

A NEW RECORD OF *JOHNSTONIANA* GEORGE, 1909 (ACARI: JOHNSTONIANIDAE) FROM TURKEY

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ABSTRACT: *Johnstoniana rapax* Wendt et Eggers, 1994 is described based on active postlarval forms. This is the second species of *Johnstoniana* from Turkey. Also, morphological features and zoogeographical distributions are given here.

KEY WORDS: Acari, Johnstonianidae, *Johnstoniana*, Turkey.

The family Johnstonianidae created by Thor, 1935 and Newell, 1957 occurred two subfamilies; Charadracarinae Newell, 1960 and Johnstonianinae Thor, 1935. *Johnstoniana* genus has 13 species and five of these species nomen dobiium (Makol & Wohltmann, 2012). This genus has been reported only one species from Turkey (Sevsay & Özkan 2005).

In this paper adults and deutonymphs of *Johnstoniana rapax* Wendt et Eggers, 1994 described and illustrated which is collected from Giresun, Turkey.

MATERIAL AND METHODS

Active postlarval forms were collected directly from the soil surface and extracted using Berlese funnels The material was preserved in 70% ethyl alcohol. Specimens for light microscope studies were fixed on slides in Hoyer's medium (Krantz & Walter, 2009). Measurements were taken and drawings made under a Leica DM 4000 microscope with differential interference contrast and phase contrast. For morphological terminology see by Wohltmann et al. (2004) followed in the text. All measurements are given in micrometers (µm). All specimens examined are deposited in the Biology Department of Erzincan University, Turkey.

RESULTS

Family Johnstonianidae Thor, 1935

Subfamily Johnstonianinae Thor, 1935

Genus *Johnstoniana* George, 1909

Type sp. *Johnstoniana errans* (Johnston, 1852)

Johnstoniana rapax Wendt et Eggers, 1994

Adult. Standart measurements in Table 1. Relatively large Johnstonianidae. Colour in life light to dark red or brown. Body length is 400-410 and width 230-248.

Gnathosoma. Palp tibia with odontus and bifid basidont (Fig. 1). Palp tarsus with 3-5 solenidia, 3-7 eupathidia and lots of nonspecialized setae (Fig. 2). Chelicera is typical and internal edge of cheliceral nude and with protrusion close to end (Fig. 3).

Idiosoma. Ovoid, scutum triangular with anterior naso, bears anterior (ASens) and posterior (PSens) sensillae. 6-18 non-specialized setae placed laterally to posterior sensillae. Crista metopica widened at level of sensillae (Fig. 4). Two pairs of stalked eyes placed on level of posterior sensillae. Anterior lens slightly larger than posterior lens. Dorsal setae (DS) uniform, curved and pointed to the end, set on rounded, slightly asymmetrical tubercles (Fig. 5).

Genital opening with three pairs of acetabula surrounded by epivalves and centrovalves with smooth setae (Fig. 6). Anal sclerites with smooth setae.

Legs with completely separated basifemur and telofemur. All non-specialized setae smooth and short barbs. Eupathidia and solenidia present on all leg segments except for coxa I-IV. Tarsus I have not barbed setae (Fig. 7). Tarsus II with 2-4 club-shaped solenidia (ω) (Fig. 8-9).

Male. As female, but genital opening differentiated and shorter than female.

Deutonymph. Similar to adult, but smaller than adult. Scutum with 6-14 non-specialized setae and 2 pairs of trichobothria. Dorsal setae (DS) as in adults uniform, curved, pointed to the end and set on flat, asymmetrical sclerites. Genital opening with two pairs of acetabula. Tarsus I have not barbed setae. Tarsus II with 1-2 club-shaped solenidia (ω).

Specimens examined. 24.11.2013. 1 adult, 1 female, 3 deutonymph. Mossy soil, N40° 43' 28" E39° 02' 40" 730 m. Taşlıca village, Doğankent, Giresun, Turkey. Leg. S. Adil. 15.03.2014, 1 adult, 1 male. Mossy-lungwort soil. N40° 56' 35" E38° 51' 13" 100 m. Tirebolu, Giresun, Turkey. Leg. S. Adil.

Distribution. Finland, Germany, Poland, The Netherlands (Makol & Wohltmann, 2012). New for Turkish fauna.

DISCUSSION

Johnstoniana rapax easily distinguished from other species of the genus by having 1-2 eupathidia on basifemur IV and absent setulose setae on tarsus I. Turkish specimens are similar to European specimens crista metopica's structure and number of solenidia on tarsus II.

