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Subscriptions: Year 2021 (Volume 61): 450 €
http://www1.montpellier.inra.fr/CBGP/acarologia/subscribe.php
Previous volumes (2010-2020): 250 € / year (4 issues)
Acarologia, CBGP, CS 30016, 34988 MONTFERRIER-sur-LEZ Cedex, France
ISSN 0044-586X (print), ISSN 2107-7207 (electronic)

The digitalization of Acarologia papers prior to 2000 was supported by Agropolis Fondation under the reference ID 1500-024 through the « Investissements d’avenir » programme (Labex Agro: ANR-10-LABX-0001-01)

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STUDIES OF INDIAN ERYTHRAEOIDEA (Acarina) 1

BY

Nandini S. Khot 2

INTRODUCTION.

Mites of the superfamily Erythraeoidae are bright orange or red in color. They are parasitic generally on arthropods in the larval stage, while post larval stages are predaceous as free living nymphs and adults. Larvae are heteromorphic, and so far the adult and larval classification has been dealt with separately.

Specimens were collected from different parts of India (Plate 1). Systematic studies have brought to light there new genera and thirty new species. In addition, nine previously described species were recorded for the first time from India.

Recently, in his complete review, Southcott (1961) recognized two families, namely Erythraeidae and Smaridiidae, under the superfamily Erythraeoidae and the family Calyptostomidae was raised to superfamily level. I have followed Southcott's system of classification while studying Indian Erythraeoidae.

Southcott (1961) described five subfamilies under the family Erythraeidae. Four of them, viz. Erythraeinae, Balaustiinae, Leptinae and Callidosomatinae are represented in the writer's collection.

Series I — Studies on subfamily Erythraeinae Southcott.

Southcott (1961) defined the subfamily Erythraeinae as follows; "Erythraeid mites with two eyes on each side. Adult and nymph normally with crista (exceptionally absent — Neosmaris Hirst, 1926). Anterior sensillary area of crista placed dorsally at the anterior pole of the propodosoma."

Mites of two genera, Paraerythraeus and Erythraeus, are in my collection.

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Genus *Paraerythraeus* (Southcott)

Adults and nymphs of the genus possess two eyes on each side, with highly modified asymmetrically serrate setae on the legs, with a row of short conical spines on the ventral flexor side of the palpal-tibia distally and some similarly placed on palpal genu. Palpal claw with single basal blunt tooth.

One species, *Paraerythraeus gregoryi* Southcott, was described under this genus.
by Southcott (1946). Four species in the writer’s collection do not agree with P. gregoryri Southcott, hence are described as new species.

**Key to the species of Paraerythraeus of India.**

1. Anterior sensillary area with ten to twelve nonsensillary setae ..........................  
   Anterior sensillary area with three to five nonsensillary setae ..........................  
   Anterior sensillary area with three nonsensillary setae. Leg I little longer than  
   the body........................................  
   Anterior sensillary area with five nonsensillary setae.  
   Anterior sensillary area with three nonsensillary setae. Leg I two to three times  
   longer than the body........................................  

2. Anterior sensillary area with three nonsensillary setae.  
   Asymmetrical specialized setae on legs pointed. Leg IV three times longer than  
   the body........................................  
   Asymmetrical setae of legs blunt. Leg IV little less than two times as long as  
   the body........................................  

**Paraerythraeus delhiensis**, sp. n.  
(Plate No. 2).

Large blackish red mite, quadrate in shape, 3.25 mm. long and 2.13 mm. wide. Crista linear 0.91 mm. in length, faint orange in color in live specimen; anterior sensillary area round, situated almost on the gnathosoma, with twelve non-sensillary strong, blunt, pigmented and ciliated setae situated along the margin; these setae measure 0.325 mm., 0.26 mm., 0.156 mm., 0.169 mm. and 0.104 mm., respectively when considered in pairs from anterior margin towards the posterior one, a pair of smooth, slender pointed sensillary setae 0.091 mm. in length situated in the middle of the sensillary area. Posterior sensillary area possesses a pair of smooth, delicate, pointed, 0.117 mm. long, sensillary setae. Dorsal setae (Plate 2-E) ranging from 0.039-0.052 mm. in length, having a prominent black keel and small black projecting ciliations. Dorsal cuticle with reticulated striations. Eyes bright red in live specimens, 1 + 1 on either side dorsally over the coxae I and II. Ventral setae needle-like, small pointed and lightly setose; no specialized setae on venter. Palpi (Plate 2-B) as figured with seven small, blunt, pigmented, conical spines on ventral flexor edge of tibia. Of these conical spines, four are situated distally in a line and three remaining in a group at the base of tibia, ventral edge of these spines pigmented, serrated and dorsal surface smooth, palpal genu with six to seven conical spines of same type; palpal claw, triangular with small projection at the ventral base; palpal tarsus pear-shaped with a number of smooth pointed setae. Legs long, measuring I-5.38 mm., II-4.16 mm., III-4.87 mm. and IV-7.57 mm. Leg setae of two types, specialized asymmetrical serrated setae and lightly setose setae (Plate No. 2, c). Tarsus and metatarsi of leg I usually with simple setae; tarsus I with thick clothing of setae with ventral ciliations along the margin.
Tarsus I and IV 0.78 mm. long and 0.34 mm. and 0.13 mm. wide, respectively. Tarsi II and III 0.143 mm. wide and 0.585 mm. long.

