

A New Species of the Genus *Incabates* Hammer (Acari: Oribatida) from Jeju, KoreaSeong Sik Choi\* and Tae Heung Kim<sup>1</sup>

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<sup>1</sup>Dept. Agricultural Biology, National Chunbuk University, Cheonju 560-756, Republic of Korea한국산 *Incabates* (Acari: Oribatida) 속의 1 신종최성식\* · 김태흥<sup>1</sup>원광대학교 식물자원과학부, <sup>1</sup>전북대학교 농생물학과

**ABSTRACT** : An oribatid mite, *Incabates barbatus* sp. nov. in the family Haplozetidae is described herein from Korea. This new species is very similar to *I. major* reported in Japan. However, prodorsal setae (*ro* & *la*) and head of sensillus are smooth in *I. major* while barbs are found on the outer margin in the middle of rostral seta (*ro*) and lamellar seta (*la*) in addition to the presence of spinulae making the surface of head of sensillus rough in the new species.

There are altogether 9 species described in the genus *Incabates* at present including the new species reported herein and keys to these 9 species are presented.

**KEY WORDS** : Taxonomy, Acari, Oribatida, Haplozetidae, New species, Korea

**초 록** : 이 논문은 날개응애의 소매응애과(Haplozetidae)에 속하는 신종 제주소매응애(신칭: *Incabates barbatus* sp.nov.)를 기재한 것이다. 이 신종은 일본에서 기록된 *I. major* 와 매우 닮았으나, *I. major*는 가슴등판센털(머리끝털; *ro*, 지계털; *la*)과 감각털의 머리가 매끈한 반면 신종은 머리끝털(*ro*)과 지계털(*la*)의 중간부분 바깥쪽에 거치들이 나 있고, 감각기 머리 표면에 작은 돌기가 나 있어 거칠다.

*Incabates* 속에는 현재까지 신종을 포함하여 모두 9종이 기록되었는데, 이들에 대한 검색표를 작성하였다.

**검색어** : 분류, 응애목, 날개응애아목, 소매응애과, 신종, 한국

The genus *Incabates* Hammer 1961 in the Haplozetidae Grandjean 1936 is established with the type species *I. nudus* collected from Peru. This genus is similar to *Protoribates* but the former has 4 pairs of sacculi while the latter has 4 pairs of area porosae on the notogaster.

Characteristics of *Incabates*, according the description of Hammer, are as follows. The length of the hysterosoma 1.5x of its width and the pteromorphae long & slender and separated from the dorsum by a longitudinal fur-

row. There are 4 pairs of sacculi and 10 pairs of setae on the notogaster, however only the last pair at the end is evident while the setal pores alone are recognizable in the rest 9 pairs. Sensillus is of thin & short stalk and a round disk-shaped head. Four pairs of setae are present on the genital plate and 2 pairs of setae on the anal disc. With 3 claws on tarsi, the middle one is the thickest.

Aoki (1970) described *I. major* in Japan as the third member in this genus. It is bigger than the previous 2

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known species (*I. nudus* and *I. angustus*) and has prominent 10 pairs of notogastral setae.

All the species reported so far in the genus *Incabates* may be separated into two groups. One is the *nudus*-group that possesses notogastral setae partially (0-6 pairs) and the rest are obvious as pores without setae. They are *I. nudus*, *I. angustus*, *I. striatus*, *I. punctatus*, and *I. macronudus*. The other is the *major*-group that possesses very prominent 10 pairs of notogastral setae. They are *I. major*, *I. aokii*, and *I. pahabaeus*. The new species reported in this paper belongs to the *major*-group and is the second species in Korea. It was collected from the Jeju Island.

## Description

### Family Haplozetidae Grandjean, 1936

#### Genus *Incabates* Hammer, 1961

#### *Incabates barbatus* sp. nov.

제주소매응애(신칭)

(Figs. 1-6)

**Material examined.** Holotype: Dongsuak, Mt. Halla, Jeju-do, Korea. 9-VI-2001. Six paratypes: the same data as the holotype. The specimens are deposited in Lab. of Plant Protection, Coll. of Agr., Wonkwang Univ., Iksan, Korea.

**Body measurement.** Length: 392 (336-416)  $\mu\text{m}$ . width: 162 (144-180)  $\mu\text{m}$ . Body flattened, elongate-oval: L/W ratio about 2.32. Integument smooth.

