

A Taxonomical Study on Ticks in Korea (I)

The Genus *Ixodes*

NOH, Yong Tai

(Entomological Institute, Korea University)

韓國産 진드기의 分類學的 研究 (I)

(*Ixodes* 屬)

盧 鏞 泰

(高大·韓國昆蟲研究所)

(Received on August 3, 1965)

摘 要

韓國産 *Ixodes* 屬 「진드기」는 *Ixodes persulcatus* 1 種이 咸鏡北道에서 發表되었다(Itagaki, 1944).
筆者는 1961年 3月~1964年 10月 사이에 採集한 진드기類를 整理한 結果

1. *Ixodes granulatus* SUPINO
2. *Ixodes turdus* NAKATSUJI
3. *Ixodes japonensis* NEUMANN
4. *Ixodes cavipalpus* NUTTALL et WARBURTON

의 4 種의 韓國未記錄種을 發見하였으므로 이에 發表코져 한다.

This paper is concerned only with the adults of the genus *Ixodes* in the South Korea. Subsequent papers are planned to include the nymphal and larval stage.

It is known that ticks of some species of the genus *Ixodes* are vectors of organisms pathogenic to man and his domestic animal in certain parts of the worlds.

There are few papers published on Korean ticks which deal with their taxonomy and biology.

Generic classification in this manual follows that of Anastos (1950) and Hoogstraal (1956). Several specimens of ticks have been collected in South Korea by staff members of Entomological Institute, Korea University, 3rd Preventive Medical Company of Army and members of Ministry of Agriculture and Forestry during the past 4 years. The four unrecorded Ticks from Korea will be mentioned below in the present paper.

MATERIALS and METHODS

Seventy percent methyl alcohol has been the preservative used in these studies. New solutions have always been used when the specimens are returned to bottles for permanent storage.

The measurements of the following structures are in microns and were taken as follow:

Hypostome: The width was taken at the widest point. The length was determined from the tip to the curvature at the base.

Palpus: The width was measured at the junction of article II and III. The width of article II was measured at its base. The length was measured from the base of article II to the distal end of the palpus.

Scutum: The width was measured at the area of the greatest width. The length was determined as the distance from the flattened anterior border to the posterior border.

1. *Ixodes granulatus* SUPINO, 1897

Ixodes granulatus Supino, 1897. Atti. Soc. Veneto-Trent. di Sci. Nat., 3:(2), 230-238.

Habitat: Mt. Tae Beck

Distribution: Korea, Japan, Ryukyu Island.

Host: *Rattus rattus*, *Suncus marinus*, *Rattus norvegicus*, *Apodemus sylvaticus*, *Eothenomys sithii*, *Microtus montebelli*, *Mus musculus*, *Clethrionomys rufocanus*.

Taken from *Leiolopisma laterale laterale*.

Description of the adult:

“Female”

Hypostome: The width varies from 42 to 56 with variations equally dispersed and showing an average of 50. The length varies from 182 to 196 with variations equally dispersed and showing an average of 190. The hypostome is narrowly tapered apex.

Palpi: The width at the widest point varies from 70 to 74 with variations equally dispersed and showing an average of 72. The length from the base of article II to the tip of article III varies 210 to 297 with the variations equally dispersed and showing an average of 270. The inner margins of article II and III are convex. The other

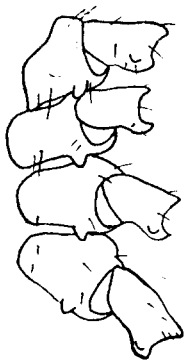


Fig. 2. *I. turdus* ♀: coxae



Fig. 1. *I. granulatus* ♀ : coxae

margins are straight.

Basis capituli: The auriculae slight and posteroventral margin is broadly rounded.

Scutum: The width varies from 518 to 532 with variations equally dispersed and showing an average of 522. The length varies from 518 to 560 with variations equally of 540. The posterior margin is moderately rounded.

Coxae: Inner ventral spur of coxa I about twice as long as external spur. Coxa II and III has a small, external spur respectively. Coxa IV has a very small external spur.

2. *Ixodes turdus* NAKATSUJI 1942

Ixodes turdus Nakatsuji, 1942. Journ. Agric. Sci. Tokyo Nogyo Daigaku, Vol. 1, No.4: 291-295.

Habitat: Kwang Nung

Distribution: Korea, Japan.

Host: *Turdus celanopus celanopus*, *Turdus chrysolais chrysolais*, *Emberiza elegans elegans*, *Emberiza ciopsis*, *Emberiza spodecephala peronata*, *Horeites cantans ijimae*, *Horeites cantans cantans*, *Bambusicola thoracica thoracica*, *Coccothraustes coccothraustes*. Taken from *Erinaceus europaeus koreensis*.

Description of adult:

“Female”

Hypostome: The width varies from 56 to 70 with variations equally dispersed and showing an average of 63. The length varies from 182 to 196 with variations dispersed and showing an average of 187. The hypostome is narrowly tapered apex.

Palpi: The width at the widest point varies from 70 to 80 with variations equally dispersed and average of 77. The length from the base of article II to the tip of article III varies from 208 to 308 with variations equally dispersed and showing an average of 290. The inner margins of article II and III are convex. The outer margins are straight.

Basis capituli: The auriculae distinct and the posteroventral margin is broadly rounded.

Scutum: The width varies from 560 to 571 with variations equally dispersed and showing an average of 567. The length varies from 644 to 700 with 647 to 713 as the most common. The posterolateral margin is straight and tapers posteriorly to narrowly rounded point.

Coxae: Coxa I with two distinct inner and external spur. Coxa II and III has a small and tapered external spur. Coxa IV has a small tapered external spur.