**Locality**: I.A.R.I. Orchard (Delhi) 2nd June, 1959; in debris, collected by the writer.

Paraerythraeus serratociliatus, sp. n.

Roundish body with deep orange color; 1.053 mm. long and 0.548 mm. wide. Dorsal setae 0.49 mm. long, clavate, and pigmented. Crista 0.871 mm. long and stout, with anterior sensillary area situated on the anterior edge of the dorsum, anterior sensillary area roundish with a pair of fine 0.103 mm. long sensillary setae and three, non-sensillary, stout, pointed, lightly setose setae, middle one 0.156 mm. long situated on anterior margin and two 0.148 mm. long, little posterior to it; posterior sensillary area pear-shaped with a fine, slender, pointed, smooth, sensillary, 0.129 mm. long setae. Eyes r + r on either side. Palpi with strong tibial claw, three conical spines situated along the ventral flexor edge of palpal tibia and no such setae on palpal genu, palpal tarsus leaf-shaped with pointed smooth setae. Legs moderately long, I-1.963 mm., II-1.937 mm., III-1.77 mm. and IV-2.67 mm. Specialized setae on legs, blunt with rounded cup-like setations.

**Locality**: I.A.R.I. Orchard, 27th October, 1959, in grass. Collected by the writer.

Paraerythraeus indicus, sp. n.

(Plate No. 3).

Medium sized orange red mite, 1.42 mm. long and 0.702 mm. wide. Crista 0.364 mm. long; anterior sensillary area with five non-sensillary stout pointed setae, the anterior most and to little behind it having same length 0.208 mm. and the posterior most pair 0.117 mm. long, a pair of fine smooth 0.099 mm. long sensillary setae situated in the middle of the sensillary area, posterior sensillary area with longer pair of sensilla setae 0.126 mm. long. Eyes two on either side behind the middle of crista. Dorsal setae ranging from 0.021 — 0.054 mm. long, pigmented clavate dorsally convex with rows of adnate serrations, ventrally with ciliated keel and rows of fine ciliaions on the general surface. Ventral setae not modified, finely serrated, the setae on anterior ventral portion slender than that on the posterior venter, which resembles somewhat dorsal setae. Palpi (Plate No. 3, c) distally with three conical spines along the ventral flexor edge of the palpal tibia, these spines having rough surface, palpal genu with two such spines on the inner margin. Legs lighter in color as compared to the body in living specimen. Legs long I-3.627 mm., II-2.06 mm., III-2.56 mm. and IV-4.05 mm. Specialized setae on legs pointed. Tarsus I with pointed serrate setae on the inner margin while
the outer margin with simple setae; four small thumb-like sensillary setae (Plate 3D), situated in outer ventral half of the tarsus.

**Locality:** Gwalior (Madhya Pradesh); 12th April, 1959, in debris. Collected by Dr. P. O. Ritcher.

*Paraerythraeus elegans,* sp. n.

(Plate No. 4).

Orange red mite with bright red eyes, front legs deeper in color in living specimen. Body oval 1.22 mm. long and 0.599 mm. wide. Crista 0.286 mm. long having a round anterior sensillary area situated almost on the dorsal anterior margin of the body, with five non-sensillary stout pigmented setae. The middle anterior most non-sensillary seta longest 0.156 mm. long, posterior ones situated on the sides of sensillary setae, two pairs 0.13 mm. and 0.065 mm. long, respectively; a pair of sensillary setae, fine long pointed 0.494 mm. in length situated in the middle of the area. Dorsal setae clavate pigmented with prominent keel ranging from 0.104 mm. to 0.221 mm. in length. Eyes two on either side of crista dorsally above the coxa first and second. Ventral setae needle-like 0.06 mm. long. Legs moderately long I-2.16 mm., II-1.49 mm., III-1.71 mm. and IV-2.71 mm. in length, specialized setae (Plate No. 4, F) blunt, ranging from 0.009-0.028 mm. in length with triangular setations as shown in the figure, the other type of setae with pigmented longitudinal striations pointed spine-like ranging from 0.072-0.081 mm. in length. Tarsus I-0.286 mm. long and 0.065 mm. high with a strong papilla having a pointed seta on it and bullet shaped sensillary setae at its base, tarsi without specialized leg setae. Palpi as figured (Plate No. 4, D) with three prominent spine-like conical setae on the flexor edge of the palpal tibia, no such setae on palpal genu.

