

## A NEW SPECIES OF *BAK* (ACARI : CHEYLETIDAE) FROM THAILAND, WITH A KEY TO SPECIES

BY U. GERSON \* and A. FAIN \*\*

*APIS CERANA*  
AND CHEYLETIDAE  
*BAK* N. SP.  
THAÏLANDE

SUMMARY : *Bak furcatus* sp. nov. (Acari : Cheyletidae) is described from debris found in hives of the Asian honey bee, *Apis cerana* Fabricius, collected in Thailand. A summary of the habitats and geographical distribution of the nine known species of *Bak* is appended, along with a key for their separation.

*APIS CERANA*  
ET CHEYLETIDAE  
*BAK* N. SP.  
THAÏLANDE

RÉSUMÉ : *Bak furcatus* sp. nov. (Acari : Cheyletidae) est décrit d'après des spécimens découverts dans les débris contenus dans des ruches de l'abeille asiatique *Apis cerana* Fabricius, de Thaïlande. Les habitats et la distribution géographique des 9 espèces connues du genre *Bak* sont brièvement rappelés. Une clé du genre est donnée.

### INTRODUCTION

The genus *Bak* Yunker at present includes eight species, collected from different parts of the world. *B. sanctaehelenae* Yunker (1961), *deleoni* Yunker (1961) and *ozarkensis* Thewke and Enns (1974) were obtained from forest trees or soil in the U.S.A. *B. elongatus* Patxot and Goff (1985) was found in litter in Hawai'i and *micidus* Summers and Price (1970) was collected from rotted *Tourneyia* leaves in the Galapagos Islands. *B. ligyscutatus* Flechtmann (1971) was obtained from decomposing organic material in São Paulo, Brasil, whereas both *payatus* Corpuz-Raros and Sotto (1977), and *truncatus* Corpuz-Raros and Sotto (1977) were found in Laguna, The Philippines ; the former in house dust and soil, the latter in leaf litter. The new species to be described below was obtained from debris

collected in bee hives in Thailand. Nothing is known about the biology of these species ; their massive mouthparts, however, suggest that they are predaceous, like many other members of the family Cheyletidae.

The terminology used is based on SUMMERS and PRICE (1970), while setal nomenclature follows FAIN (1979). All measurements are in microns.

### *Bak furcatus* sp. n.

(Figs 1-4)

FEMALE : Idiosoma with 11 pairs of dorsal setae (including two anals) plus pleuroventral humerals (80 long). Setae *vi*, *ve*, *sc i* and *sc e* located on delicate propodosomal plating which is rounded posteriorly. Setae *d2* situated just behind plating.

\* The Hebrew University of Jerusalem, Faculty of Agriculture, Rehovot 76-100, Israel.

\*\* Institut Royal des Sciences naturelles de Belgique, 29, rue Vautier, B-1040 Bruxelles, Belgium.