Turkish specimens differs from European specimens (Wohltmann et al., 2004) some morphological property: PaTi/CpPp ratio (adult) (Turkish specimens 5.2-6, European specimens 3.8-4.6); Dorsal setae (DS) structure (while in European specimens dorsal setae tiny setulae, Turkish specimens nude) and length (Turkish specimens 36-70, European specimens 52-76). We suppose that these morphological differences base on geographical properties.

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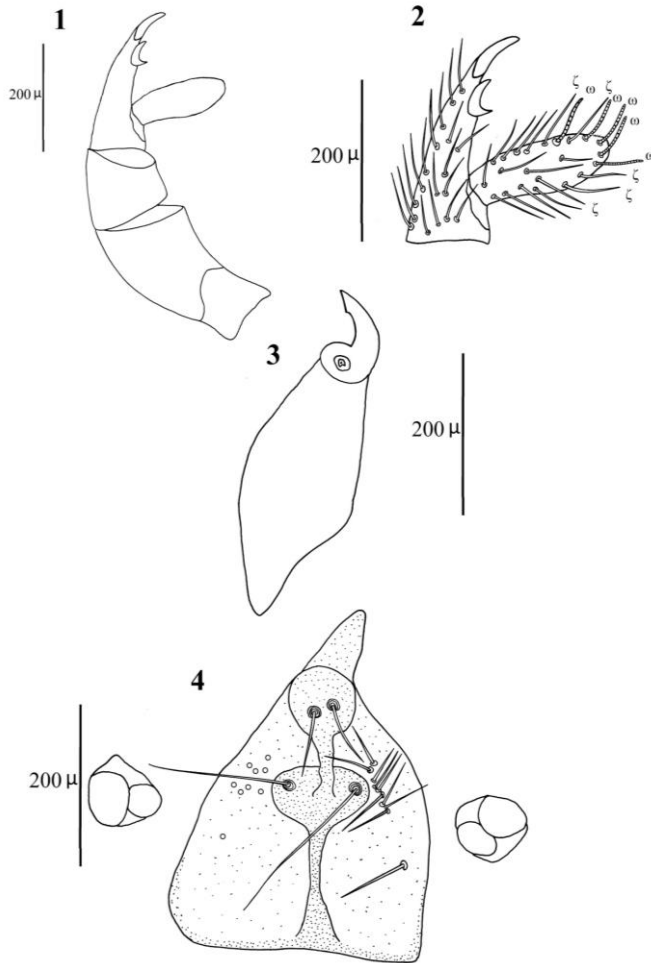
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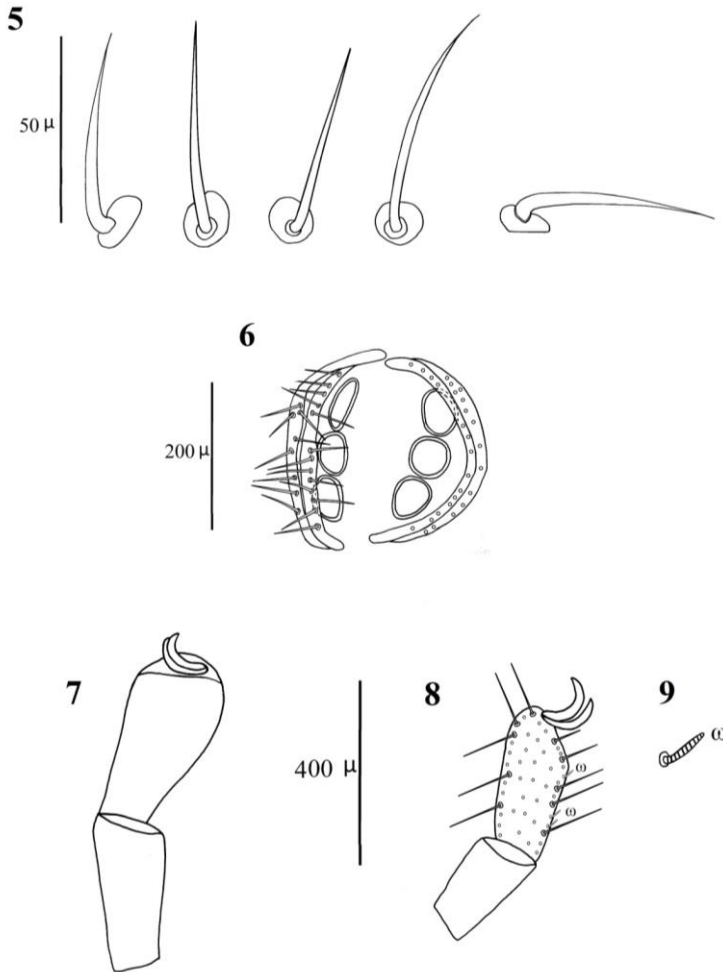
Table 1. Morphometric data on postlarval forms of *Johnstoniana rapax*.

