotized bar and in one specimen they are united

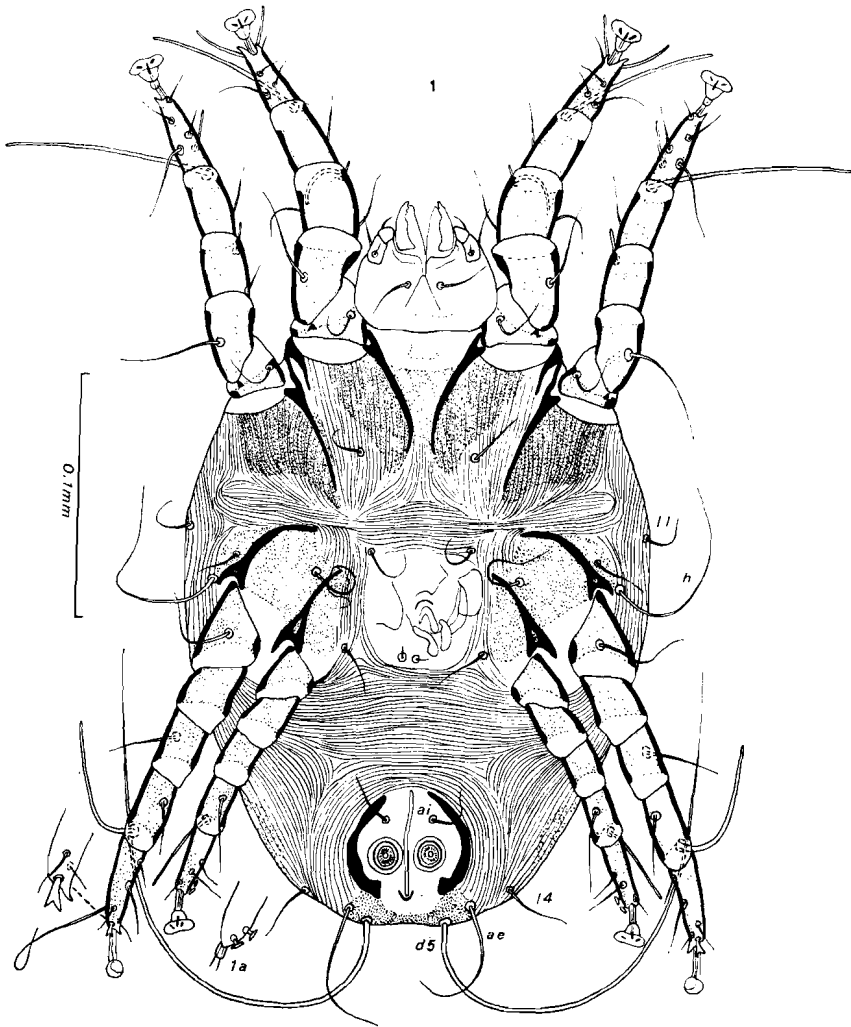
1. Material collected with the aid of grant W 83-1 from the Netherlands Foundation for the Advancement of Tropical Research (WOTRO).

2. Professor of Parasitology, Institute of Tropical Medicine, Antwerp, and University of Louvain, Belgium.

3. Departments of Botany and Zoology, University of Nijmegen, Nederland. Present address : Department of Dermatology, State University, Utrecht, Nederland.

in a Y. In this last specimen the legs I are more strongly inflated than in the other homeomorphic males but they are still normal in shape, and the femora I bear ventrally a small flat process very slightly bifid. This male is an intermediate form between the two types of males and it is difficult to place exactly. It seems to represent the last stage before the true heteromorphic type.

b) *Heteromorphic type* : in the four specimens of this type the epimera I are fused into an Y ; the legs I are monstrously inflated and modified in shape, and the femora I bear ventrally a strong, equally or unequally bifid, sclerotized process.



