

## Two New Species of Genus *Phytoseius* (Phytoseiidae, Acari) from Korea

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한국산 이리옹애 속 (진드기 목 이리옹애 과) 의 2신종

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### 적 요

지금까지 한국산 이리옹애 과에 속하는 이리옹애 속은 5종이 알려져 있었다. 1989년과 1992년에 한국의 경기도와 전라북도 지역에서 채집한 이리옹애를 동정한 결과 2신종이 확인되었는데, 이들 종은 *Phytoseius* (*Phytoseius*) *seungtai* n. sp. (개암이리옹애)와 *Phytoseius* (*Phytoseius*) *sonunensis* n. sp. (선운이리옹애)이었다. 이로써 한국산 이리옹애 속은 7종이 된다.

Key words: *Phytoseius*, Phytoseiidae, Acari, new species, Korea.

### INTRODUCTION

Prior to this study the following five species of the genus *Phytoseius* Ribaga, 1904 were recognized to occur in Korea (Lee and Ryu, 1989; Ryu and Ehara, 1991, 1992; Ryu and Lee, 1992): *Phytoseius* (*Phytoseius*) *nipponicus* Ehara, 1962; *P. (P.) blaktstont* Ehara, 1966; *P. (P.) capitatus* Ehara, 1966; *P. (P.) mori* Xin, Liang et Ke, 1983; *P. (P.) koreanus* Ryu et Ehara, 1991.

In the present paper, two new species of *Phytoseius* are described from Korea: *Phytoseius*

(*Phytoseius*) *seungtaii* n. sp. and *P. (P.) sonunensis* n. sp. The type series of the new species are deposited in the Department of Biology, College of Natural Sciences, Chŏnbuk National University.

## MATERIALS AND METHODS

The materials were collected with leaves of the plants, *Corylus heterophylla* Fisch. and *Boehmeria spicata* Thunb. from Kyŏnggi Prov. and Chŏnbuk Prov., Korea in 1989 and 1992. The specimens were kept in 70% alcohol and mounted on slides with Down's (1943) PVA solution. The setal nomenclature was based on that of Rowell *et al.* (1978). All measurements are given in micrometers.

## DESCRIPTION

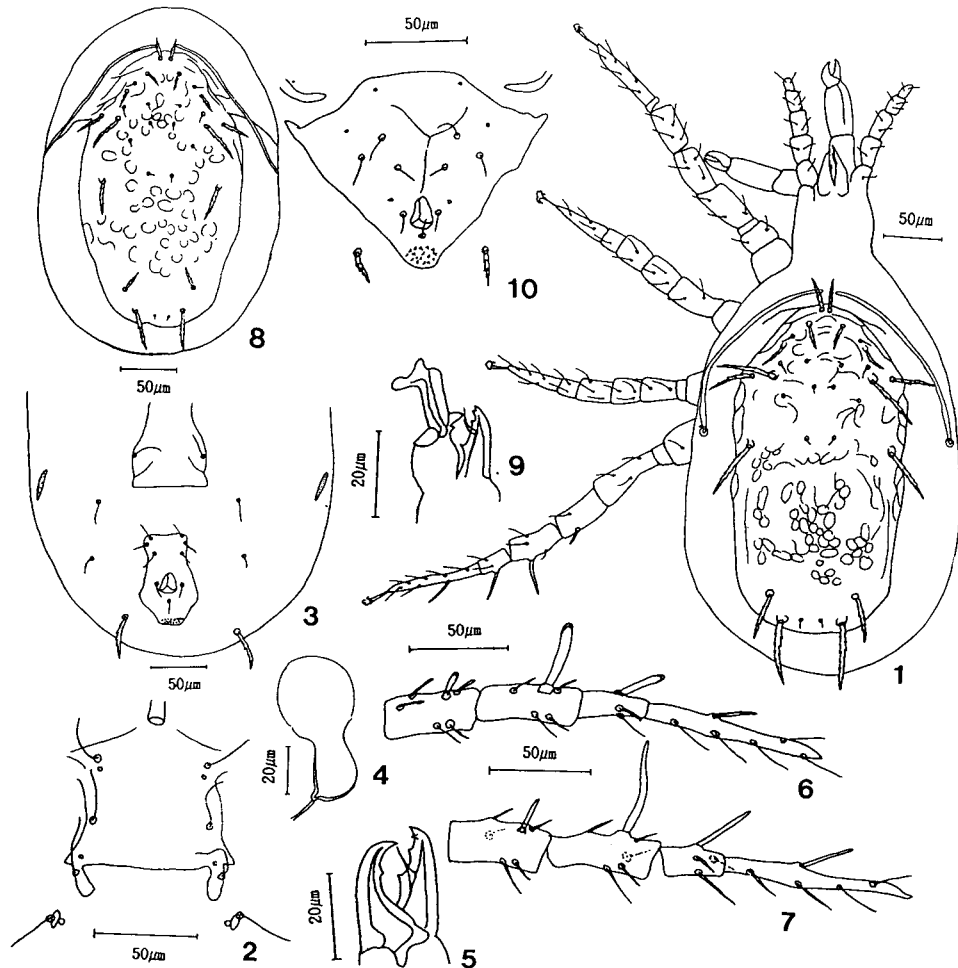
***Phytoseius (Phytoseius) seungtaii* n. sp.** (Figs. 1-10)