**Prodorsum.** Rostrum conical, rounded at the tip. Rostral setae arising marginally. Rostral and lamellar setae long, thin, sharply pointed at the tip and sparsely barbed on outer side of middle parts (Figs. 5 & 6). Interlamellar setae long, thin, glabrous and longer than their mutual distance (Fig. 1). Lamellar and interlamellar setae nearly equal in length but rostral seta shorter. Mutual distance of lamellar and interlamellar setae about twice with rostral one. Sensillus short, its head being globose with minutely roughened (Fig. 4). Surface of head ornamented with light round spots on low magnification. Bothridium nearly concealed by anterior margin of notogaster (Fig. 1); posterolateral spur of bothridium raised (Fig. 4). A faint transverse prodorsal line present in front of the tip of lamellae. Lamella well developed, narrow and the length shorter than lamellar seta but longer or nearly

equal to rostral seta (Fig. 1).

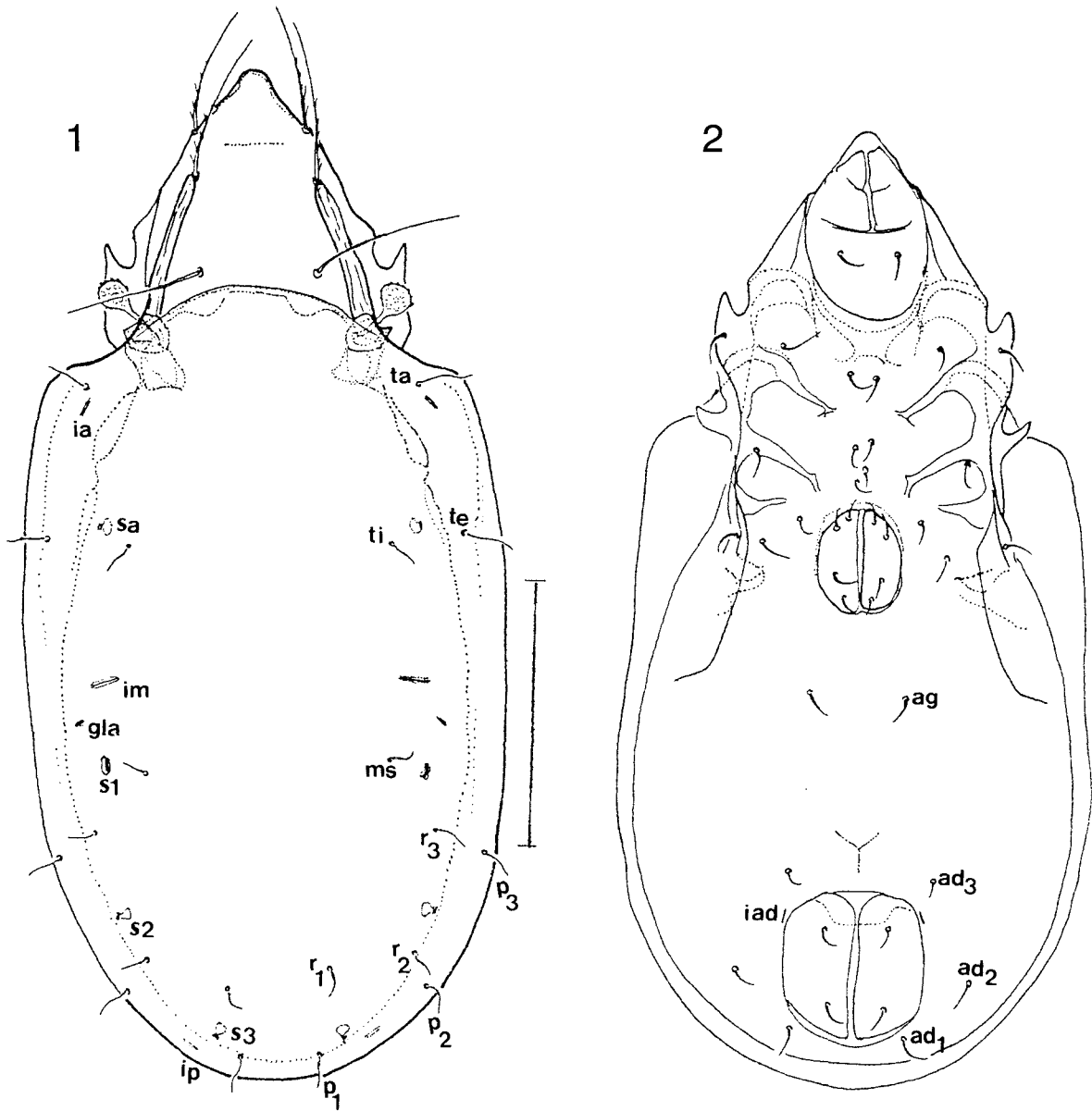
**Notogaster** (Fig. 1). Surface smooth and flattened. Dorsosejugal suture complete and distinctly arched (Figs. 1 & 3). Pteromorphae small and immovable. Ten pairs of notogastral setae thin and short but distinct. Four pairs of sacculi small and irregularly rounded. Lyrifissure *ia* located short distance to seta *ta*; *im* between setae *ti* and *ms* but some near to *ms* and *ip* posterior lateral side. Adanal fissure very small and located posterolateral of *im*.