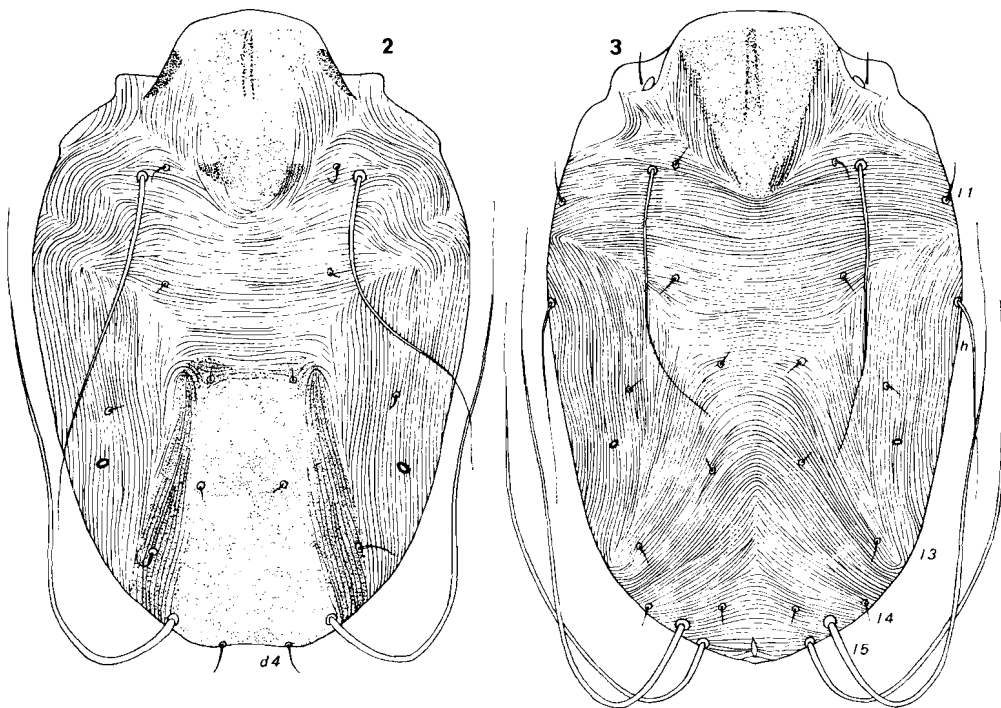
FIGS. 1-1a : *Dermatophagoides neotropicalis* sp. n.
Homeomorphic male in ventral view (fig. 1). Apex of tarsus IV in dorsal view (fig. 1a).

Dermatophagoides neotropicalis sp. n. is distinguished from *D. halterophilus* (FAIN, and FEINBERG, 1970) in the heteromorphic males by the following characters :

- 1) Body size much larger. Posterior margin straight (rounded and slightly notched in *halterophilus*).

- 2) Setae *h* much stronger and longer (100-120 μ). In *D. halterophilus* *h* is very thin and short (10-15 μ).
- 3) Setae *a e* much longer (50-60 μ for 10-15 μ in *halterophilus*).
- 4) The postero-lateral regions of opisthosoma ventrally are striate and not punctate. In *halterophilus* these areas are punctate and not striate.
- 5) Dorsal propodosomal shield narrower and distinctly limited laterally; hysterosomal shield narrower and much shorter anteriorly, not reaching the half distance between *d 1* and *d 2*. (Fig. 5-6).
- 6) Solenidion tibial IV shorter, not reaching the base of the pulvillus.
- 7) The distance from the aperture of oil gland to *l 3* is 40-45 μ . In *halterophilus* : 30 μ .
- 8) Solenidion *sigma 1* of leg I relatively very long and thick; *sigma 2* short and thin. In the type of *halterophilus* there is a short *sigma 2* and a short apparently incomplete but thin *sigma 1*.
- 9) Legs III (tarsus + tibia + genu) relatively longer (105 μ) compared to legs IV (tarsus + tibia + genu = 75 μ); ratio 1,4. In *halterophilus* the ratio is 1,22. Tarsi II with a small apical process (absent in *halterophilus*).
- 10) Adanal suckers about twice as broad (14-16 μ) as in *halterophilus* (7,2 μ).

