

First Record of *Stomaphis matsumotoi* Sorin (Hemiptera: Aphididae) in Korea

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한국의 미기록종 *Stomaphis matsumotoi* Sorin [노린재목: 진딧물과]에 대한 보고

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ABSTRACT: *Stomaphis (Stomaphis) matsumotoi* Sorin, 1995 is reported on *Juglans mandshurica* Maxim. (Juglandaceae) for the first time in Korea. Photos of live aphids, illustration of slide specimens, and biometric data of apterous viviparous females are presented.

Key words: Lachninae, *Stomaphis*, Korea, New record

초 록: 본 연구에서는 가래나무를 흡즙하는 *Stomaphis matsumotoi* Sorin, 1995를 국내 최초로 보고한다. 무시충의 생체 사진과 표본을 통한 형태 정보를 수록하였다.

검색어: 왕진딧물아과, 주둥이왕진딧물속, 한국, 미기록종

The genus *Stomaphis* Walker, 1870 comprises of 37 Palaearctic species, feeding on trunks or roots of various deciduous trees and conifers (Blackman and Eastop 2020; Favret, 2020). This genus is morphologically distinguished from other female aphids by the large body length and rostrum much longer than the body (Depa and Mróz, 2013). To date, four species of *Stomaphis* have been documented from Korea: *Stomaphis asiphon* Szelegiewicz, 1975; *S. japonica* Takahashi, 1960; *S. sinisalicis* Zhang and Zhong, 1982; *S. yanonis* Takahashi, 1918. Here, we report *Stomaphis matsumotoi* on *Juglans mandshurica*

Maxim. (Juglandaceae) for the first time in Korea.

Materials and Methods

Colonies of *Stomaphis matsumotoi* individuals were found on the trunks of *Juglans mandshurica* Maxim. (Juglandaceae) in 2019. The fresh aphid samples were preserved in 95% alcohol and slide glass specimens were mounted on Canada balsam, following Blackman and Eastop's (2000) methods. Measurements and digital images were taken using Leica DMC 5400 (Leica Z16 APO) and Leica DM 4000B (Active Measure version 3.0.3; Mitani Co. Ltd., Japan). The samples examined in this study are deposited in the College for Agri-

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culture and Life Sciences, Seoul National University (Korea). The synonym information of the plant follows The Plant List (2013). Abbreviations used for descriptions are as follows: apt., apterous viviparous female; Ant, antennae; Ant I, Ant II, Ant III, Ant IV, Ant V, Ant VIb, and PT, antennal segments I, II, III, IV, V, base of VI, and processus terminalis of antennomere VI respectively; BL, body length; HW, greatest head width across compound eyes; GP, genital plate; HT I, first segment of hind tarsus; HT II, second segment of hind tarsus; MT II, second segment of middle tarsus; SIPH, siphunculi; URS, ultimate rostral segment (segment IV+V); AbdT I–VIII, Abdominal tergites I–VIII respectively.

Systematic Accounts

Stomaphis (Stomaphis) matsumotoi Sorin, 1995
가래나무주둥이왕진딧물(산칭) (Table 1; Figs. 1, 2)

Stomaphis (Stomaphis) matsumotoi Sorin, 1995: 148, 152.

Stomaphis (Stomaphis) matsumotoi Sorin, 1995: Remaudière and Remaudière, 1997: 205; Sorin, 2012: 30; Matsumoto, 2017: 71–73.

Description. Apterous viviparous female. **Color** (alive): Body dark brown with slightly white wax. Head and pronotum dark brown. Antenna brown with bases of Ant III light brown. Legs brown, hind femora and hind tibiae brown with darker knee area, hind tarsi brown. URS, SIPH sclerites, GP, cauda,

Table 1. The biometric measurement of the apterous viviparous females of *Stomaphis matsumotoi*. See the text for abbreviations of morphological characters. Values are means with min and max in parentheses

