

A C T A   Z O O L O G I C A  
C R A C O V I E N S I A

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**Systematic Studies on Family *Zerconidae* II. North Korean  
*Zerconidae* (*Acari*, *Mesostigmata*)**

[Pp. 527—552, 17 text-figs.]

**Badania systematyczne nad rodziną *Zerconidae* II. *Zerconidae* (*Acari*, *Mesostigmata*) Północnej Korei**

**Abstract.** The author describes five new species of the genus *Zercon* C. L. KOCH: *Z. asaphus* sp. n., *Z. caenolestes* sp. n., *Z. ectopicus* sp. n., *Z. pawlowskii* sp. n., *Z. szeptykii* sp. n., and gives a key to all known species from North Korea.

The family *Zerconidae* belongs to poorly known groups of mites in Eastern Asia. As a rule, members of this family were reported occasionally in papers on other mites. New species have been discovered and described from singular localities in China and Japan (PETROVA & TASKAEVA, 1968; AOKI, 1964, 1966; ISHIKAWA, 1969, 1972). The author basing on the material collected by the members of the two Polish expeditions sponsored by the Institute of Systematics and Experimental Zoology of the Polish Academy of Sciences in Kraków \* and I-st Hungarian Expedition to North Korea revised the family and described new genera (BŁASZAK, 1975, 1976).

Apart from the already known genera in Eastern Asia i.e. *Zercon* C. L. KOCH and *Prozercon* SELLNICK he established following new genera: *Echinozercon* BŁASZAK, 1975; *Mesozzercon* BŁASZAK, 1975; *Metazercon* BŁASZAK, 1975 and *Xenozzercon* BŁASZAK, 1976 of which the abbreviated diagnoses are given below:

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\* 1971 — members: Dr. hab. J. PAWŁOWSKI, Dr. hab. J. RAZOWSKI, Dr. A. SZEPTYCKI;  
1974 — members: Dr. hab. J. PAWŁOWSKI, Dr. A. SZEPTYCKI, Mrs. Z. STEBNICKA.

*Echinozercon* BŁASZAK, 1975

The peritremal shields are extended posteriorly, especially their lateral external ends which extend over the base of seta *R4* (Fig. 1). On the peritremal shield there are two setae: *p1* long and feathered one, and *p2* that is short and smooth. The adgenital shields are absent (Fig. 2).

Type of genus: *Echinozercon orientalis* BŁASZAK, 1975, from Onpho-ri prov. Hamgjong-pukto (North Korea).

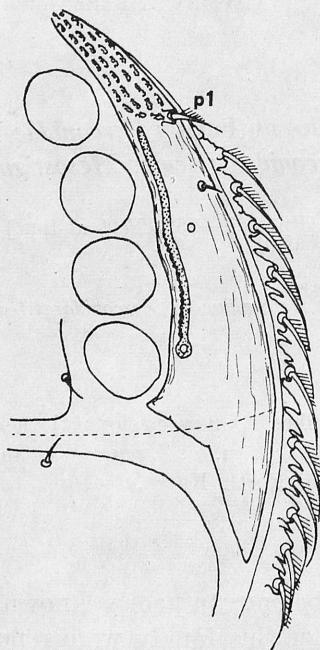


Fig. 1. *Echinozercon orientalis* BŁASZAK — the peritremal shield of the holotype from Hamgjong-pukto

*Mesozzercon* BŁASZAK, 1975

The peritremal shields are extended posteriorly, especially their lateral external ends which extend over the setae *R3* (Fig. 3). On the peritremal shield there are two setae *p1* and *p2*, both short and smooth. The adgenital shields are absent, there are only single openings of the glands — *gv2*. Dorsal side — see fig. 4.

Type of genus: *Mesozzercon coreanus* BŁASZAK, 1975 from Kymgangsán prov. Kangwon-do (North Korea).

*Metazercon* BŁASZAK, 1975

The peritremal shield is terminated truncate behind the fourth pair of coxae (Fig. 5). On the peritremal shield there are two setae: *p1* smooth, *p2* twice as long as the seta *p1* and delicately pilose. The peritremal shield in the postero-

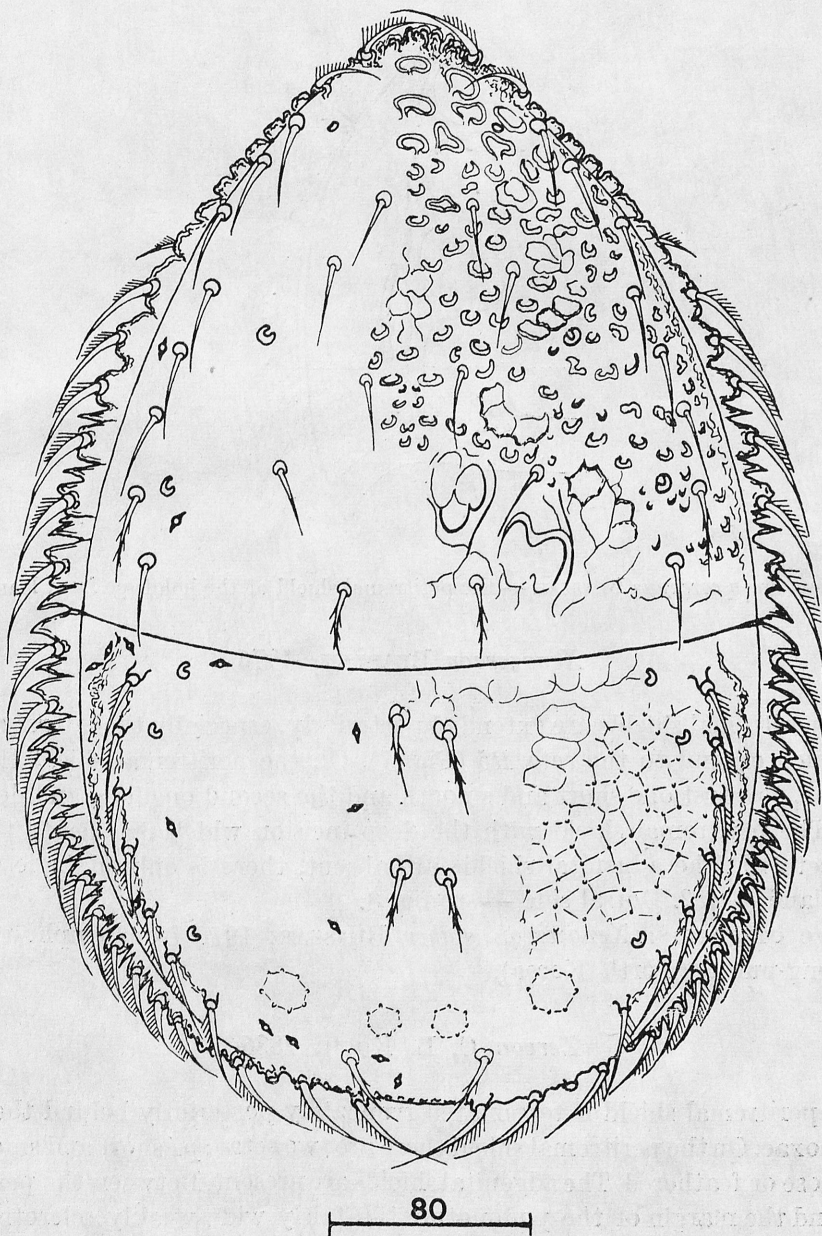


Fig. 2. *Echinozercon orientalis* BŁASZAK — dorsal side of the holotype from Hamgiong—punkto



lateral part has a characteristic incision. The adgenital shields are present. Between the genital shield and the ventro-anal shield there are two narrow sclerites without setae. Dorsal side — see fig. 6.

Type of genus: *Metazercon athiasi* BLASZAK, 1975 from Pakyon, prov. Kesong-si („Bagyon — san, Bagyon-popo, prov. Kengi leg. S. MACHUNKA" after original label). Pakyon prov. Kesong-si, 7 06 74, leg. A. SZEPTYCKI (North Korea).

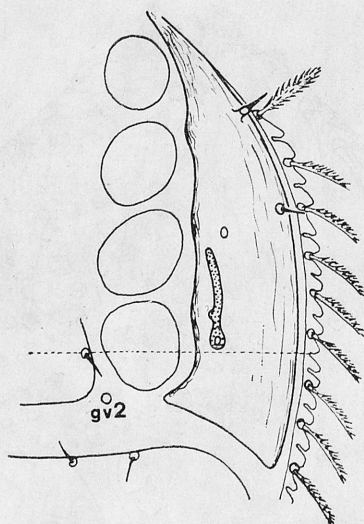


Fig. 3. *Mesozzercon coreanus* BLASZAK — the peritremal shield of the holotype from Kangwon-do

### *Xenozercon* BLASZAK, 1976

The peritremal shields are extended posteriorly, especially the lateral external ends which extend to the seta *R5* (Fig. 7). On the peritremal shield there are two setae, the first one short and smooth and the second one long and delicately pilose. The peritremal shield with the deep incision which reaches to the level of the seta *r6*. The adgenital shields are absent, there is only a single opening of the gland — *gv2*. Dorsal side — see fig. 8.

Type of genus: *Xenozercon glaber* BLASZAK, 1976 from Onpho-ri, prov. Hamgjong-pukto (North Korea).

### *Zercon* C. L. KOCH, 1836

The peritremal shield is terminated truncately posteriorly behind the fourth pair of coxae. On the peritremal shield there are two setae: *p1* short and smooth, *p2* long, pilose or feathered. The adgenital shields are present. Between the peritremal shield and the margin of the podonotum is a fairly wide weakly sclerotised slit.

Type of genus: *Zercon triangularis* C. L. KOCH, 1836.

The new species are following:



*Zercon caenolestes* sp. n.

Description of the holotype. Female. Length, 530  $\mu\text{m}$ , width 420  $\mu\text{m}$ .