The homeomorphic male of *D. neotropicalis* resembles that of *D. farinae* by the variable shape of the epimera I and the enlargement of the legs I. It is distinguished from that species by the longer but narrower shape of the dorsal hysterosomal shield. The female is distinguished



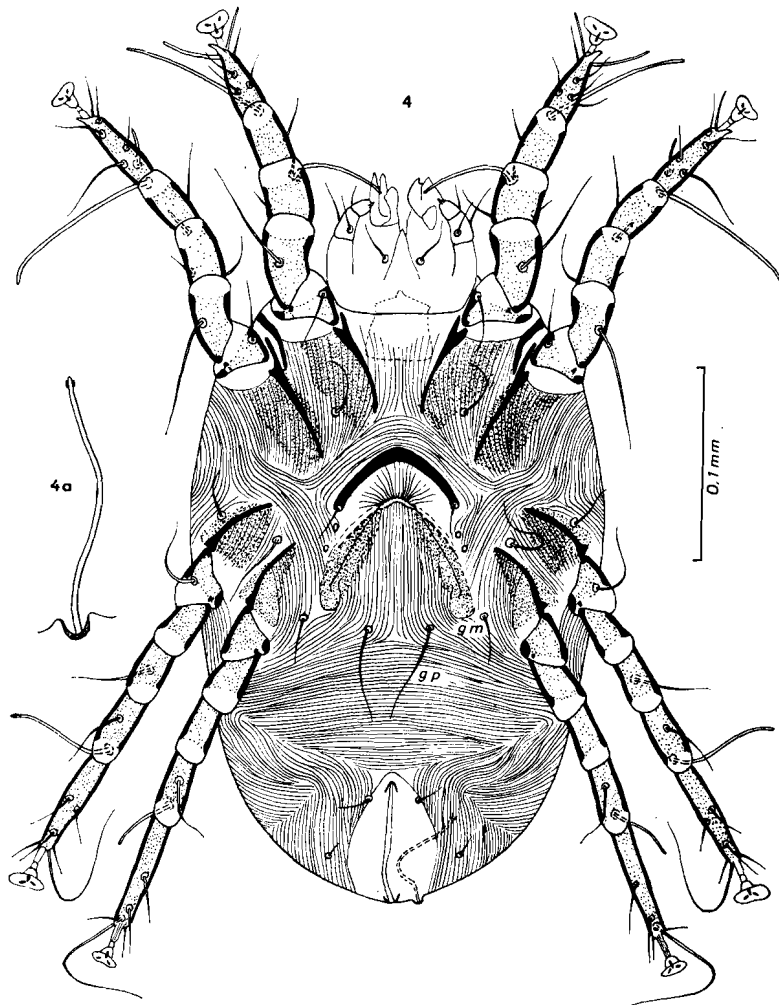
FIGS. 2-3 : *Dermatophagoides neotropicalis* sp. n.
Homeomorphic male (fig. 2) and female (fig. 3), in dorsal view.

from *D. farinae* by the combination of the following characters : genital copulatory papilla rounded, slightly sclerotized and situated in paramedian and ventro-subterminal position ; striation of the postero-median region of hysterosoma between setae *d 2* and *d 3* more oblique ; body narrower ; anus more posterior ; epigynum longer, more incurvate and bearing the *g a* setae ; *g m* setae more posterior ; *g p* setae longer.

Description of *D. neotropicalis* sp. n.