**Ventral side** (Fig. 2). Epimeral plates smooth in holotype but some paratypes ornamented with irregular polygonal network. Epimeral apodema II rather short, sejugal apodema considerably long, apodema III very short. Epimeral chaetotaxy 3-1-2-3. Genital setae 4 pairs, aggenital 1 pair, anal 2 pairs and adanal 3 pairs. Anal and genital aperture separated by rather long distance. The anteriormost adanal setae *ad*<sub>3</sub> situated preanal, *ad*<sub>1</sub> posterolateral corner, and *ad*<sub>2</sub> lateral side of the anal aperture. *ad*<sub>2</sub> located farther than *ad*<sub>1</sub> from anal aperture, *ad*<sub>1</sub> the shortest among adanal setae. Adanal fissure *iad* situated at a little distance in front of the anterior anal seta. Distance between *an*<sub>2</sub> and *an*<sub>3</sub> wider than others. Discidium triangulate and small. All legs tridactylous with a strong middle claw and slimmer lateral ones.

**Remarks.** The genus *Incabates* was established by Hammer with *I. nudus* as the type species from Peru in 1961. Eight species of the genus *Incabates* have hitherto been known. Of which *I. major* was described from Japan by Aoki in 1970. The new Korean species described herein resembles *I. major*, except that *I. barbatus* sp. nov., has the sensillus with glabrous head and unbarbed prodorsal setae.

Key to the species of the genus *Incabates* Hammer.