Dorsal side (Fig. 9). Setae. On the podonotum in the row *i* only the seta *i1* long 36  $\mu\text{m}$  and delicately pilose, the remaining setae of this row are shorter

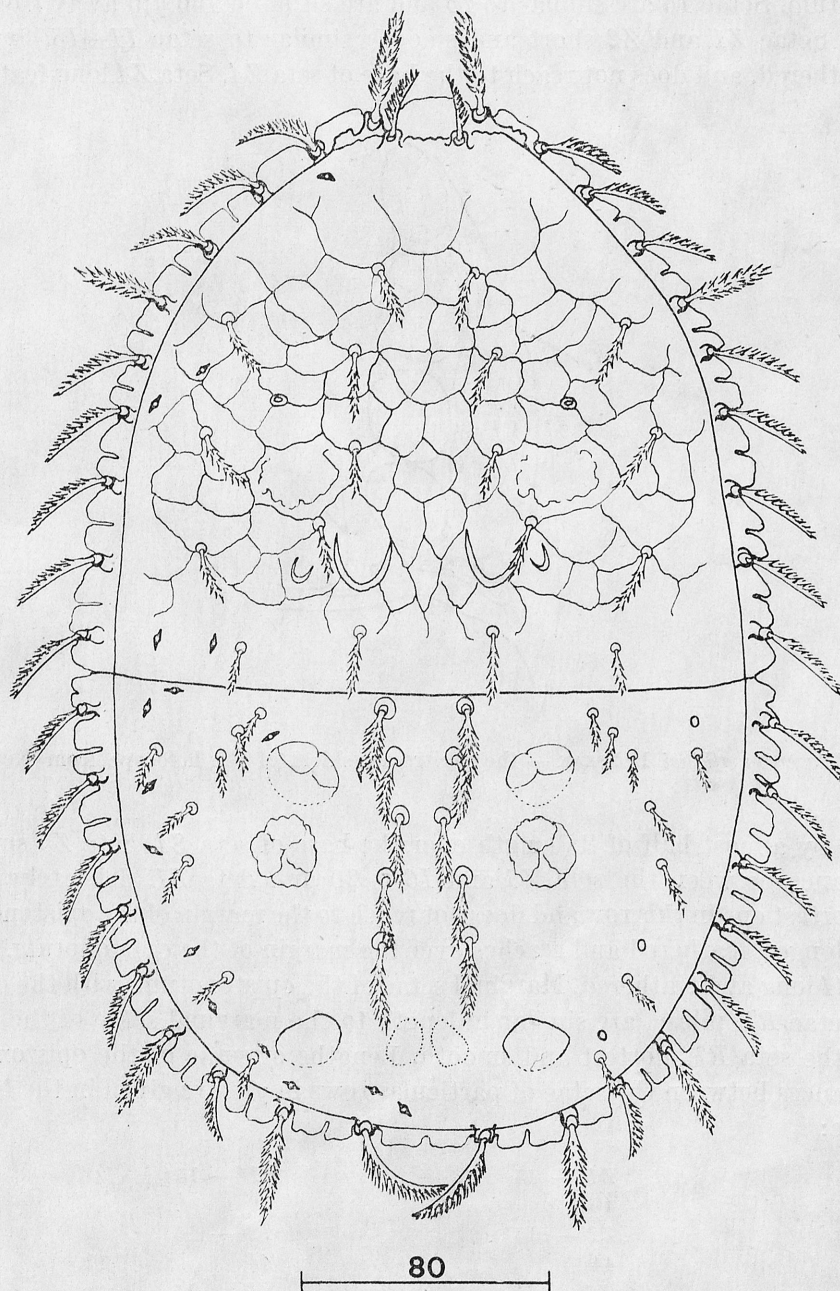


Fig. 4. *Mesozercus coreanus* BŁASZAK — dorsal side of the holotype from Kangwon-do

and smooth. Setae *z1* and *z2* short and smooth. In the row *s* all setae are smooth, their length is about 32  $\mu\text{m}$ . All six setae of the marginal row delicately pilose and their length is about 36  $\mu\text{m}$ . On the opistonotum, setae *I1*—*I3* are short and smooth. Seta *I4* is longer and pilose and does not reach to the insertion of seta *I5*. Seta *I5* is long feathered and reaches to the posterior margin of the opistonotum. Setae *I6* are similar to *I5* and are situated 160  $\mu\text{m}$  away from one another. Setae *Z1* and *Z2* short and smooth similar to setae *I1*—*I3*. Seta *Z3* long, feathered, and does not reach to the base of seta *Z4*. Seta *Z4* long feathered

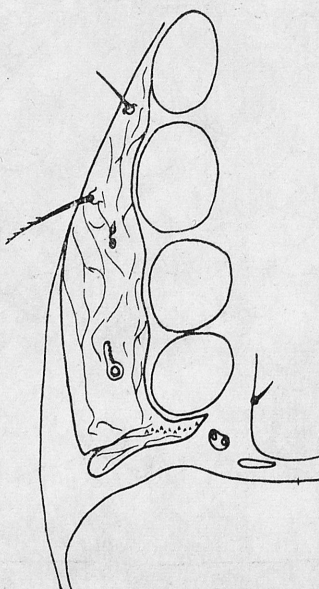


Fig. 5. *Metazercon athiasi* BŁASZAK — the peritremal shield of the holotype from Kesong-si

reaching by almost half of its length over the base of seta *S4*. Seta *Z5* smooth, the distance between the seta *Z5* and *I6* is 20  $\mu\text{m}$ . Seta *S1*, delicately pilose is the shortest one in this row and does not reach to the margin of the opistonotum. Seta *S2* longer, feathered and reaches over the margin of the opistonotum. Setae *S3* and *S4* long and feathered. Marginal setae of the opistonotum, with the exception of setae *R7*, pilose, are similar in length to the marginal setae of the podonotum; the seta *R7* shortest and smooth. Lengths of setae of the opistonotum and distances between the setae of particular rows in  $\mu\text{m}$  are given in the following table:

<i>S1</i> — 29	<i>Z1</i> — 15	<i>I1</i> — 15
53	40	50
<i>S2</i> — 46	<i>Z2</i> — 15	<i>I2</i> — 15
74	44	44
<i>S3</i> — 59	<i>Z3</i> — 53	<i>I3</i> — 15

64  
S4 — 83

80  
Z4 — 86  
86  
Z5 — 44

44  
I4 — 35  
56  
I5 — 83  
80  
I6 — 89

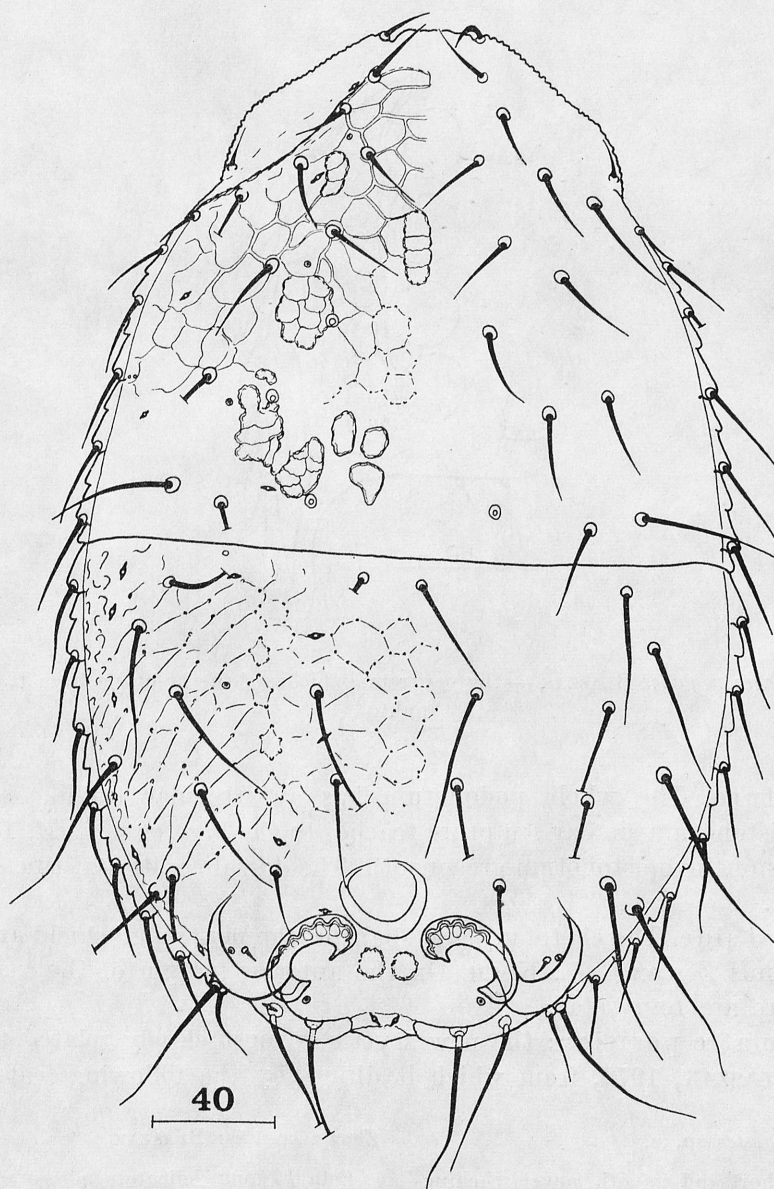


Fig. 6. *Metazercon athiasi* BLASZAK — dorsal side of the holotype from Kesong-si



Pores. On the podonotum, the pore *po1* lies near insertion of seta *s1*. The pore *po2* lies under the line connecting setae *s4*—*i4*. The pore *po3* is situated under the line connecting setae *s5* and *z1*. On the opistonotum the pore *Po1* lies between the anterior margin of the opistonotum and the insertion of seta *Z1*. The pore *Po2* lies outside of the line connecting setae *Z2* and *Z3*. The pore *Po3* lies characteristically outside of the line connecting setae *Z3*—*Z4*. The pore *Po4* just behind seta *S4*.