3. *Ixodes japonensis* NEUMANN, 1904

Ixodes japonensis Neumann, 1904. Arch. de. Parasitol., 8:444-464.

Habitat: Moo Joo

Distribution: Korea, Japan.

Host: *Erinaceus europaeus koreensis*, *Lepus brachyurus brachyurus*, *Rattus norvegicus*, cow, dog. Taken from *Erinaceus europaeus koreensis*.

Description of adult:

“Male”

Hypostome: 150(Width). 300(Length). The hypostome with some large denticles.

Palpi: The width at the widest point is 195. The length from the base of article II to the tip of article III is 375.

Basis capituli: The coxa I without an external spur and only one ventral spur. The coxa I and III without spurs.



Fig. 3. *I. japonensis*
♂: coxae

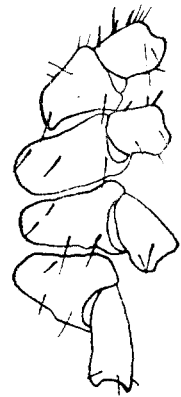


Fig. 4. *I. japonensis*
♀: coxae

“Female”

Hypostome: 195(Width). 510(Length).

Palpi: The width at the widest point is 210. The length from the base of article II to the tip of article III is 517.

Basis capituli: The porose areas oval, distinctly separated. The cornua distinct and the auricularae slight.

Scutum: 1050(Width). .080(Length).

Coxae: The coxa I with only one ventral spur and without an external spur.

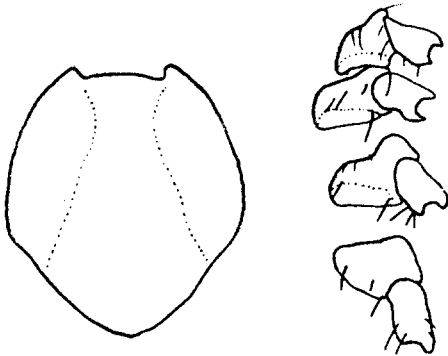


Fig. 5. *I. cavipalpus* ♀: scutum and coxae

4. *Ixodes cavipalpus* NUTALL & WARBURTON, 1908

Ixodes cavipalpus Nuttall and Warburton, 1907, p. 396, Figs. 1-5.

Habitat: Yeun Poong

Distribution: Korea, Africa.

Host: Cattle, Goat, Sheep, Domestic animal. Taken from cattle.

Description of adult:

“Female”

Hypostome: 110(Width). 407(Length). The hypostome is narrowly tapered apex.

Palpi: The width at the widest point is 176. The length from the base of article II and III are convex. The outer margins are straight.

Basis capituli: The basis capituli has distinct cornua dorsally.

Scutum: 440(Width). 737(Length). The posterolateral margin is straight and taper posteriorly to narrowly rounded.

Coxae: Coxa I has a slight inner ridge. The anterior and posterior margins of coxa II are straight. Coxa III and IV as neither spurs nor tubercles.

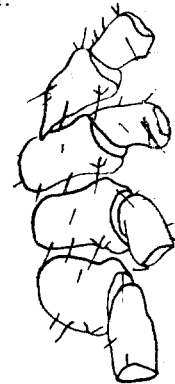


Fig. 6. *I. persulcatus persulcatus*
♀: coxae

5. *Ixodes persulcatus persulcatus* SCHULZE, 1930

Ixodes persulcatus persulcatus Schulze, 1930 Zool. Anzeiger, 90 : 294-303.

Habitat: Po Chun

Distribution: Korea, Japan.

Host: *Apodemus agrarius*, *Lepus brechyrurus brechyrurus*, dog, ginzandaira, cow, Taken from *Apodemus coreae*.

Description of adult:

“Female”

Hypostome: 60(Width). 180(Length).

Palpi: The width at the widest point is 75. The length from the base of article II to the tip of article III is 517.

Scutum: 555(Width). 6000(Length). The scutum only slightly longer than wide.

Coxae: The inner ventral spur of coxa I than twice as long as external spur. The Korean record is from a horse at Hamkyungpook-Do (North Korea) by Itagadi, S. Noda, K. and Yamaguchi, K. (1944).

ACKNOWLEDGMENT

I wish to thank Dr. P.S. Cho, Director and Dr. C. W. Kim, Vice Director, Entomological Institute, Korea University for guide and critical reviews of the manuscript.

REFERENCES

- Akazawa, 1928. Cattle ticks in Korea.
- Anastos, G., 1950. The scutate ticks or Ixodoidea of Indonesia.
- Chandler, A.C., 1955. Introduction to parasitology. New York.
- Hoogstraal, H., 1956. African Ixodidae. Vol. 1. Ticks of the Sudan.
- Itagaki, S., K. Noda and K. Yamaguchi, 1944. Ticks parasitic on domestic animals of Asia.
- Kishida, K., 1930. Notes on Japanese ticks on the Grnus *Ixodes. Lansania*, Tokyo, 7.
- Nakatsuji, K., 1942. Arachnida from Izu-Sitito. *Agricult. Sci. Nogyo Daigaku*, Tokyo, 1 : 4, 287-328.
- Neumann, L.G., 1904. Notes sur les Ixodidae, II. *Arch. de Parasitol.* 8, 444-464.
- Nuttall, G.H.F. and C. Warburton, 1911. Ticks, a monograph of the Ixodoidea Prat II. Ixodidae. Section I, Classification Section II. The genus *Ixodes*.
- Supino, F., 1897. Nuovi *Ixodes* della Birmania. *Atti Soc. Veneto-Trent. di Sci. Nat.* 2, III, Fasc. 1, 230-238.
- Williams, B. Herms., 1956. Medical entomology. New York.
- 406th M.G.K., 1957. Ixodid ticks of Japan, Korea and Ryukyu Islands.