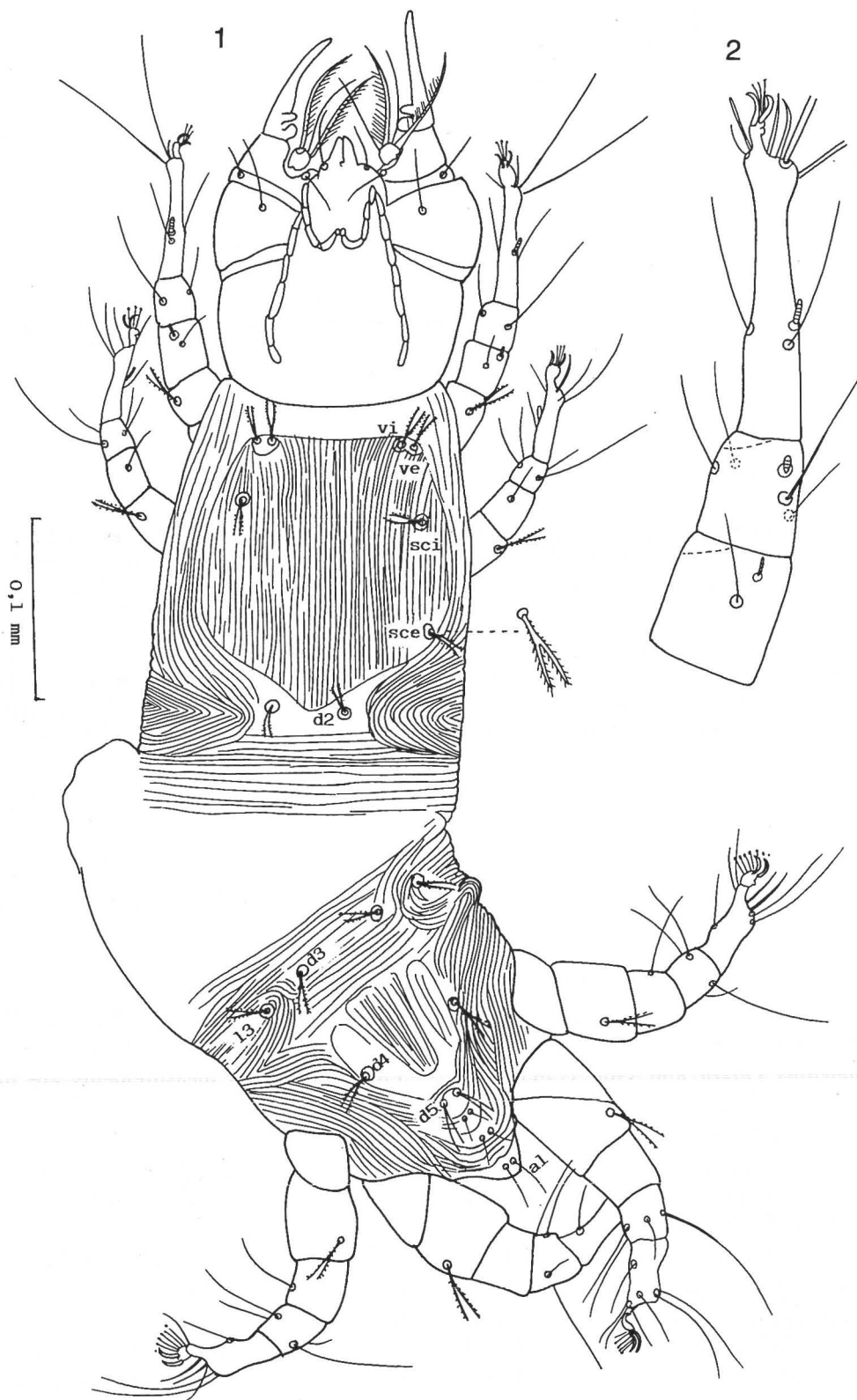


FIG. 1-2 : *Bak furcatus* sp. nov. female.  
 1. — Dorsal view. 2. — Leg I, dorso-lateral view of genu, tibia and tarsus.

Setae *d3* and *l3* placed in a row about midway between the propodosomal plating and legs III. Each member of setae *d4* arises from a delicate platelet located between coxae III, with another platelet placed between them. Setae *d5* present between coxae IV, and setae *a3*, *a2* and *a1* arranged in a longitudinal row beyond them. All dorsal setae, except anals, are furcate along their distal two-thirds. Setae *vi*, *d5* and *a1* 26 long, *ve*, *sc i*, *sc e*, *d2*, *d3*, *l3* and *d4* 17-21 long, setae *a3* and *a2* 7-10 long. Anterior ventral setae (*ic1*) 16 long, *ic3* 68 and setae *ic4* 14 long. Genital setae : *g1*, *g3* : 20, *g2* : 24 and

*g4* : 22 long. Length of leg I (base of femur to tip of claw) : 175 long, leg II : 145, leg III : 155 and leg IV : 170. Chaetotaxy of legs I-IV (solenidia in parentheses) : coxae 2-1-2-1 ; trochantera 1-1-1-1 ; femora 2-2-1-1 ; genua 1(1)-1-1-0 ; tibiae 4(1)-4-4-4 and tarsi 8(1)-7(1)-7-7. Tibial solenidia minute (4-5 long), tarsal ones slightly longer (7-8). Legs III and IV thicker than two anterior legs and their claws about twice as large as those on legs I and II. All femora carry a dorsal furcate seta, similar to dorsals. Gnathosoma 215 long, about half of idiosoma (440). Palpfemur slightly longer than wide, with one dorsal seta,