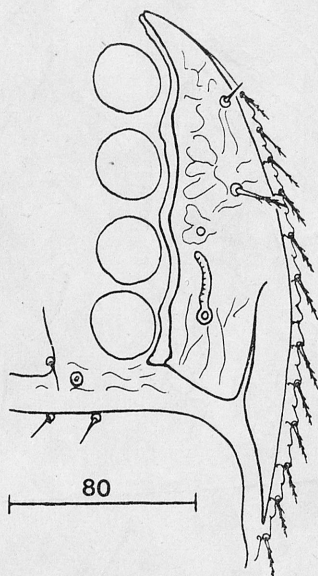


Fig. 7. *Xenozercon glaber* BLASZAK — the peritremal shield of the holotype from Hamgjong — pukto

Sculpture. The whole podonotum has an irregular tile-like sculpture. On the opistonotum similar sculpture reaches to the base of seta *Z4*. The remaining parts of the opistonotum are smooth. The dorsal cavities distinct and well sclerotized.

Ventral side. The chetotaxy and shape of the peritremal shield are typical for the genus *Zercon* C. L. KOCH. On the anterior margin of the ventro-anal shield there are four setae.

Systematic position: the new species is most closely related to *Zercon occultus* BLASZAK, 1972, from which it differs by the following features:

*Zercon caelonestes* sp. n.

1. Seta *I3* short and smooth, never reaching the insertion of seta *I4*.
2. Seta *I4* not reaches to the insertion of seta *I5*.

*Zercon occultus* BLASZAK

1. Seta *I3* long delicately pilose reaching by almost half of its length over the insertion of setae *I4*.
2. Seta *I4* long, extending by half of its length over the insertion of seta *I5*.

3. Seta *I5* is more than twice as long as the seta *I4*. Seta *I5* reaches to the posterior margin of the opistonotum.
4. Pore *Po2* lies outside of the line connecting setae *Z2—Z3*.
5. Pore *Po3* lies outside of the line connecting setae *Z3—Z4*.
6. On the opistonotum irregular tile-like sculpture reaches to the base of seta *Z4*, the remaining parts of the opistonotum are smooth.
3. Seta *I5* equal to seta *I4* and reaches by half of its length over the posterior margin of the opistonotum.
4. Pore *Po2* lies outside of the line connecting setae *S1—S2*.
5. Pore *Po3* lies on the line connecting setae *S3—S4*.
6. On the opistonotum the tile-like sculpture reaches to the base of seta *S2*, the remaining part of the opistonotum covered with little spots.

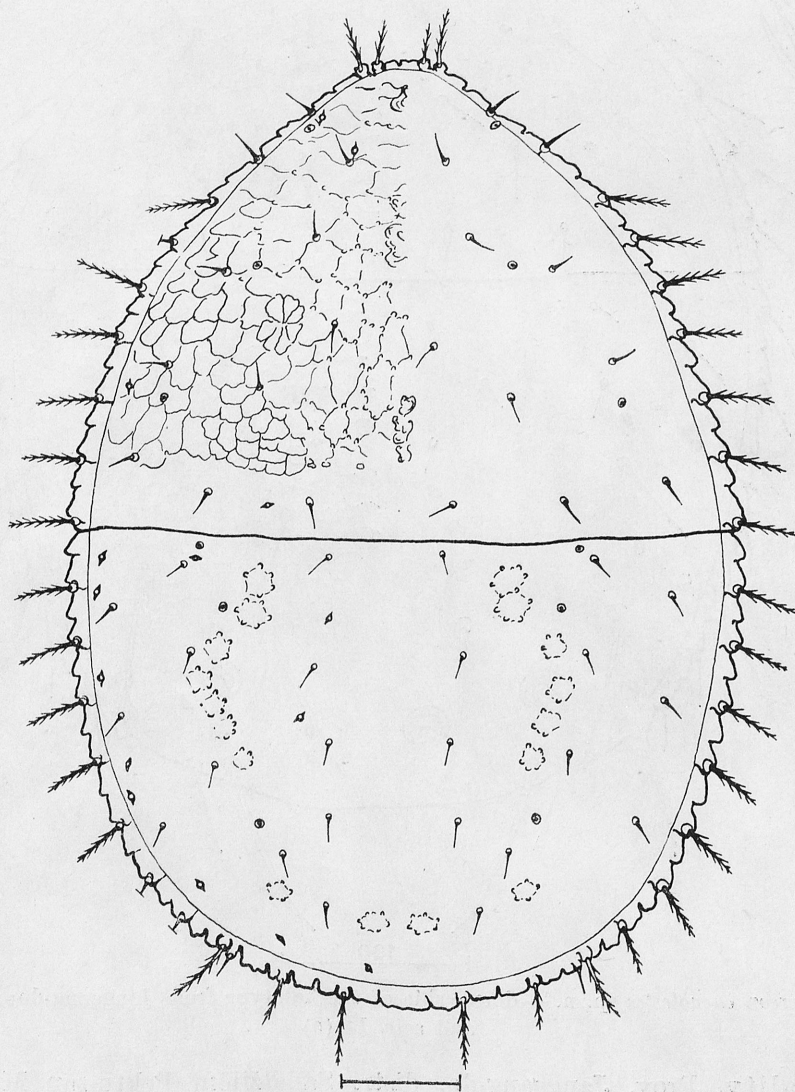


Fig. 8. *Xenozercion glaber* BLASZAK — dorsal side of the holotype from Hamgjong — pukto

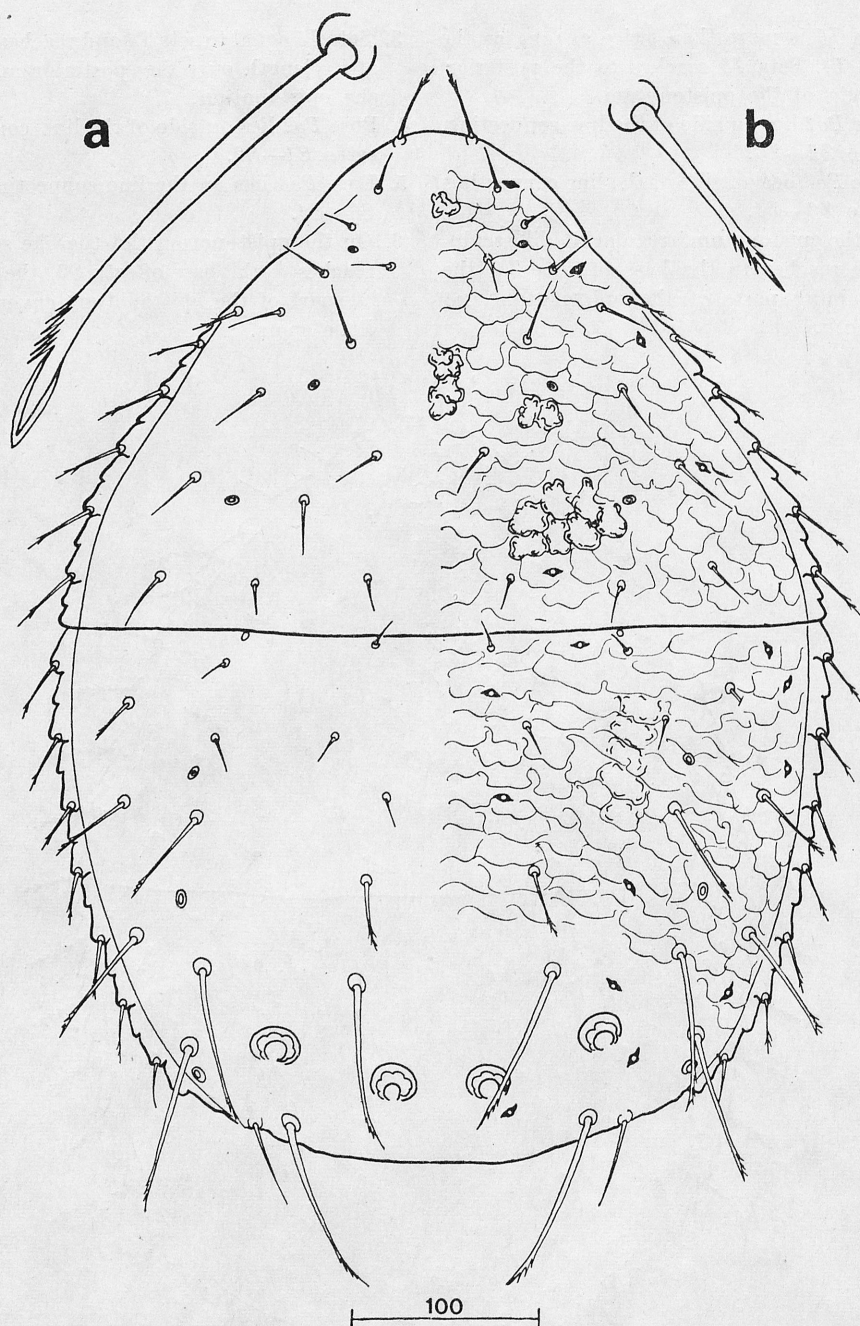


Fig. 9. *Zercon caenolestes* sp. n. — dorsal side of the holotype from Janggang-do; seta I6 (a) and seta I4 (b)

Locality. Prov. Janggang-do, distr. Samdžijön, Pektu-san Mt. South-eastern slope, spruce forest with addition of larch, about 1800 m a.s.l.; wet mosses from the ground; 9 IX 1971, leg. A. SZEPTYCKI. Holotype in the collection of the Department of Animal Morphology.