**Locality:** I.A.R.I. Orchard, Delhi, 26th October, 1939, in debris; collected by the author.

*Genus Erythraeus* Latreille.

This genus includes large erythraeid mites with two eyes on each side. Crista present. Ventraly along the flexor edge palpal genu and tibia possess stout conical spines. Legs without modified serrate setae.

Two species of *Erythraeus* in collection do not resemble the species described under the genus so far. They are described as new species here.

**Key to the Indian species of Erythraeus:**

1. Legs IV about three times longer than the body. . . . *Erythraeus plumosus* sp. n.
   — Legs IV less than two times longer than the body. . . *Erythraeus orientalis* sp. n.
Erythraeus plumosus sp. n.
(Plate No. 5).

Yellowish red mite oval in shape, 1.89 mm. long and 0.715 mm. wide. Crista (Plate No. 5, B) linear 0.52 mm. in length extending dorsally up to the middle of coxae second and third; anterior sensillary area with pair of long tapering sensillary smooth setae 0.13 mm. long, situated in the middle of area, besides this seven non-sensillary setose stout setae situated around the sensillary setae. The posterior most middle non-sensillary seta being smallest 0.052 mm. long and with prominent ciliations than the rest, two pairs on either side of it measure 0.13 mm. while the anterior most 0.105 mm. long. Posterior sensillary area having a pair of sensillary setae 0.143 mm. long. Eyes 1+1 on either side of the crista. Dorsal setae (Plate No. 5, C) pigmented, clavate 0.026 mm. long, dorsally on the area behind the coxae I situated, longer setose seta 0.117 mm. in length differing in structure from normal dorsal setae. Ventral setae varying from 0.15-0.39 mm. lightly setose and not pigmented, setae on coxae more stouter. Palpi with five conical spines along the ventral flexor edge of the palp tibia distally and three more such conical spines placed on palpal genu, these conical spines possess fine saw-like pigmented serrations along the ventral curved margin, palpal tarsus oblong pear-shaped with number of pointed lightly setose setae. Legs long, I-3.24 mm., II-2.70 mm., III-3.25 mm., and IV-5.32 mm., clothing of legs with simple serrate setae (Plate No. 5, F). Tarsus first 0.208 mm. in height and 0.572 mm. in length, having ventral inner margin with a thick coating of setae with ciliations only on inner margin, rest of the part of the tarsus with normal leg setae and fine smooth medium-sized sensory setae.

Locality: I.A.R.I. Orchard, Delhi, 12th January, 1960; in grass, collected by the writer.

Remark: This species shows affinity to Erythraeus nigriventris André (1962), but distinctly differs in type of dorsal setae and dimensions.

Erythraeus orientalis, sp. n.
(Plate No. 6).

Color blackish red with yellow legs and red tarsi in live specimen. Body roundish oval having length 2.68 mm. and width 1.59 mm. Dorsal setae (Plate No. 6, F) small, pigmented, clavate with prominent keel ranging 0.027-0.036 mm. in length. Crista (Plate No. 6, D) stout 0.52 mm. length with the anterior sensillary area squarish, having a pair of sensillary pointed setae 0.12 mm. in length, situated in the middle of area, besides this it possesses five non-sensillary setose setae, one situated in the middle of the posterior margin of area 0.052 mm. in length, the anterior
most pair and pair posterior to it measures 0.171 mm. and 0.12 mm. respectively. Posterior sensillary area roundish with a pair of smooth linear pointed 0.12 mm. in length. Legs with black pigmented lightly setose setae (Plate No. 6, C). No specialized setae on legs. Legs long, I-3.24 mm., II-2.70 mm., III-3.25 mm. and IV-5.32 mm. Tarsi first with number of pointed simple setae besides the normal leg setae and small, thumb-like sensillary setae, palpal tibia triangular with small, conical claw at the tip, the inner ventral flexor edge of the palpal tibia having five conical pigmented, spine-like setae and such but little longer, three and four on palpal genu.

*Locality*: Poona (Maharashtra); 15th May, 1959, on soil; collected by Mr. S. S. Khot.

*Remark*: Description and figures of *Erythraeus phalangoides* (de G.) given by Schweizer (1951) are comparable with this species but are distinctly different than the above mentioned in type of dorsal setae.

**Acknowledgements.**

I wish to express my gratitude to Doctors E. S. Narayanan, M. G. Ramadas Menon, B. R. Subba Rao, A. B. Joshi and T. K. Narayani for advice and help during this investigation.

I am grateful to Dr. Paul O. Ritcher and S. S. Khot for generously helping me to collect samples from different parts of India.

I am indebted to Dr. R. V. Southcott for giving valuable guidance and help during this work.

**References**