**Type series.** Holotype: ♀, Kunnam, Yŏnchon, Kyŏnggi, 21-VIII-1992 (M.- O. Ryu leg.), on *Corylus heterophylla*. Allotype: 1 ♂, data same with holotype. Paratypes: 5 ♀ ♀ and 7 ♂ ♂, data same with holotype; 4 ♀ ♀ and 2 ♂ ♂, Kunnam, Yŏnchon, Kyŏnggi, 16-IX-1989 (M.- O. Ryu leg.), on *Corylus heterophylla*.

**Female.** Idiosoma 390 long, 256 wide at widest part; dorsal shield 293 long, 153 wide at widest part. Dorsal shield rugose. Setae on dorsal shield: j1, j3, z3, Z4, Z5, s4, s6, and r3 stout, strongly serrate, set on tubercles; remaining setae short, smooth; Z5 longest; s4 as long as s6, longer than Z4; r3 longer than j1, j3, and z3; j1 slightly longer than j3. Peritreme extending to seta j1; peritrematal shield fused anteriorly with dorsal shield. Sternal shield with 3 pairs of setae; metasternal platelets variable in shape. Ventrianal shield slender narrower than genital shield, concave laterally, with 3 pairs of preanal setae; no preanal pores. Seta JV5 stout, strongly serrate. A pair of metapodal platelets very slender. Spermatheca as figured. Fixed digit of chelicera with 1 subapical tooth, 2 middle teeth, and pilus dentilis; movable digit unidentate. Chaetotaxic formula: genu II, 2-2/0, 2/0-1; genu III, 1-2/0, 2/0-1. Leg IV with 4 blunt-ended or spatulate macrosetae; tip of each macroseta with a hyaline envelope. Lengths of setae (n = 10, mean ± S.E.): j1 28.1±0.5, j3 24.2±0.5, j4 6.1±0.3, j5 6.2±0.3, j6 6.2±0.3, J5 7.0±0.2, z2 10.6±0.2, z3 25.3±0.7, z4 12.7±0.4, z5 6.2±0.3, Z4 46.5±0.8, Z5 64.8±1.4, s4 56.1±1.2, s6 56.1±1.2, r3 37.6±1.1, JV5 42.8±1.2, macrosetae on leg IV: genu 15.2±0.6, tibia 37.7±1.1, basitarsus 27.3±1.0, telotarsus 25.7±0.8.

**Male.** Idiosoma 280 long, 187 wide at widest part. Peritreme not extending beyond seta j1. Ventrianal shield not fused with peritrematal shield, with 3 pairs of preanal setae; 3 pairs of pores. Fixed digit of chelicera with 2 subapical teeth, 1 middle tooth, and pilus dentilis; movable digit unidentate. Chaetotaxic formula of genua II and III same as in female. Leg IV with 4 blunt-ended or spatulate macrosetae; tip of each macroseta with a hyaline envelope. Lengths of setae (n = 10, mean ± S.E.): j1 22.2±0.3, j3 19.1±0.5, j4 4.9±0.2, j5 4.8±0.2, j6 4.7±0.2, J5 5.

$1 \pm 0.2$ ,  $z2 \ 7.7 \pm 0.2$ ,  $z3 \ 18.8 \pm 0.6$ ,  $z4 \ 10.0 \pm 0.2$ ,  $z5 \ 4.9 \pm 0.2$ ,  $Z4 \ 22.2 \pm 0.3$ ,  $Z5 \ 37.1 \pm 1.0$ ,  $s4 \ 35.7 \pm 0.9$ ,  $s6 \ 33.1 \pm 0.5$ ,  $r3 \ 28.9 \pm 0.3$ ,  $JV5 \ 17.0 \pm 0.3$ , macrosetae on leg IV: genu  $12.7 \pm 0.4$ , tibia  $18.4 \pm 0.5$ , basitarsus  $22.0 \pm 0.3$ , telotarsus  $20.5 \pm 0.5$ .