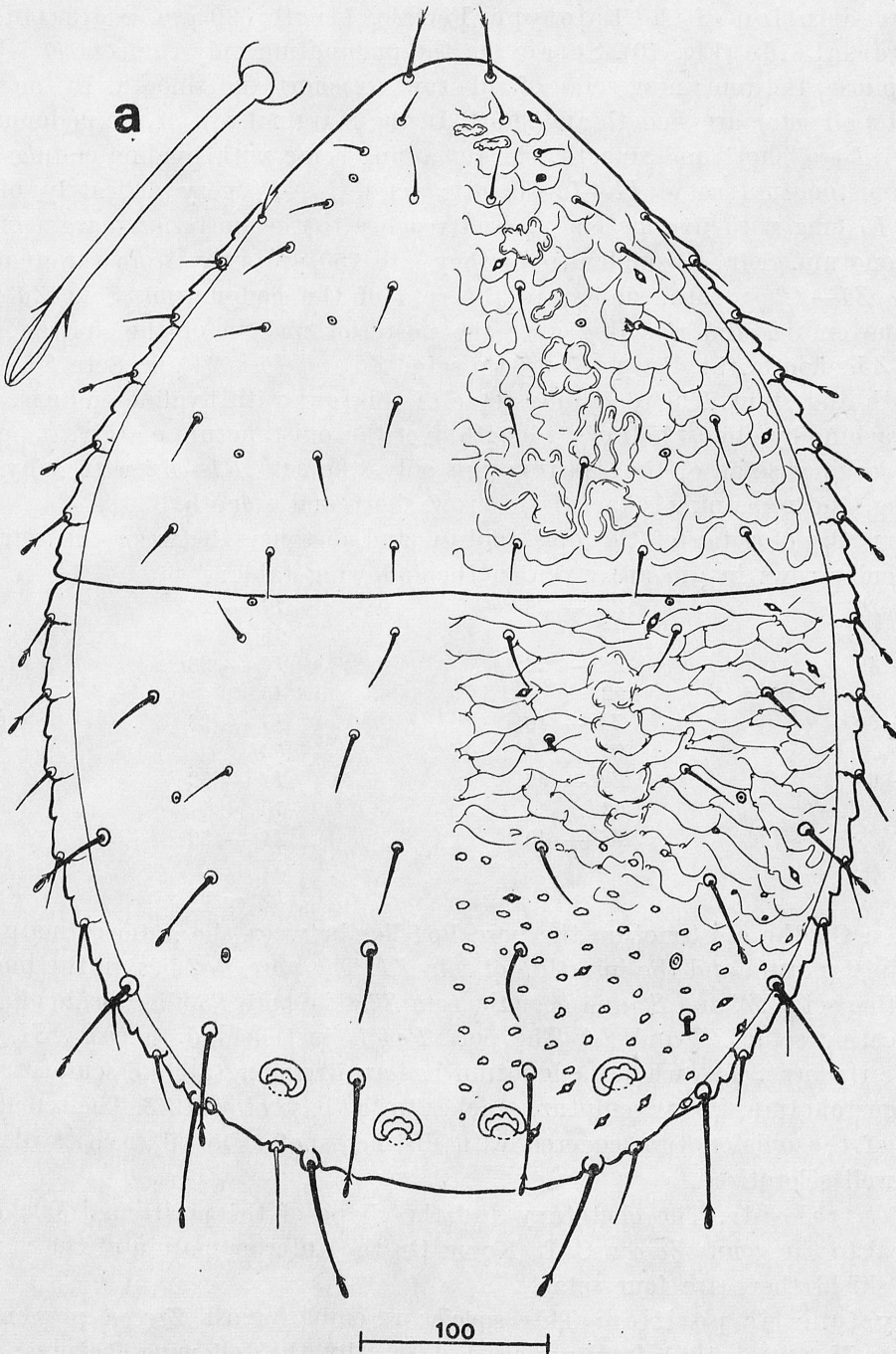


Fig. 10. *Zercon pawlowskii* sp. n. — dorsal side of the holotype from Janggang-do, and seta I6 (a)

*Zercon pawlowskii* sp. n.

Description of the holotype. Female. Length 590  $\mu$ m, width 440  $\mu$ m.

Dorsal side (Fig. 10). Setae: On the podonotum only the seta *i1* is long and pilose, the remaining setae of this row are short and smooth. In the rows *z* and *s* all setae are smooth and short. In the marginal row of the podonotum, setae *r1*—*r3* short and smooth, the remaining setae with hyaline endings. On the opistonotum setae *I1*—*I2* smooth, setae *I3*—*I4* very delicately pilose. Seta *I5* long with hyaline ending and reaches to the posterior margin of the opistonotum. Seta *I6* similar to *I5* they are 150  $\mu$ m away from the another. Setae *Z1*—*Z2* smooth, similar to the seta of the podonotum. Seta *Z4* with hyaline ending and reaching over the posterior margin of the opistonotum. Seta *Z5* smooth, the distance between setae *Z5* and *I6* is 24  $\mu$ m. Seta *S1* short, smooth and stout. The remaining setae of this rows with hyaline endings. Seta *S2* reaching by almost half of its length over the opistonotum margin. Amongst the marginal setae of the opistonotum only the seta *R1*—*R2* with a hyaline ending, the remaining setae of this row short and smooth.

Lengths of setae of the opistonotum and distances between the setae of particular rows in  $\mu$ m are given in the following table:

<i>S1</i> — 26	<i>Z1</i> — 26	<i>I1</i> — 28
79	75	75
<i>S2</i> — 46	<i>Z2</i> — 26	<i>I2</i> — 28
79	52	45
<i>S3</i> — 60	<i>Z3</i> — 40	<i>I3</i> — 28
73	82	53
<i>S4</i> — 65	<i>Z4</i> — 60	<i>I4</i> — 32
	62	70
	<i>Z5</i> — 40	<i>I5</i> — 50
		57
		<i>I6</i> — 60

Pores: On the opistonotum the pore *Po1* lies between the anterior margin of the opistonotum and the insertion of seta *Z1*. The pore *Po2* lies on the line connecting setae *Z2* and *S2* and near the seta *S2*. The pore *Po3* lies inside of a line connecting setae *Z3* and *Z4*. The pore *Po4* is just behind the seta *S4*.

Sculpture. The whole podonotum has an irregular tile-like sculpture. On the opistonotum similar sculpture reaches to the base of seta *Z3*. The remaining part of the opistonotum covered with distinct spots. Dorsal cavities distinct and well sclerotized.

Ventral side. The chetotaxy and the shape of the peritremal shield are typical to the genus *Zercon* C. L. KOCH. On the anterior margin of the ventroanal shield there are four setae.

Systematic position: This species resembles most *Zercon paenenudus* ATHIAS-HENRIOT, 1961 from which it differs by the following features:

*Zercon pawlowskii* sp. n.

*Zercon paenenudus* ATHIAS-HENRIOT

1. Setae *S2*—*S4*, *Z3*—*Z4* and *I5*—*I6* with hyaline endings.

1. All setae of the opistonotum smooth, without hyaline endings.

2. The distance between insertions of setae *Z5* and *I6* is 24  $\mu\text{m}$ .
3. Pore *Po3* lies inside of the line connecting setae *Z3* and *Z4*.
2. The insertions of setae *I6* and *Z5* are close.
3. Pore *Po3* lies on the line connecting setae *Z3* and *Z4*.

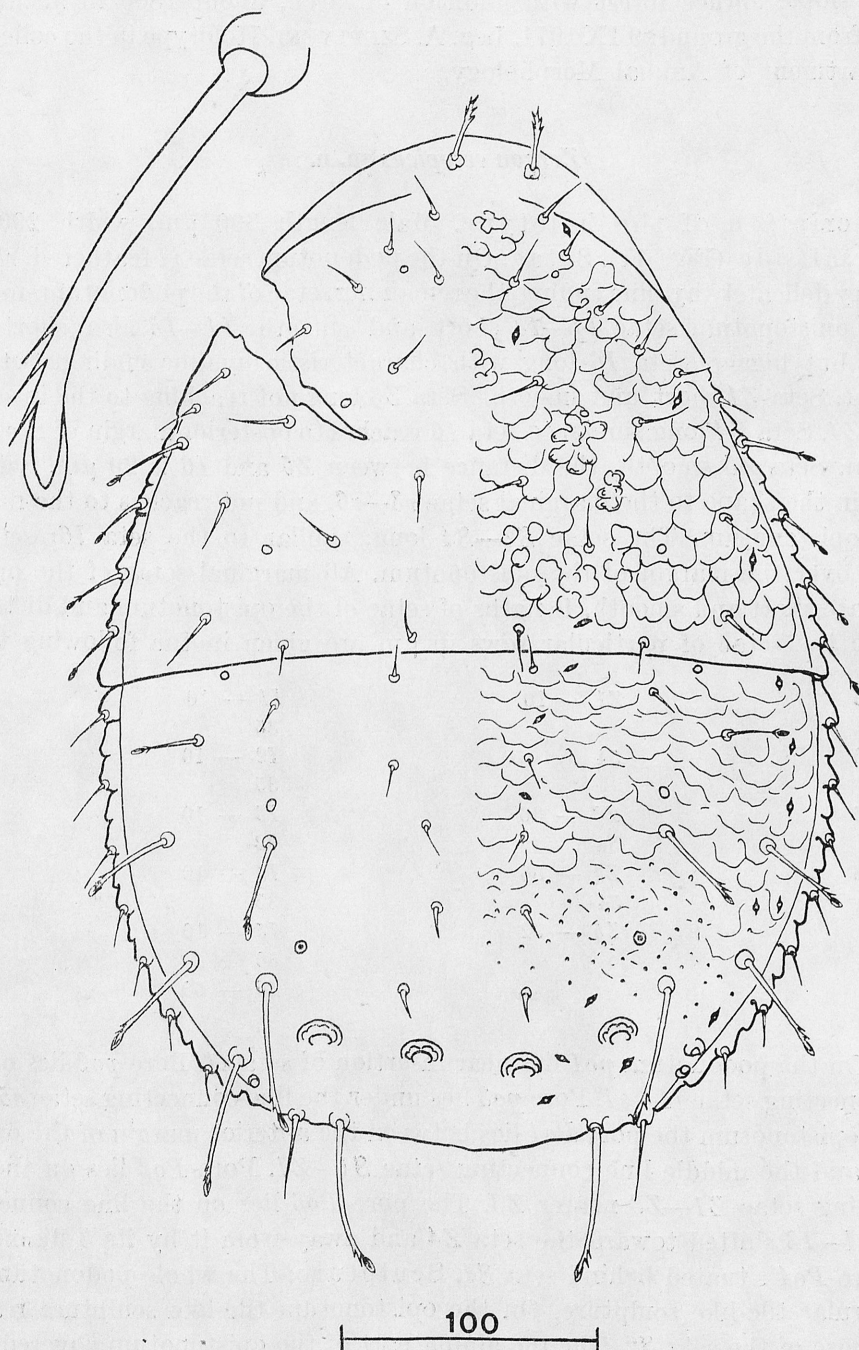


Fig. 11. *Zercon ectopicus* sp. n. — dorsal side of the holotype from Janggang-do, and seta *I6* (a)



4. Dorsal cavities distinct and well sclerotized. 4. Dorsal cavities round and very delicate in structure.

Locality. Prov. Janggang-do, distr. Samdžijön, Pektu-san Mt. South-eastern slope, spruce forest with addition of larch, about 1800 m a.s.l.; wet mosses from the ground; 9 IX 1971. Leg. A. SZEPTYCKI. Holotype in the collection of Department of Animal Morphology.