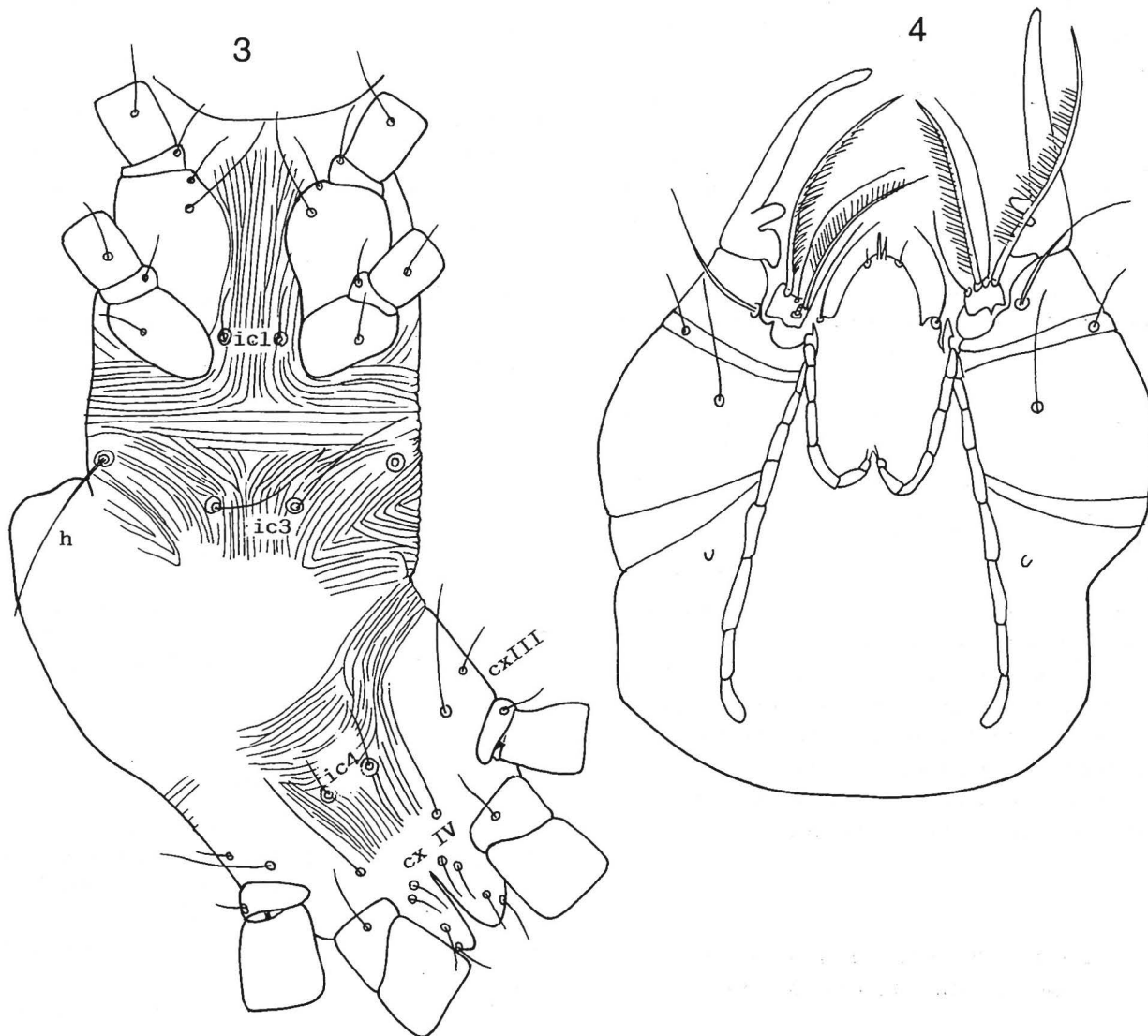


FIG. 3-4 : *Bak furcatus* sp. nov., female.  
3. — Ventral view. 4. — Gnathosoma, dorsal view.

40 long, and two ventral setae, outer 21, inner 28 long. Palpgenu ringlike, with a dorsal and a ventral seta (23 and 12 long, respectively). Palptibia with a dorsal seta near tarsus, 42 long, and a ventral seta, 45; claw with two basal teeth, the proximal tooth large, rounded, the distal tooth thumb-like; all setae on last three segments simple, hair-like. Palptarsus with a minute sensillum and 2 sickle-like as well as 2 comb-like setae, outer comb with 24-26 teeth, inner with 32-34 teeth. Tegmen and protegmen with delicate dorsal longitudinal striations. Each peritreme with 13 cells: one central, descending; four in a submedian ascending position and another eight lateral, descending. Superior adoral setae 6 long, inferior adorals 25. Hypostome with delicate longitudinal striations and one pair of hair-like setae, 35 long.