Body parts		apt. (n = 11)		
Length (mm)	BL	5.143	(4.516–5.684)	
	Maximum width	3.003	(2.699–3.386)	
	HW	1.351	(1.279–1.474)	
	Antennae	2.521	(2.440–2.611)	
	Ant I	0.260	(0.238–0.278)	
	Ant II	0.161	(0.142–0.182)	
	Ant III	0.783	(0.725–0.889)	
	Ant IV	0.339	(0.317–0.368)	
	Ant V	0.409	(0.382–0.430)	
	Ant VIb	0.471	(0.417–0.514)	
	PT	0.095	(0.084–0.105)	
	URS	0.587	(0.576–0.598)	
	Hind femora	1.550	(1.485–1.710)	
	Hind tibiae	2.233	(2.109–2.469)	
	MT II	0.278	(0.253–0.307)	
	HT I	0.128	(0.115–0.140)	
	HT II	0.663	(0.572–0.695)	
	SIPH sclerite length	0.764	(0.649–0.852)	
	SIPH sclerite width	0.434	(0.343–0.591)	
	GP length	0.382	(0.330–0.441)	
GP width		0.764	(0.727–0.807)	
No. of hairs on	Labrum	64	(53–75)	
	No. of secondary rhinaria on	Ant III	3.5	(0–7)
		Ant IV	4.5	(2–7)



Fig. 1. apterous viviparous female of *Stomaphis matsumotoi* on *Juglans mandshurica* Maxim. (Juglandaceae).