*Zercon ectopicus* sp. n.

Description of the holotype. Male length 390  $\mu$ m, width 290  $\mu$ m

Dorsal side (Fig. 11). Setae: On the podonotum setae *i1* feathered, *r3—r6* with very delicately hyaline ending, the remaining setae of the podonotum smooth. On the opistonotum setae *I1—I3* short and smooth, *I4—I5* also short and smooth but bigger. Seta *I6* long with characteristic hyaline ending. Seta *Z2* is absent. Seta *Z1* short and smooth. Seta *Z3* long not reaching to the insertion of seta *Z4*. Seta *Z4* long similar to seta *I6* reaches to posterior margin of the opistonotum. Seta *Z5* smooth, the distance between *Z5* and *I6* is 20  $\mu$ m. Seta *S1* similar in the shape to the marginal setae *r3—r6*, and not reaches to the margin of the opistonotum. The setae *S2—S4* long, similar to the seta *I6*; seta *S2* reaches over the margin of the opistonotum. All marginal setae of the opistonotum are short and smooth. Lengths of setae of the opistonotum and distances between the setae of particular rows in  $\mu$ m are given in the following table:

<i>S1</i> — 26	<i>Z1</i> — 10	<i>I1</i> — 10
40		35
<i>S2</i> — 36	54	<i>I2</i> — 10
48		35
<i>S3</i> — 46	<i>Z3</i> — 36	<i>I3</i> — 10
48	54	32
<i>S4</i> — 56	<i>Z4</i> — 56	<i>I4</i> — 10
	54	35
	<i>Z5</i> — 32	<i>I5</i> — 10
		56
		<i>I6</i> — 60

Pores. On the podonotum *po1* lies near insertion of seta *s1*. Pore *po2* lies on the line connecting setae *i4—s4*. Pore *po3* lies under the line connecting setae *s5—z1*. On the opistonotum the pore *Po1* lies between the anterior margin of the opistonotum and the middle line connecting setae *S1—Z1*. Pore *Po2* lies on the line connecting setae *Z1—Z3* nearer *Z3*. The pore *Po3* lies on the line connecting setae *Z4—I3* shifted toward the seta *Z4* and away from it by its 3 diameters. The pore *Po4* situated behind seta *S4*. Sculpture: The whole podonotum has an irregular tile-like sculpture. On the opistonotum tile-like sculpture reaches to the base of the seta *S2*. The remaining part of the opistonotum covered with delicate and little spots. The dorsal cavities distinct and well sclerotized.

Ventral side. The chetotaxy and the shape of the peritremal shield there are typical for the genus *Zercon* C. L. KOCH. On the anterior margin of the ventro-anal shield there are four setae.

Systematic position: This species resembles most *Zercon moravicus* HALAŠKOVÁ from which it differs by the following features:

*Zercon ectopicus* sp. n.

1. Length, 390  $\mu\text{m}$ , width 290  $\mu\text{m}$ .
2. Setae *S2—S4*, *Z3—Z4* and *I6* are long with hyaline ending.
3. Seta *S1* with hyaline ending.
4. All marginal setae of the opistonotum are short and smooth.

. Seta *Z2* is absent.

*Zercon moravicus* HALAŠKOVÁ

1. Length 498—530  $\mu\text{m}$ , width 397—413  $\mu\text{m}$ .
2. Setae *S2—S4*, *Z3—Z4* and *I6* are long, barbed with lanceolate termination.
3. Seta *S1* smooth.
4. All marginal setae of the opistonotum are long, barbed reaching with their end, or extending over the insertions of following setae.

5. Seta *Z2* is present.

Locality: Prov. Janggang-do, distr. Samdžijön, southern slope of Namphode-san Mt. Mixed forest with larch and birch prevailing on granites; moss from granite stones; 2100 m a.s.l. 8 IX 1971. Leg. A. SZEPTYCKI. Holotype in the collection of the Department of Animal Morphology.

*Zercon szeptyckii* sp. n.

Description of the holotype. Female. Length 400  $\mu\text{m}$ , width 320  $\mu\text{m}$ .

Dorsal side (Fig. 12). Setae: On the podonotum seta *i1* feathered, setae *r3—r6* and *s3* pilose. Seta *s1* is absent. The remaining setae of the podonotum are smooth. On the opistonotum setae *I1—I3* short and smooth. Setae *I4* are one-sidedly feathered and reaches over the insertion of seta *I5*, which is long, feathered and reaches over the posterior margin of the opistonotum. Seta *I6* is characteristically one-sidedly feathered and lie 136  $\mu\text{m}$  distant from one another. Seta *I6* are the longest setae of the opistonotum. The insertions of setae *I6* and *Z5* are in close proximity. Setae *Z1* and *Z2* short and smooth, *Z3* similar to *I4* and reaches to base of seta *Z4*. The seta *Z4* long and feathered. The seta *Z5* smooth. Seta *S1* delicately feathered and not reaches to the margin of the opistonotum. The seta *S2* long feathered and reaches by half of its length over the margin of the opistonotum. The setae *S3* and *S4* long and feathered. The distances between the setae in row *S* are equal. In the marginal row of the opistonotum setae *R1—R4* are pilose, the remaining setae of this row are smooth. Lengths of setae of the opistonotum and distances between the setae of particular rows in  $\mu\text{m}$  are given in the following table:

<i>S1</i> — 26	<i>Z1</i> — 12	<i>I1</i> — 12
46	30	34
<i>S2</i> — 42	<i>Z2</i> — 12	<i>I2</i> — 12
46	48	24

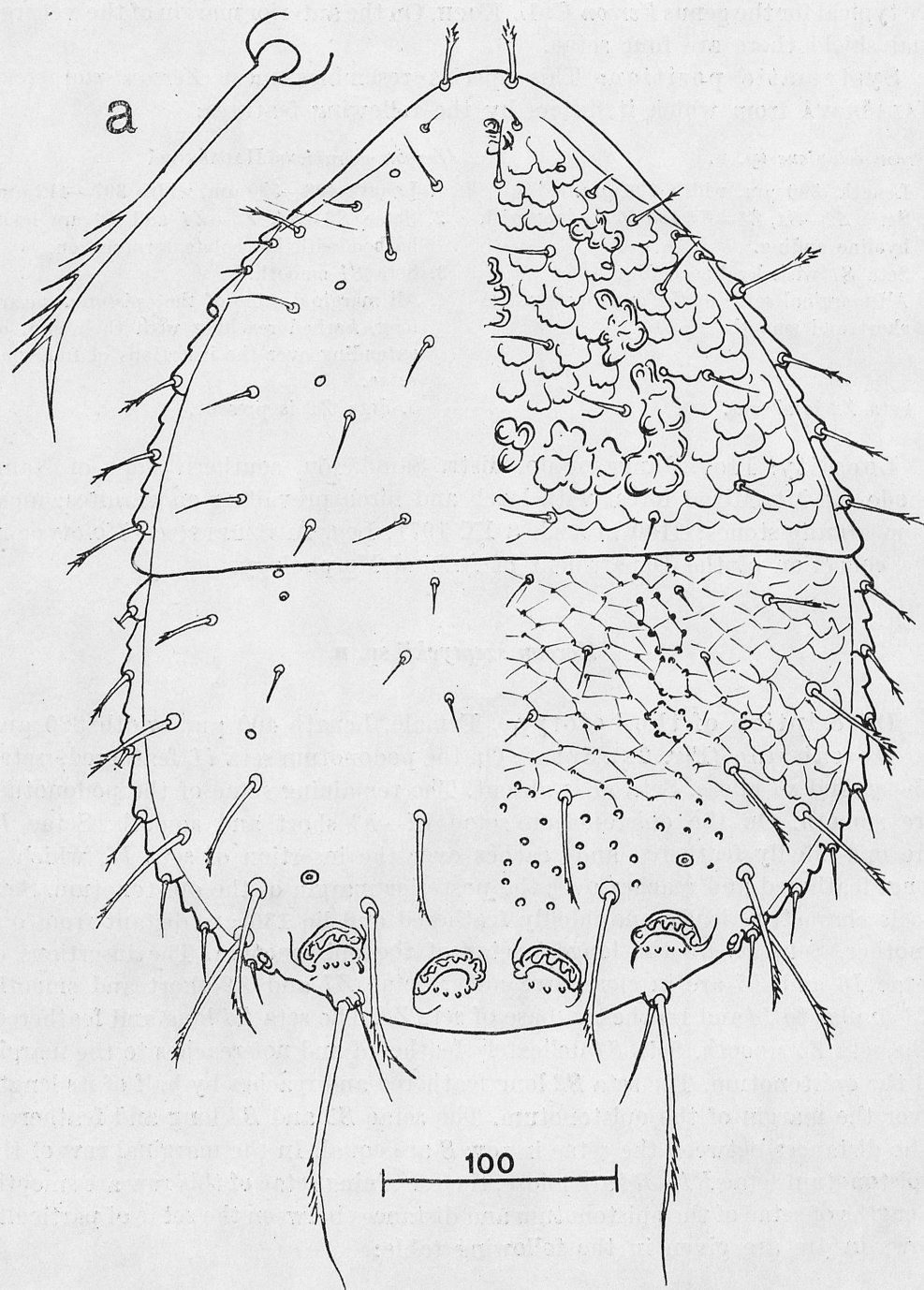


Fig. 12. *Zereon szeptyckii* sp. n. — dorsal side of the holotype from Kangwon-do, and seta I6 (a)