*Type locality and habitat*: Chantaburi, Thailand, in debris from a hive of the Asian honey bee, *Apis cerana* Fabricius, collected on March 15, 1989, by Mr. Werner RATH. Holotype in the British Museum (Natural History), London, England.

*Bak furcatus* is unique in having furcate dorsal setae.

REMARKS: All known species of *Bak* appear to be quite similar. While the elongated body (with caudal legs IV), the presence of claws on all tarsi, the lack of eyes and the full complement of palptarsal setae (two sickle-like and two comb-like setae) define the genus, several additional traits, variable in other cheyletid genera, are rather conservative within *Bak*. These include the form of palp claws and peritremes, the distribution of the faint dorsal plating and setae (with *vi* usually larger than *ve*), the relative sizes of the three pairs of ventral body setae and the minute solenidia on tarsi I. Some of the remaining variable characters are used in the appended key to species.

#### KEY TO THE SPECIES OF *BAK* YUNKER (BASED ON PUBLISHED DESCRIPTIONS)

- 1. Dorsal setae thin, hair-like ..... 2
- Dorsal setae barbed or bifurcate ..... 5

- 2. Central peritremal cell in an almost transversal position ..... 3
- Central peritremal cell in an almost longitudinal position ..... 4
- 3. Genua formula 2-0-1-0, 4 setae on propodosomal shield ..... *deleoni* Yunker
- Genua formula 2-0-0-0, 2 setae on propodosomal shield... *micidus* Summers and Price
- 4. Genua formula 2-1-1-0, femora formula 2-2-1-1 ..... *sanctae-helenae* Yunker
- Genua formula 2-0-1-0, femora formula 1-1-1-1 ..... *ligyscutatus* Flechtmann
- 5. Dorsal setae bifurcate ..... *furcatus* sp. n.
- Dorsal setae uniramous ..... 6
- 6. Dorsal shield tapering posteriorly, femora formula 2-2-2-1 *payatus* Corpuz-Raros and Sotto
- Dorsal shield truncate posteriorly, femora formula 2-2-1-1 ..... 7
- 7. Tarsal formula 9-7-7-7 ..... 8
- Tarsal formula 9-8-8-8 ..... *truncatus* Corpuz-Raros and Sotto
- 8. Genua formula 2-1-1-0, dorsal setae clavate... *elongatus* Patxot and Goff
- Genua formula 1-0-0-0, dorsal setae tapering... *ozarkensis* Thewke and Enns

#### ACKNOWLEDGEMENTS

This study was supported in part by a grant from the German-Israeli Agricultural Research Agreement (GIARA), and we thank Mr. Werner RATH for collecting the material.

#### REFERENCES

- CORPUZ-RAROS (L. A.) and SOTTO (J. M.), 1977. — Systematic studies of Philippine cheyletid mites (Acarina, Cheyletidae). II. New species and new records. — *Kalikasan, Philipp. J. Biol.* 6: 143-170.
- FAIN (A.), 1979. — Idiosomal and leg chaetotaxy in the Cheyletidae. — *Intern. J. Acarol.* 5: 305-310.
- FLECHTMANN (C. H. W.), 1971. — Alguns Trombidiformes do Brasil e do Paraguai (Acari). — *Escola Superior de Agricultura "Luiz de Queiroz", Universidade de São Paulo, Piracicaba, Brasil*, pp. 63.

- PATXOT (J. D.) and GOFF (M. L.), 1985. — Two new species and new records of Cheyletidae (Acari) in Hawaii with a key to the species. — Intern. J. Acarol. **11** : 157-162.
- SUMMERS (F. M.) and PRICE (D. W.), 1970. — Review of the mite family Cheyletidae. — Univ. California Publ. Entomol. **61** : 1-153.
- THEWKE (S. E.) and ENNS (W. R.), 1974. — A new species of *Bak* Yunker (Acarina : Cheyletidae) from Missouri with a revised key to the known species. — J. Kansas Entomol. Soc. **47** : 42-53.
- YUNKER (C. E.), 1961. — The genera *Bak*, new genus, and *Cheletomimus* Oudemans, with description of three new species (Acarina : Cheyletidae). — Can. Entomol. **93** : 1023-1031.

*Paru en Avril 1991.*