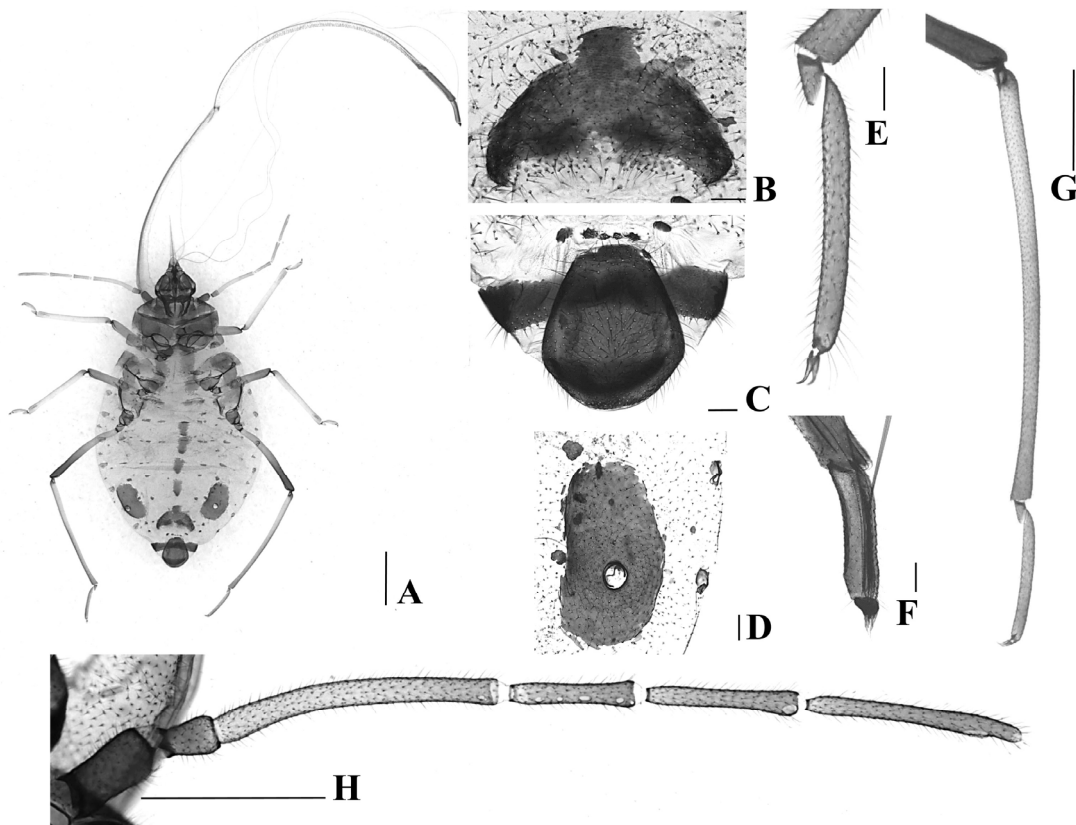


Fig. 2. *Stomaphis matsumotoi*, characters of the apterous viviparous female. A, body; B, GP; C, cauda; D, SIPH; E, HT II; F, URS; G, hind tibia; H, whole antennal segment. Scale lines for A = 1 mm; B-F = 0.1 mm; G-H = 0.5 mm.

and ventral plates dark brown (Fig. 1). (mounted specimens): Body brownish, head dark brown. Antennae brown with bases of Ant III light brown. Legs brown, hind femora and hind tibiae brown with darker knee area, hind tarsi brown. URS, SIPH sclerites, GP, cauda, and ventral plates dark brown (Fig. 2A–H). **Morphology:** Antennae 0.459–0.540×BL and 1.771–1.907×HW, Ant IV/III 0.413–0.437, Ant V/III 0.483–0.526, Ant VI/III 0.691–0.696, PT/Ant VIb 0.201–0.204. Ant III a little curved with 0–7 circular, secondary rhinaria, Ant IV with 2–7 secondary rhinaria (Fig. 2H). Rostrum longer than BL, telescopic, URS 0.672–0.794×Ant III, URS 0.860–1.006×HT II (Fig. 2E, F). Labrum covered with 53–75 accessory setae. HT II 2.260–2.263×MT II. Head and pronotum sclerotized, mesonotum with spinal and marginal sclerites, and metanotum with spinal sclerites. AbdT I, II, and VII with a pair of spinal sclerites, AbdT III–VI without sclerites. AbdT VIII with a sclerotic band, divided at the middle. Abdominal segment VIII with latero-ventral processi. Cauda rounded (Fig. 2C). Ventral side of the abdomen with 5 long barrel-shaped sclerotized patches. SIPH pore surrounded by sclerite plate (Fig. 2D). Other measurements and morphological differences are given in Table 1.

Specimens examined. 3 apt., Coll. 20190730-LMH-1, Soheul-eup, Pocheon-si, Gyeonggi-do, Korea, 30. vii. 2019, on *Juglans mandshurica* Maxim. (Juglandaceae), leg. Hong-yul Seo; 8 apt., Coll. 20190919-LMH-1, Soheul-eup, Pocheon-si, Gyeonggi-do, Korea, 19. ix. 2019, on *Juglans mandshurica* Maxim. (Juglandaceae), leg. Euiyoung Kang, Heungyooh Oh.

Host plants. *Juglans mandshurica* Maxim. (Juglandaceae) (Sorin, 1995).

Distributions. Korea (new record), Japan.

Remarks. According to Masato Sorin's description (1995), body color is dark brown in life. In this study, we found dark brown with slightly white wax from Korean samples (Fig. 1).

Key to species of *Stomaphis* in Korea

1. SIPH absent *S. asiphon*
- SIPH present 2
2. Ventral side of the abdomen with 6 long barrel-shaped sclerotized patches *S. japonica*
- Ventral side of the abdomen with 5 long barrel-shaped

- sclerotized patches 4
4. HT II longer than URS (IV+V) *S. matsumotoi*
- HT II shorter than URS (IV+V) 5
5. AbdT I–VI without paired spinal sclerites ··· *S. sinisalicis*
- AbdT I–VI with paired spinal sclerites *S. yanonis*

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Statements for Authorship Position & contribution

Lee M.: Seoul National University, Student in Dr.; Wrote the manuscript, morphological identifications

Choi H.: Memphis University, Researcher; Wrote the manuscript

Seo H.-y.: National Institute of Biological Resources, Researcher; Collecting materials, made and provided a specimen, finance support

Lim J.: Wonkwang University, Professor; Finance support

Lee S.: Seoul National University, Professor; Designed the research

All authors read and approved the manuscript.

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