<i>S3</i> — 54	<i>Z3</i> — 44	<i>I3</i> — 12
46	44	50
<i>S4</i> — 62	<i>Z4</i> — 62	<i>I4</i> — 44
	66	44
	<i>Z5</i> — 44	<i>I5</i> — 72
		40
		<i>I6</i> — 120

Pores. On the podonotum pore *po1* lies on the middle line connecting setae *i2* and *s2*. Pore *po2* is situated on the line connecting setae *i4*—*s4*. The pore *po3* lies on the line connecting setae *i5* and *s5* nearer to seta *s5*. On the opistonotum the pore *Po1* lies between the anterior margin of the opistonotum and the insertion of the seta *Z1*. Pore *Po2* lies outside of a line connecting setae *Z2* and *Z3*. Pore *Po3* lies over the line connecting setae *I5* and *Z4*. The pore *Po4* just behind seta *S4*.

Sculpture. The whole podonotum has an irregular tile-like sculpture. The opistonotum has in the centre of the anterior half a reticulated and laterally a tile-like sculpture. The posterior part of the opistonotum covered with the distinct spots. Dorsal cavities are large and well sclerotized, the inside ones are removed from each other by about one third of their width.

Ventral side. The chetotaxy and the shape of the peritremal shield are typical for the genus *Zercon* C. L. KOCH. On the anterior margin of the ventro-anal shield are two setae.

Description of the male paratype. Length 305  $\mu\text{m}$ , width 230  $\mu\text{m}$  (Fig. 13). Setae and sculpture on the podonotum and opistonotum similarly as in female. Pore *po3* is located under the line connecting the setae *s5* and *z1*. Pore *Po2* lies on the middle line connecting setae *S2*—*Z2*. Position of this pore is different in male than in female where it is lying outside of a line connecting setae *Z2* and *Z3*. The setae *I6* lie 110  $\mu\text{m}$  distant from one another. Lengths of setae of the opistonotum and distances between the setae of particular rows in  $\mu\text{m}$  given in the following table:

<i>S1</i> — 26	<i>Z1</i> — 15	<i>I1</i> — 12
30	27	28
<i>S2</i> — 40	<i>Z2</i> — 15	<i>I2</i> — 12
35	19	19
<i>S3</i> — 48	<i>Z3</i> — 36	<i>I3</i> — 12
38	36	21
<i>S4</i> — 53	<i>Z4</i> — 53	<i>I4</i> — 24
	45	35
	<i>Z5</i> — 40	<i>I5</i> — 53
		40
		<i>I6</i> — 96

Systematic position: This species resembles most *Zercon romagniolus* SELLNICK from which it differs by the following features:

*Zercon szepteykii* sp. n.

1. Pore *Po3* lies over the line connecting setae *I5* and *Z4*.

*Zercon romagniolus* SELLNICK

1. Pore *Po3* lies inside of a line connecting setae *Z3* and *Z4*.

- |   |  |
|---|--|
| <p>2. On the anterior margin of the ventro-anal shield there are 2 setae.</p> <p>3. The axes of the dorsal cavities are slightly oblique.</p> | <p>2. On the anterior margin of the ventro-anal shield there are 4 setae.</p> <p>3. The axes of the dorsal cavities are parallel to the body axis.</p> |
|---|--|

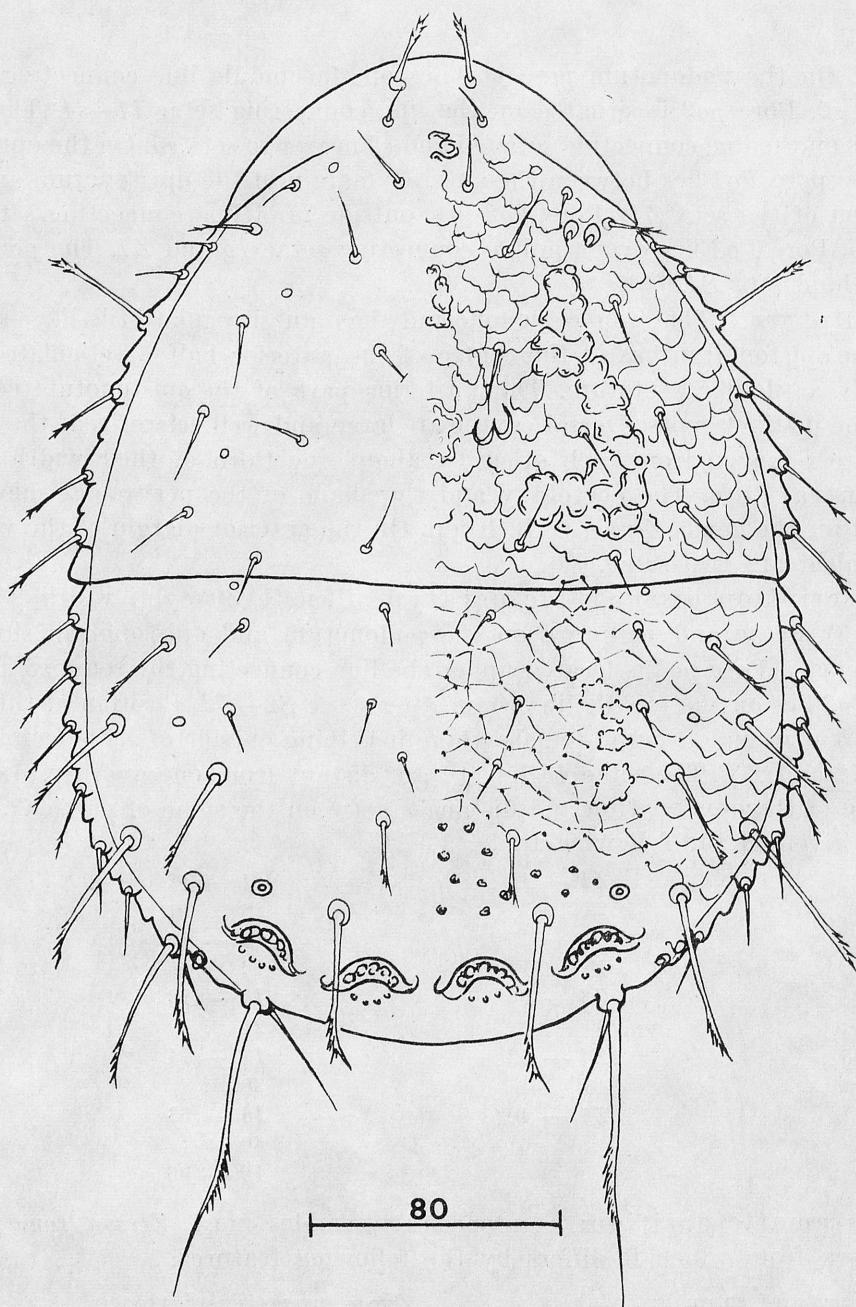


Fig. 13. *Zircon szeptyckii* sp. n. — dorsal side of the paratype of male from Kangwon-do

4. Long setae of the opistonotum, with exception of the seta *I6*, are feathered at the extremity.
4. Long setae of the opistonotum have bilateral filaments some one third from the termination of the setae.

Locality. Kymgang-san, southern slope of Manmur-san Mt., 550 m a.s.l. Mixed forest on waterside of a stream, litter; 18 VI 1974, leg. A. SZEPTYCKI. Holotype (♀) and paratypes (5♀♀, 1 ♂) in the collection of the Department of Animal Morphology.

*Zercon asaphus* sp. n.

Description of the holotype. Female. Length 480  $\mu$ m, width 380  $\mu$ m.

Dorsal side (fig. 14). Setae. On the podonotum seta *i1* feathered, *i3* and *i4* pilose, the remaining setae of this row smooth. Seta *z1* feathered, *z2* smooth. In the row *s* all setae are smooth. Among the marginal setae of the podonotum, setae *r1*—*r2* feathered, the remaining setae feathered with hyaline ending. On the opistonotum setae *I1*—*I2* delicately pilose. Seta *I4* with hyaline ending not reaches to the insertion of seta *I5*. The seta *I5* long with hyaline ending not reaches to the posterior margin of the opistonotum. Seta *I6* similar to *I5* and being 126  $\mu$ m away from one another. Seta *Z1* short and delicately pilose. Seta *Z2* is absent. Setae *Z3*—*Z4* with hyaline endings, the seta *Z3* not reaches to the base of seta *Z4*. Seta *Z5* smooth; the distance between seta *Z5* and *I6* is 26  $\mu$ m. All setae in the row *S* with hyaline ending. *S1* is shortest among all setae of this row and not reaches to the margin of the opistonotum. Distances between setae in the row *S* are equal. Marginal setae of the opistonotum are smooth. Lengths of setae of the opistonotum and distances between the setae of particular rows in  $\mu$ m given in the following table:

<i>S1</i> — 24	<i>Z1</i> — 20	<i>I1</i> — 20
60		30
<i>S2</i> — 40	80	<i>I2</i> — 25
60		40
<i>S3</i> — 50	<i>Z3</i> — 50	<i>I3</i>
60	74	46
<i>S4</i> — 60	<i>Z4</i> — 60	<i>I4</i> — 30
	70	52
	<i>Z5</i> — 36	<i>I5</i> — 60
		70
		<i>I6</i> — 60

Pores. On the podonotum the pore *po1* shifts toward the insertion of seta *s1*. The pore *po2* lies under the line connecting setae *i4*—*s4*. The pore *po3* lies under the line connecting setae *s5*—*z1*. On the opistonotum the pore *Po1* lies between the anterior margin of the opistonotum and the insertion of seta *Z1*. Pore *Po2* lies between the setae *Z1* and *Z3*. The pore *Po3* lies inside of the line connecting setae *Z3* and *Z4* near to the seta *Z4* and away from it by 3 diameters. The pore *Po4* lies behind seta *S4*.