**Figs. 1-10.** *Phytoseius (Phytoseius) seungtai* n. sp. 1, dorsum (♀); 2, sternal shield (♀); 3, posterior ventral shield (♀); 4, spermatheca; 5, chelicera (♀); 6-7, genu, tibia, basitarsus and telotarsus IV (♀); 8, dorsum of idiosoma (♂); 9, chelicera (♂); 10, ventrianal shield (♂).

**Etymology.** This species is named in honor of Dr. Park, Seung-Tai, Professor of Chōnbuk National University.

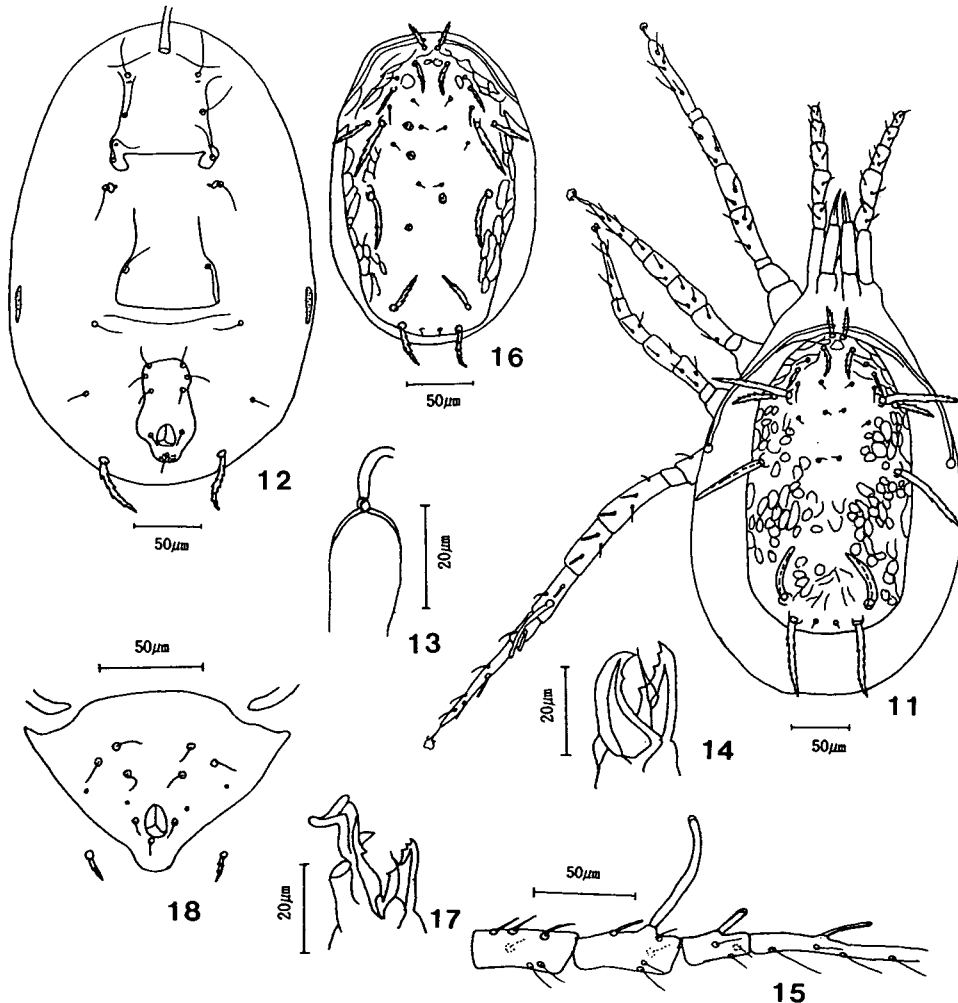
**Remarks.** *Phytoseius seungtai* is similar to two Indian species, *P. indicus* Bhattacharyya, 1968 (= *P. neglecta* Gupta, 1969 : Gupta, 1986) and *P. swirskii* Gupta, 1980. However, the female of *P. seungtai* differs from that of *P. indicus* in the ratio of the length of Z4 to the distance between s6 and Z4, and in the relative lengths of the macrosetae on leg IV. Furthermore, the female of *P. seungtai* differs from that of *P. swirskii* in having much slender dorsal shield, and in

the relative lengths of setae Z4, Z5, s4, and s6.