HOMEOMORPHIC MALE (fig. 1, 2, 7, 8) :

The holotype is 258 μ long (idiosoma) and 180 μ wide. Total length (gnathosoma included) 291 μ . In 3 paratypes these measurements (idiosoma) are 270 μ \times 177 μ ; 261 μ \times 186 μ ; 240 μ \times 171 μ . *Dorsally* : propodosomal shield relatively narrow and abruptly expanded posteriorly, in the holotype. This form is rather variable in the paratypes. Its length in the holotype

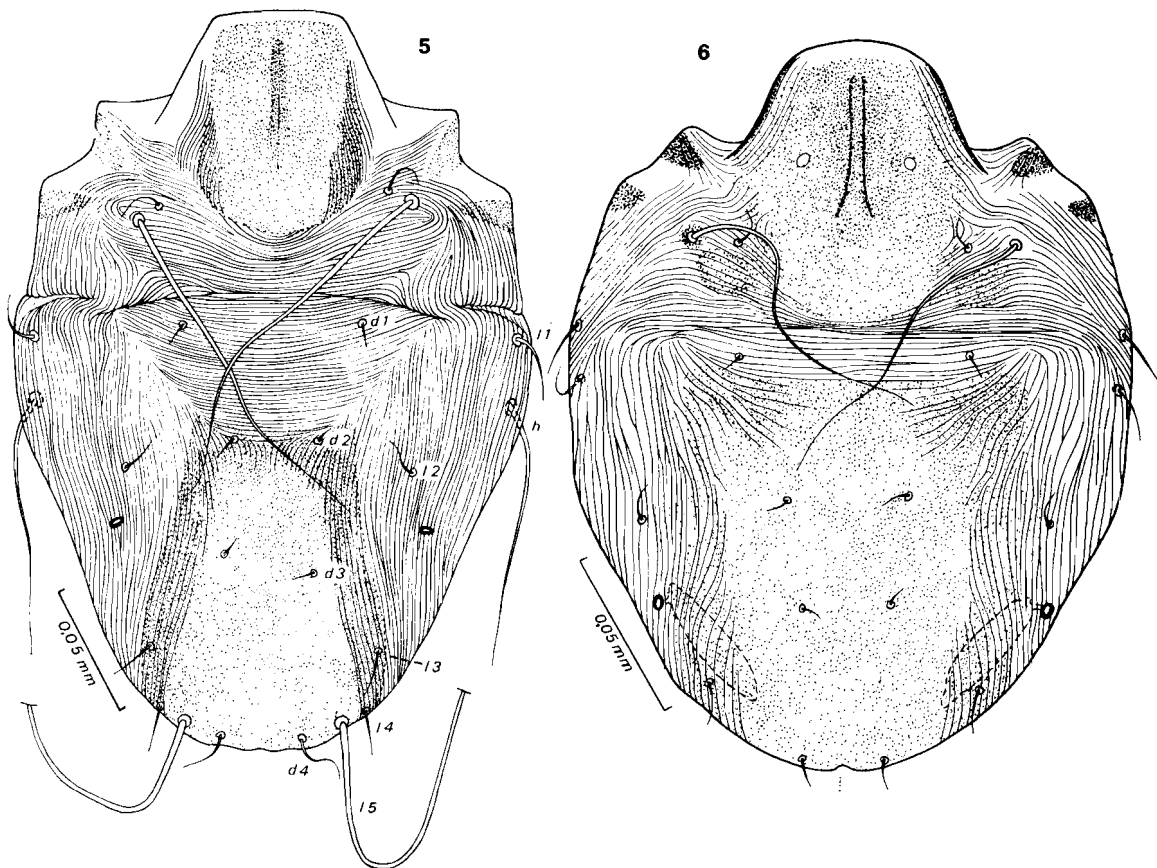


FIGS. 4-4a : *Dermatophagoides neotropicalis* sp. n.
Female in ventral view (fig. 4). Bursa copulatrix (fig. 4a).