**Sculpture.** The whole podonotum has an irregular tile-like sculpture. On the opistonotum tile-like sculpture reaches to the base of seta *I4*, the remaining parts of the opistonotum are smooth. Dorsal cavities distinct and well sclerotized.

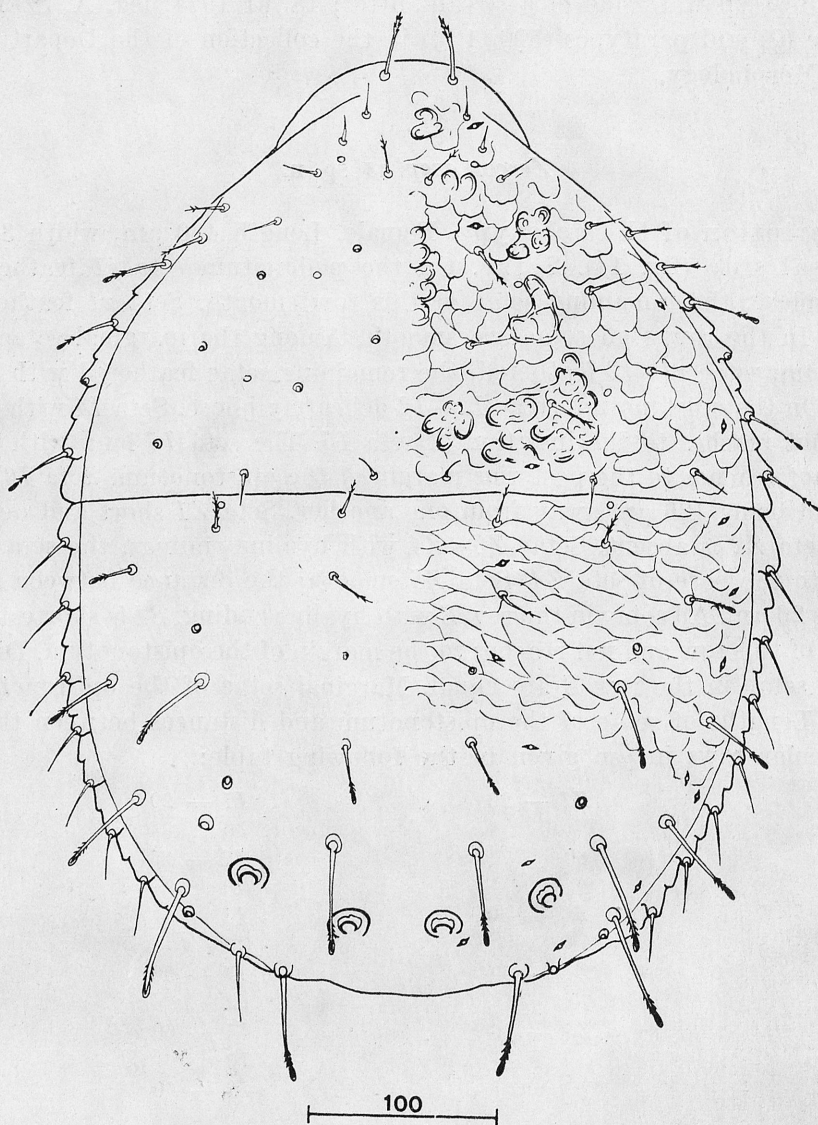


Fig. 14. *Zercon asaphus* sp. n. — dorsal side of the holotype from Janggang-do

**Ventral side.** The chetotaxy and the shape of the peritremal shield are typical for the genus *Zercon* C. L. KOCH. On the anterior margin of the ventro-anal shield there are 4 setae.

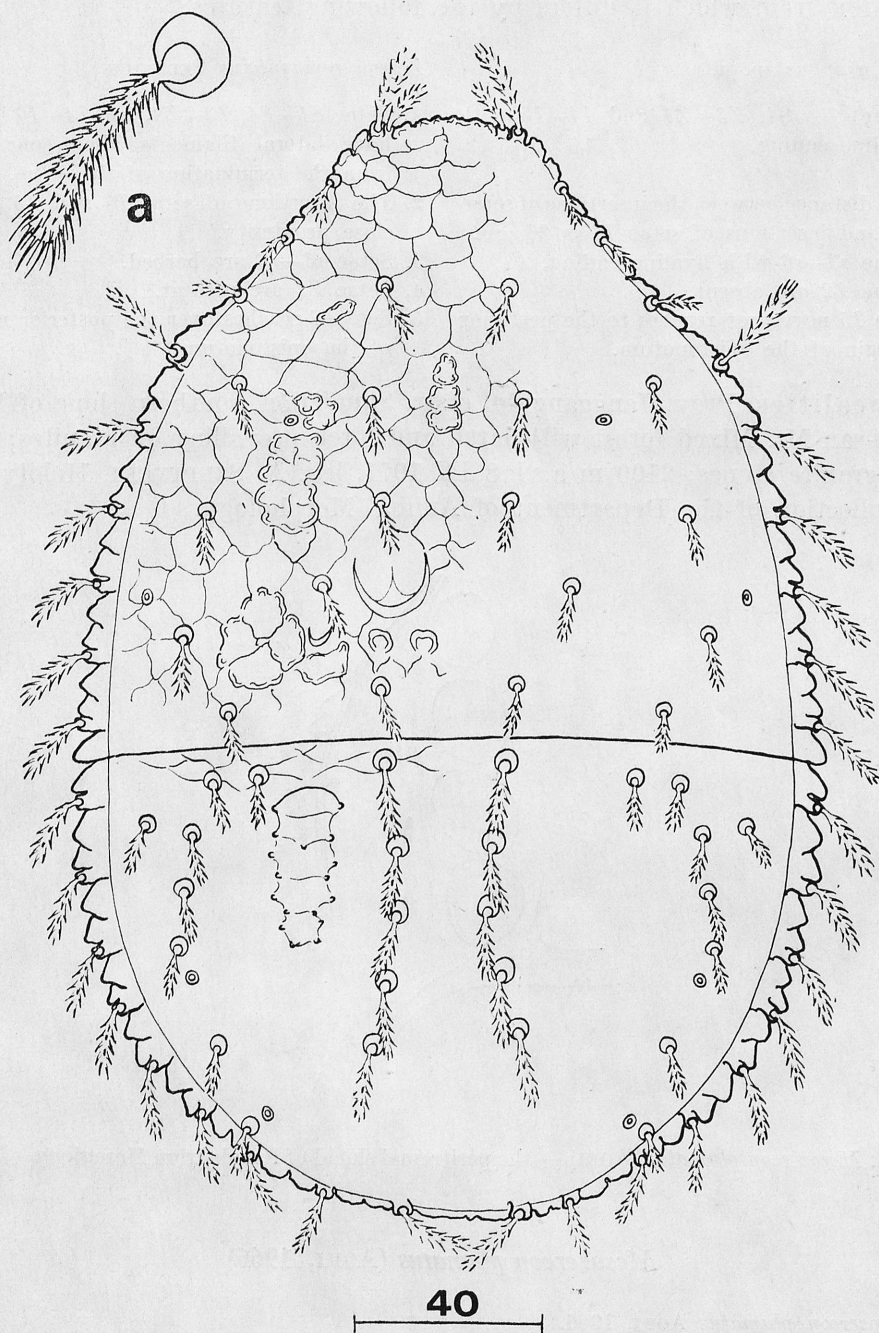


Fig. 15. *Mesozercon plumatus* (AOKI) — dorsal side of female from Hamgjong — pukto, and seta I6 (a)

Systematic position: This species resembles most *Zercon romagniolus* SELLNICK from which it differs by the following features:

*Zercon asaphus* sp. n.

1. Setae *S1—S4*, *Z3—Z4* and *I4—I6* with hyaline ending.
2. The distance between the insertions of setae *Z5* and insertions of setae *I6* is 26  $\mu\text{m}$ .
3. Setae *r3—r6* with hyaline ending.
4. Setae *Z2* are absent.
5. Seta *I5* never not reaches to the posterior margin of the opistonotum.

*Zercon romagniolus* SELLNICK

1. Setae *S1—S4*, *Z3—Z4*, and *I4—I6* barbed have lateral filaments about one third from the termination of the setae.
2. The insertions of setae *I6* and *Z5* are in close proximity.
3. Setae *r3—r6* are barbed.
4. Setae *Z2* are present.
5. Seta *I5* reaches over the posterior margin of the opistonotum.

Localities. Prov. Janggang-do, distr. Samdžijön, southern slope of Namphode-san Mt. Mixed forest with larch and birch prevailing on granites; moss from granite stones: 2100 m a.s.l. 8 IX 1971, leg. A. SZEPTYCKI. Holotype in the collection of the Department of Animal Morphology.