| Characters | <i>J. rapax</i> Female (n=1) | <i>J. rapax</i> Adult (n=1) | <i>J. rapax</i> Male (n=1) | <i>J. rapax</i> Deutonymph (n=3) min.-max. |
|------------|---------------------------------|--------------------------------|-------------------------------|--|
| L Scutum | 346 | 410 | 285 | 210-261 |
| W Scutum | 271 | 248 | 233 | 140-204 |
| A Sens | 95 | 72 | 77 | 60-77 |
| P Sens | 183 | 182 | 165 | 122-160 |
| SBA | 27 | 24 | 19 | 21-24 |
| SBP | 82 | 83 | 70 | 23-54 |
| ISD | 83 | 101 | 68 | 59-71 |
| DS mn.-mx. | 35-60 | 36-70 | 30-50 | 40-65 |
| VS mn.-mx. | 33-50 | 35-65 | 35-60 | 30-50 |
| L Gop | 274 | 273 | 230 | 83-88 |
| Cx I | 222 | 264 | 204 | 151-162 |
| Tr I | 137 | 148 | 115 | 90-105 |
| Bf I | 245 | 283 | 212 | 133-171 |
| Tf I | 220 | 280 | 187 | 129-162 |
| Ge I | 258 | 328 | 221 | 143-188 |
| Ti I | 306 | 363 | 259 | 133-196 |
| Ta I | 381 | 408 | 320 | 171-247 |
| Cx II | 223 | 289 | 198 | 164-175 |
| Tr II | 106 | 134 | 92 | 74-95 |
| Bf II | 188 | 215 | 148 | 124-141 |
| Tf II | 147 | 200 | 111 | 92-112 |
| Ge II | 161 | 211 | 133 | 112-129 |
| Ti II | 200 | 250 | 158 | 125-134 |
| Ta II | 297 | 326 | 250 | 203-224 |
| Cx III | 263 | 250 | 208 | 164-257 |
| Tr III | 140 | 139 | 105 | 87-138 |
| Bf III | 208 | 234 | 162 | 114-136 |
| Tf III | 174 | 205 | 144 | 106-133 |
| Ge III | 200 | 232 | 166 | 115-148 |
| Ti III | 260 | 283 | 221 | 130-155 |
| Ta III | 337 | 378 | 286 | 211-232 |
| Cx IV | 316 | 301 | 250 | 176-190 |
| Tr IV | 238 | 288 | 144 | 142-159 |
| Bf IV | 273 | 293 | 231 | 144-155 |
| Tf IV | 281 | 275 | 216 | 125-138 |
| Ge IV | 317 | 329 | 265 | 148-176 |
| Ti IV | 414 | 413 | 364 | 194-210 |
| Ta IV | 423 | 442 | 365 | 243-270 |

| | | | | |
|------------------|-----|-----|-----|---------|
| PaFe | 274 | 246 | 225 | 144-156 |
| PaGe | 129 | 143 | 97 | 74-83 |
| PaTi | 199 | 241 | 170 | 137-146 |
| PaTa | 147 | 176 | 127 | 96-106 |
| CpPp | 38 | 46 | 28 | 23-29 |
| PaTi/CpPp | 5:2 | 5:2 | 6 | 5-5.9 |
| odontus | 81 | 70 | 65 | 49-58 |
| basidont | 58 | 50 | 48 | 30-35 |



Figures: 1-4: *Johnstoniana rapax* Adult 1. Palp general view setae omitted 2. Palp tibial-tarsus 3. Cheliser 4. Crista metopica region.



Figures 5-8: *Johnstoniana rapax* Adult 5. Dorsal setae (DS) 6. Genital opening 7. Leg I tibia-tarsus setae omitted 8. Leg II tibia-tarsus 9. Club-shaped solenidia(ω).