is $70\ \mu$ (70 to $80\ \mu$ in the paratypes). Hysterosomal shield extending anteriorly until $10\ \mu$ in front of $d\ 2$; in its posterior third it continues laterally with a faint punctation covering the striated cuticle until approximately the $l\ 3$. Oil gland opening situated at 42 to $46\ \mu$ from the $l\ 3$. Posterior margin of the body rather straight, reinforced by a thick sclerotized band. *Ventrally* : all the epimera free. Male sclerite rather small. Adanal suckers large (diametre 14 - $16\ \mu$); perianal ring thick maximum length 35 - $40\ \mu$, maximum width $50\ \mu$. *Legs* : Legs I normal in shape but slightly thicker than legs II. Tarsus I with two apical unequal processes (the posterior larger than the anterior one). Legs II normal, with a small apical process on the tarsus. Legs III longer and thicker than legs IV. Tarsus III with an apical single process and a subapical forked spine (modified hair). *Chaetotaxy* (holotype and homeomorphic paratypes) : Setae *sc e*, *h*, *d 5*, *l 5*, *a e*, *gp e*, *gp i* long respectively of 120 à $150\ \mu$ 100 - $120\ \mu$, $150\ \mu$, 190 - $210\ \mu$, 50 - $70\ \mu$, 25 - $30\ \mu$, 4 - $6\ \mu$. Distance $d\ 5$ - $d\ 5$ and $l\ 5$ - $l\ 5 = 42\ \mu$ and $65\ \mu$ (in the holotype).

HETEROMORPHIC MALE (fig. 5, 9, II) :

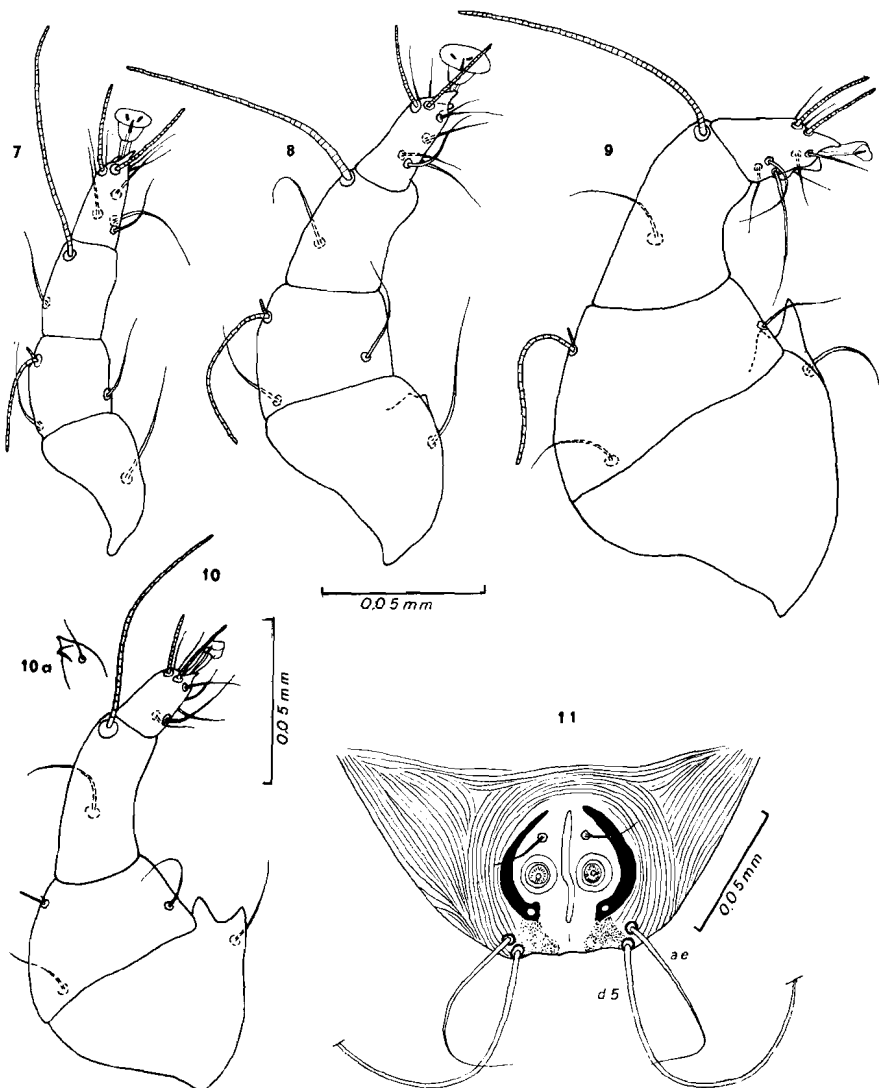
4 paratypes measure (length \times width of idiosoma) : $279\ \mu \times 195\ \mu$; $258\ \mu \times 190\ \mu$; $253\ \mu \times 189\ \mu$; $250\ \mu \times 170\ \mu$. Posterior margin of the body straight. Dorsal propodosomal shield 75 to $88\ \mu$ wide and extending a little more laterally than in homeomorphic males. Hysterosomal shield as in the homeomorphic males. *Ventrally* : epimera I fused into a Y with a narrow