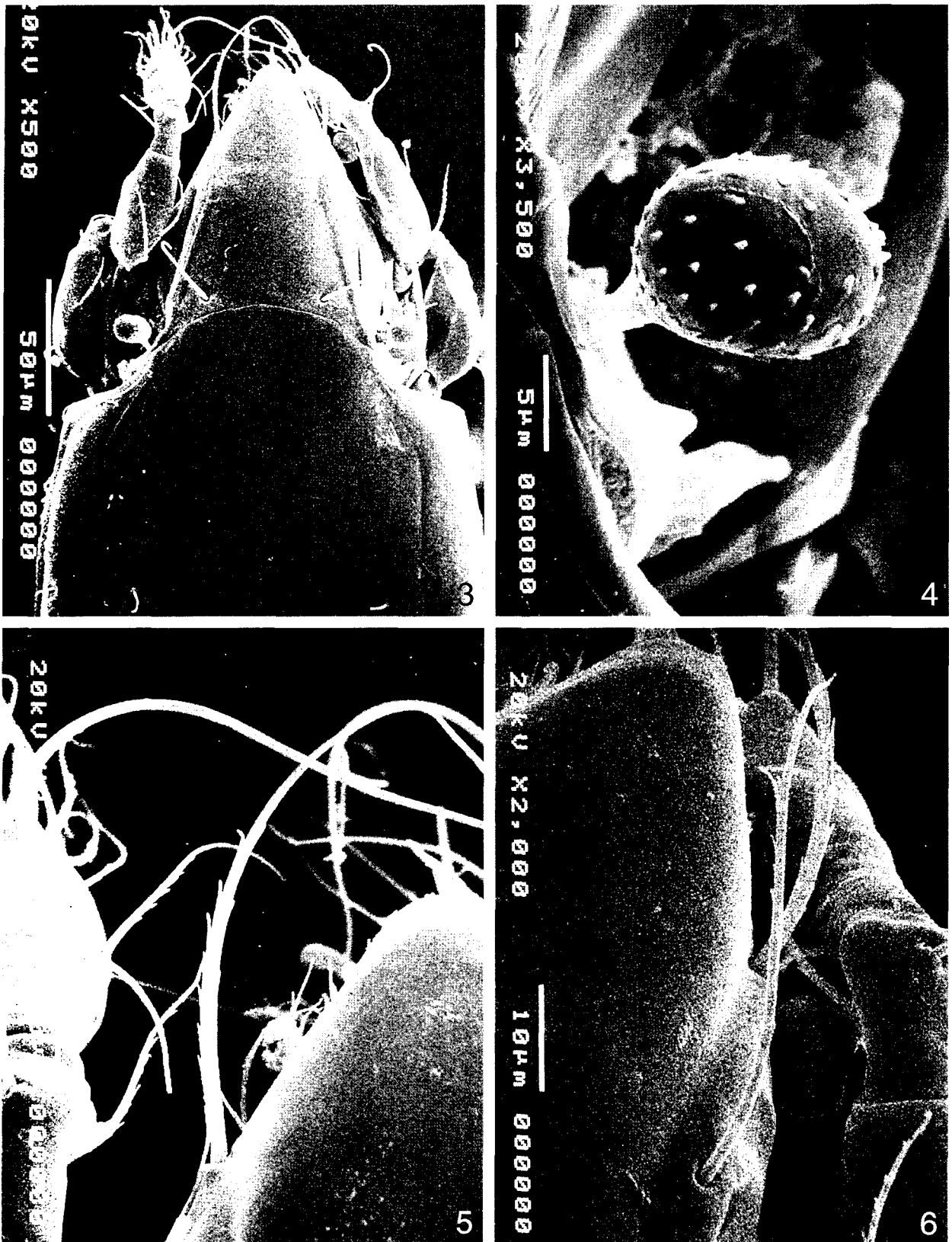
- 1 - Ten pairs of notogastral setae distinct ..... 2
  - At least one pair of notogastral setae or only alveoli ..... 5
- 2 - Sensillus with a globose head ..... 3
  - Sensillus with an elliptical head ..... 4
- 3 - Rostral and lamellar setae not barbed and sensillus with glabrous head. 442  $\times$  248  $\mu\text{m}$ . Japan .....
  - ..... *I. major* Aoki, 1970
  - Rostral and lamellar setae sparsely barbed on outer side at middle part. Head of sensillus with a minutely barbed. 400  $\times$  160  $\mu\text{m}$ . Korea .....
    - ..... *I. barbatus* sp. nov.



Figs. 1-2. *Incabates barbatus* sp. nov. 1. Dorsal view, 2. Ventral view. (Scale bar: 10  $\mu$ m)

- 4 - All notogastral setae distinct. Adanal fissure *iad* aligned horizontally and located at mid-distance along the length of anal aperture. 430  $\times$  205  $\mu$ m. Korea .....  
 ..... *I. aokii* Choi, 1985
- Notogastral setae indiscernible. Dorsosejugal suture strongly arched. Adanal fissure *iad* aligned longitudinally and located at anterior lateral corner of anal aperture. 289  $\times$  152  $\mu$ m. Philippines .....  
 ..... *I. pahabaeus* Corpuz-Raros, 1980
- 5 - Entire notogastral surface longitudinally striate. 273  $\times$  121  $\mu$ m. Philippines .....

- ..... *I. striatus* Corpuz-Raros, 1980
- Notogastral surface entirely smooth or punctate .... 6
- 6 - Six pairs of notogastral setae on posterior part of notogaster. Interlamellar seta not reaching lamellar setal pore. Anterior part of body punctate. 259  $\mu$ m. Australia .....  
 ..... *I. punctatus* Lee, 1993
- Notogastral setae represented only alveoli. Interlamellar seta extending beyond the base of lamellar seta. Anterior part of body smooth. 446  $\mu$ m. Australia .....  
 ..... *I. macronudus* Lee, 1993
- 7 - Body relatively stout. L/W ratio less than 2; 360  $\mu$ m



Figs. 3-6. *Incabates barbatus* sp. nov. 3. Prodorsum and anterior part of notogaster, 4. Sensillus (right), 5. Rostral seta (left), 6. Lamellar seta (right).

in long. Peru. (1.43-1.78 in Philippines by Corpuz-Raros) ..... *I. nudus* Hammer, 1961  
 - Body rather slender. L/W ratio 2.25; length 350  $\mu$ m.  
 New Zealand ..... *I. angustus* Hammer, 1967

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