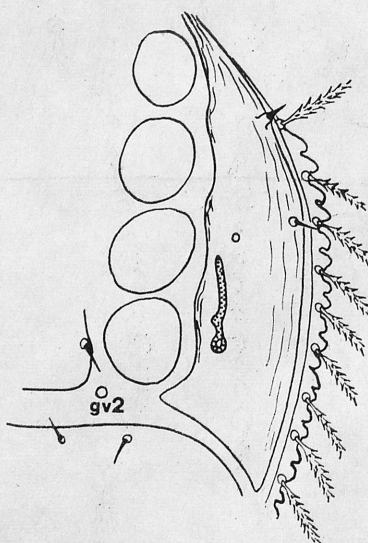


Fig. 16. *Mesozercon plumatus* (AOKI) — the peritremal shield of female from Hamgjong — pukto

*Mesozercon plumatus* (AOKI, 1966)

*Prozercon plumatus* AOKI, 1966.

Locality. Hamgjong-pukto. Slope of Kvanmo-bong Mt. from side of village Onpho-ri. Canyon of the stream Džuyr-čhön, near a waterfall; oak wood with great participation of *Kalopanax pictum*; 1300 m a.s.l., litter and rotting wood. Leg. A. SZEPTYCKI, 2 ♀♀ (in author's collection).



Two specimens of the species *Prozercon plumatus* AOKI, 1966 found supplied a sound basis for transferring this species into the genus *Mesozzercon* BŁASZAK, 1975. In the species *Prozercon plumatus* AOKI, 1966 the peritremal shields are extended posteriorly, especially the lateral external end which reaches up and over the setae *R3* (Fig. 16). These shields are similar to those of the genera *Prozercon* SELLNICK, *Parazercon* TRÄGÅRDH and *Mesozzercon* BŁASZAK. On the peri-

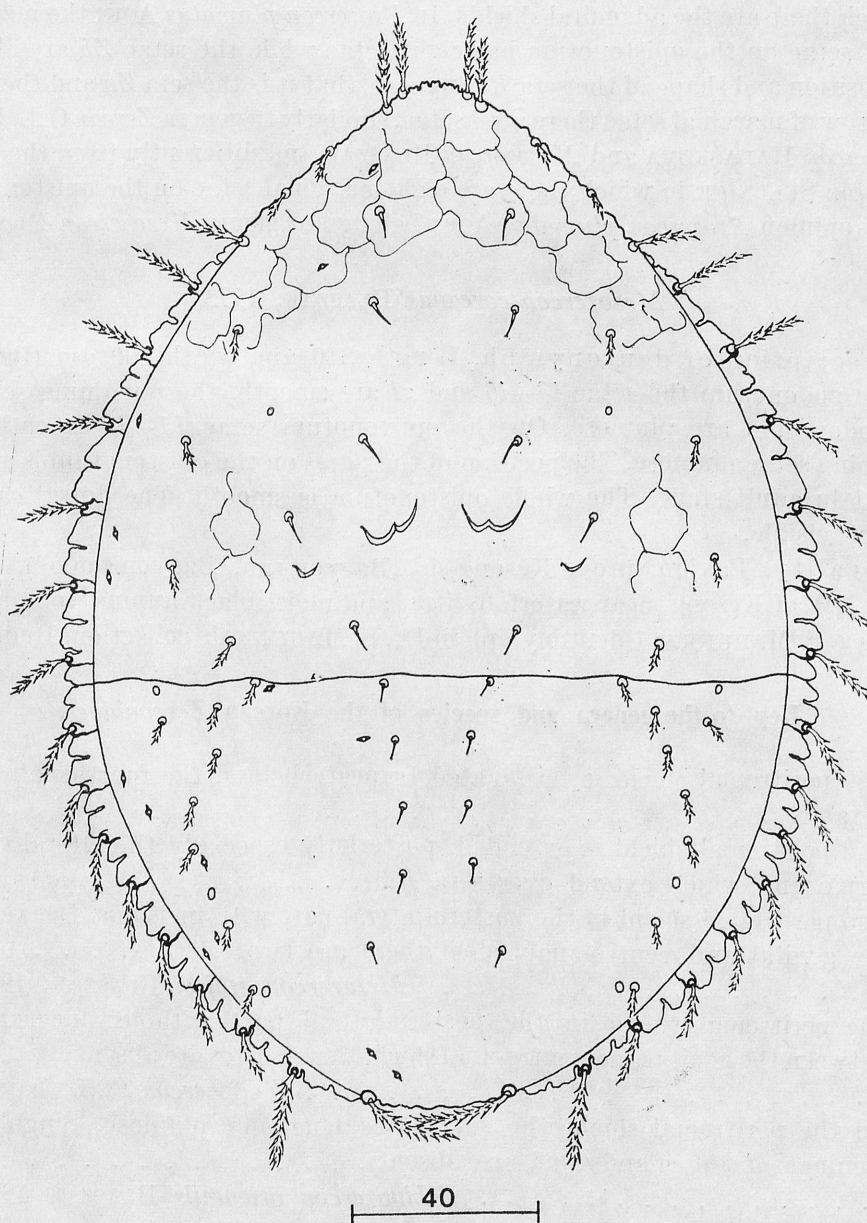


Fig. 17. *Mesozzercon coreanus* BŁASZAK — dorsal side of deutonymph from Kesong-si

tremal shield in this species there are two setae *p1* and *p2* short and smooth respectively. They are similar to those of *Prozercon* SELLNICK and *Mesozzercon* BŁASZAK, but differ from those of *Parazercon* TRÄGÅRDH in which there are three setae. In *Prozercon plumatus* AOKI there is a single opening of the glands *gv2* similar to that of the genera *Mixozzercon* HALAŠKOVÁ and *Mesozzercon* BŁASZAK but different from the genus *Prozercon* SELLNICK in which the single opening of the glands *gv2* is absent, and differ from the genus *Parazercon* TRÄGÅRDH in which there are the adgenital shields. In *Prozercon plumatus* AOKI the marginal row of setae on the opistonotum has eight setae while the setae *Z5* are absent. The position and shape of the seta *R8* suggests that it is the seta *Z5* and therefore in the row of marginal setae there are 7 setae, similarly to genera *Zercon* C. L. KOCH, *Mixozzercon* HALAŠKOVÁ and *Mesozzercon* BŁASZAK and differently from the genus *Prozercon* SELLNICK in which there are eight marginal setae on the opistonotum. In my opinion *Prozercon plumatus* AOKI belongs to genus *Mesozzercon* BŁASZAK.

### *Mesozzercon coreanus* BŁASZAK, 1975

Description of deutonymph. Length 210  $\mu$ m, width 160  $\mu$ m (fig. 17). On the podonotum the setae *i3—i6* and *z1* are smooth, the remaining setae of the podonotum are plumose. On the opistonotum setae *I1—I5* smooth, the remaining setae plumose. The position of the pores on the opistonotum is similar to that in adult stage. The whole opistonotum is smooth. The dorsal cavities are not visible.

Locality. Pakjon, prov. Kesong-si („Bagyon-san, Bagyon-popo”), about 30 km NW of Kesong, near waterfall, litter and moist black humus from diverse sites, leg. S. MAHUNKA; 1 deutonymph in Dr. S. MAHUNKA's collection, Budapest.

### Key to the genera and species of the Korean *Zerconidae*

1. The peritremal shield is terminated truncate behind the fourth pair of coxae . . . . . 2
- The peritremal shield is extended, posteriorly especially the lateral external end which extend over seta *R3* . . . . . 3
2. The peritremal shield in the postero-lateral part with incisions. Between the genital and ventro-anal shield there are two sclerites. . . . .  
*Metazercon athiasi* BŁASZAK, 1975
- The peritremal shield in the postero-lateral part without incisions. Between the genital and ventro-anal shield the sclerites are absent . . . . .  
*Zercon* C. L. KOCH 6
3. On the peritremal shield the seta *p1* is long and plumose. Singular openings of the glands *gv2* are absent . . . . .  
*Echinozercon orientalis* BŁASZAK 1975
- On the peritremal shield the seta *p1* is short and smooth. Singular openings of the glands *gv2* are present . . . . . 4

4. The seta *p2* is long and pilose. The peritremal shield with deep incision which reaches to the level of seta *r6* . . . . . *Xenozercon glaber* BŁASZAK, 1976
- The seta *p2* is short and smooth. The peritremal shield without any incision . . . . . *Mesozercon* BŁASZAK 5
5. The setae *Z1* and *Z2* are in the same distance from the anterior margin of the opistonotum . . . . . *Mesozercon plumatus* (AOKI, 1966)
- The seta *Z2* lies twice as far from the anterior margin of the opistonotum as the seta *Z1* . . . . . *Mesozercon coreanus* BŁASZAK, 1975
6. The pore *Po3* lies between the *Z* and *S* rows of setae. . . . . *Zercon caenolestes* sp. n.
- The pore *Po3* lies between the *Z* and *I* rows of setae . . . . . 7
7. On the anterior margin of the ventro-anal shield there are 2 setae. . . . . *Zercon szeptyckii* sp. n.
- On the anterior margin of the ventro-anal shield there are 4 setae 8
8. The seta *I5* equal to the seta *I1*. . . . . *Zercon ectopicus* sp. n.
- The seta *I5* is at least twice as long as the seta *I1* . . . . . 9
9. The seta *I5* is twice as long as the seta *I1* . . . . . *Zercon pawlowskii* sp. n.
- The seta *I5* is three times longer than seta *I1* . . . . . *Zercon asaphus* sp. n.

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## STRESZCZENIE

Autor podaje opisy 5 nowych gatunków roztoczy z rodzaju *Zercon* C. L. KOCH zebranych w Korei Północnej przez ekspedycje Zakładu Zoologii Systematycznej i Doświadczalnej PAN w Krakowie w latach 1971 i 1974 oraz przez pierwszą ekspedycję węgierską w 1970 r. Ponadto autor przeprowadza dyskusję nad gatunkiem *Prozercon plumatus* AOKI zaliczając go do rodzaju *Mesozercon* BŁASZAK, zamieszcza opis deutonymfy *Mesozercon coreanus* BŁASZ., a także klucz do postaci dorosłych wszystkich znanych dotychczas gatunków koreańskich *Zerconidae*.

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