Figs. 5-6 : Heteromorphic males of *Dermatophagoides neotropicalis* sp. n. (fig. 5) and *D. halterophilus* (Fain et Feinberg) (fig. 6) in dorsal view.

sternum. Male organ as in *halterophilus*. Adanal suckers 14-15 μ in diameter. Posterior margin of the body straight. Legs I as in *D. halterophilus*. Legs II longer than in the homeomorphic males, with a small apical process on tarsi. Legs III-IV as in the homeomorphic males but a little longer. *Chaetotaxy* : setae *sc e, h, d 5, l 5, a e, gp e, gp i* as in the homeomorphic males.

FEMALE (fig. 3-4) : The allotype is 318 μ long and 205 μ wide (idiosoma). *Dorsally* : propodosomal shield rather broad, tapering posteriorly. The cuticular striation is transverse in the anterior half and strongly rounded in the posterior half of the longitudinal area limited between the setae *d2-d 2-d 3-d 3*. *Ventrally* : all the epimera are free. Epigynum rather thick. Genital apodemes well developed. External orifice of the *bursa* situated ventrally in a rounded terminal



FIGS. 7-11 : *Dermatophagoides neotropicalis* sp. n. Legs I in dorsal view (trochanters and coxae not included) in an homeomorphic male, normal aspect (fig. 7) ; in a male of intermediate type (fig. 8) ; in a heteromorphic male (fig. 9). Anal region in a heteromorphic male (fig. 11).

Dermatophagoides halterophilus (Fain et Feinberg) ; heteromorphic male : Leg I (trochanter and coxa non included) in dorsal view (fig. 10) ; apex of tarsus I in ventral view (fig. 10a).

paramedian papilla. *Legs* : tarsi I with a well developed apico-ventral process (= ongle) ; on tarsi II there is also an apico-ventral process but much smaller. *Legs* III very slightly shorter than legs IV. All the posterior setae of opisthosoma are situated on soft cuticle, and not on sclerotized areas. *Chaetotaxy* (allotype) : setae *sc e, h, d 5, l 5, g p* measuring respectively 170 μ , 105 μ , 240 μ , 270 μ , 60 μ .

Habitat :

In dust from bed-mattresses in Paramaribo, Surinam, on 26 August 1971 (males : holotype and 3 homeomorphic paratypes ; 3 heteromorphic paratypes. Females : allotype and 8 paratypes) and 27 October 1971 (male paratypes : 6 homeomorphic and 1 heteromorphic ; 7 female paratypes) (Coll. Drs. N. KOK). In floor dust samples the species was not found.

Types : In the Rijksmuseum van Natuurlijke Historie, Leiden, Nederland. Paratypes in the collection of the authors.

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