***Phytoseius (Phytoseius) sonunensis* n. sp.** (Figs. 11-18)

**Type series.** Holotype: ♀, Mt. Sonun, Kochang, Chōnbuk, 3-VIII-1992 (M.- O. Ryu leg.), on *Boehmeria spicata*. Allotype: 1 ♂, data same with holotype. Paratypes: 3 ♀ ♀, data same with holotype.

**Female.** Idiosoma 380 long, 250 wide at widest part; dorsal shield 293 long, 160 wide at widest part. Dorsal shield rugose. Setae on dorsal shield: j1, j3, z3, Z4, Z5, s4, s6, and r3 stout, strongly serrate, set on tubercles; remaining setae short, smooth; s4 about as long as s6 and Z5, and longer than Z4; j1 about as long as j3 and z3, and shorter than r3. Peritreme extending to seta j1; peritrematal shield fused anteriorly with dorsal shield. Sternal shield with 3 pairs of setae;



**Figs. 11-18.** *Phytoseius (Phytoseius) sonunensis* n. sp. 11, dorsum (♀); 12, venter of idiosoma (♀); 13, spermatheca; 14, chelicera (♀); 15, genu, tibia, basitarsus and telotarsus IV (♀); 16, dorsum of idiosoma (♂); 17, chelicera (♂); 18, ventrianal shield (♂).

metasternal platelets variable in shape. Ventrianal shield slender, narrower than genital shield, concave laterally, with 3 pairs of preanal setae; no preanal pores. Seta JV5 stout, strongly serrate. A pair of metapodal platelets very slender. Spermatheca as figured. Fixed digit of chelicera with 2 subapical teeth, 1 middle tooth, and pilus dentilis; movable digit unidentate. Chaetotaxic formula: genu II, 2-2/0, 2/0-1; genu III, 1-2/0, 2/0-1. Leg IV with 3 spatulate macrosetae; tip of each macroseta with a hyaline envelope. Lengths of setae (n = 4, mean): j1 29.0, j3 28.5, j4 7.3, j5 7.0, j6 7.5, J5 5.5, z2 9.8, z3 28.8, z4 18.3, z5 7.8, Z4 53.3, Z5 73.3, s4 78.0, s6 76.5, r3 41.0, JV5 47.5, macrosetae on leg IV: tibia 59.0, basitarsus 18.8, telotarsus 24.5.

**Male.** Idiosoma 251 long, 156 wide at widest part. Peritreme extending to seta j1. Ventrianal shield not fused with peritrematal shield, with 3 pairs of preanal setae; 2 pairs of pores. Fixed digit of chelicera with 2 subapical teeth, 1 middle tooth, and pilus dentilis; movable digit unidentate. Spermatodactyl as figured. Chaetotaxic formula of genua II and III same as in female. Leg IV with 3 spatulate macrosetae; tip of each macroseta with a hyaline envelope. Lengths of setae (n = 1): j1 23, j3 27, j4 7, j5 7, j6 7, J5 6, z2 9, z3 24, z4 16, z5 8, Z4 31, Z5 41, s4 50, s6 44, r3 31, JV5 17, macrosetae on leg IV: tibia 23, basitarsus 16, telotarsus 17.

**Etymology.** The specific name is derived from the type locality, Mt. Sonun.

**Remarks.** *Phytosetus sonunensis* resembles *P. nipponicus* Ehara, 1962 (from Japan), *P. vaginatus* Wu, 1983 (from China), and *P. macrosetosus* Gupta, 1977 (from India). However, the female of *P. sonunensis* is distinguished from that of *P. nipponicus* by seta Z4 which is noticeably shorter than Z5, and from that of *P. vaginatus* by the tibial macroseta on leg IV which is markedly longer than the basitarsal macroseta. Moreover, the female of *P. sonunensis* is distinctive from that of *P. macrosetosus* in having the rugose dorsal shield, and in the relative lengths of the macrosetae on leg IV.

## ABSTRACT

Two new species of the genus *Phytosetus* are described from Korea: *P. (P.) seungtae* n. sp. from Kyönggi Province and *P. (P.) sonunensis* n. sp. from Chonbuk Province.

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