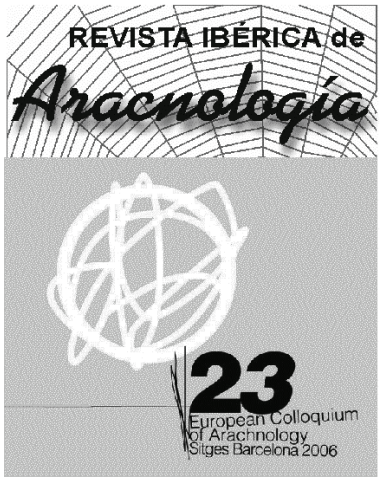

ARTÍCULO:

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Description of two Mygalomorph spiders from south India (Araneae: Barychelidae, Theraphosidae)

K. Sunil Jose & P. A. Sebastian

Abstract

Present paper describes two species of spiders discovered during a study on the diversity of spiders of Kerala state, India. These species belong to the genera *Sason* (Barychelidae) and *Annandaliella* (Theraphosidae). *Annandaliella ernakulamensis* new species discovered from Ernakulam is characterized by a tibial apophysis in the form of short broad lobe of comb-like series of stout black spines and a characteristically different stridulatory spines on the chelicerae. *Sason robustum* is a redescription of the species based on a new specimen. Both species are illustrated and fully described during the study. SEM studies were undertaken in A. ernakulamensis sp. nov.

Keywords: Theraphosidae, Barychelidae, Mygalomorph spiders, South India, *Sason robustum*, *Annandaliella ernakulamensis* sp. nov.

Taxonomy: *Annandaliella ernakulamensis* sp. nov.

Descripción de dos arañas Migalomorfas del sur de la India (Araneae: Barychelidae, Theraphosidae)

Resumen

En este trabajo se describen dos especies de arañas descubiertas durante un estudio sobre la diversidad de arañas en el estado de Kerala, India. Estas especies se incluyen dentro de los géneros *Sason* (Barychelidae) y *Annandaliella* (Theraphosidae). *Annandaliella ernakulamensis* nov. sp. fue descubierta en Ernakulam y se caracteriza por la presencia de una apófisis tibial en forma de lóbulo ancho y corto, una serie de espinas negras y robustas en forma de peine y por presentar en los quelíceros espinas estriduladoras características. La redescripción de *Sason robustum* está basada en un nuevo ejemplar de esta especie. Se describen e ilustran ambas especies. En A. *ernakulamensis* sp. nov. se han realizado estudios de microscopía electrónica de barrido.

Palabras clave: Theraphosidae, Barychelidae, Arañas migalomorfas, India del Sur, *Sason robustum*, *Annandaliella ernakulamensis* sp. nov.

Taxonomía: *Annandaliella ernakulamensis* sp. nov.

Introduction

Mygalomorph spiders of India are poorly studied and represented by only 66 species (Siliwal, 2005). Earliest studies of south Indian mygalomorph were conducted by Pocock (1895, 1899, 1900), he described nine species of mygalomorph spiders from south India. Gravely (1915, 1935) contributed significantly in enhancing the knowledge about mygalomorph spiders. Tikader (1977) described several new species from south India. Studies on *Poecilotheria* by Charpentier (2001) and Smith (2004) are the recent works on south Indian mygalomorphs. The twenty species of mygalamorph spiders presently known from south India are recorded by Cambridge, 1883; Gravely, 1915, 1935; Hirst, 1909; Pocock, 1895, 1899, 1900 and Simon, 1892.

In this paper we record the presence of two rare species, one new theraphosid of the genus *Annandaliella* and a rare barychelid, *Sason robustum*. Although some theraphosids are locally common, during the last 90 years no record of a barychelid is made in South India, and we consider a record of this species is relevant enough to merit taxonomic treatment.

Materials and methods

The present species was collected during a study on the diversity of spiders in Kerala. Spiders were collected by methods described by Tikader (1987). Collected spiders were preserved in 70% ethyl alcohol and studied under Stereomicrosocope, All measurements are in mm taken with an ocular micrometer. The status of the species was confirmed by referring to Gravely (1915) and Pocock (1900 & 1901). Scanning electron microscopic images were taken at IISC using JEOL-JSM-5600 scanning electron microscope at an accelerating voltage of 4-10 V. The type specimens are now at the Arachnological Collections of Department of Zoology, Sacred Heart College, Thevara; which will in due course be deposited at the National Collections of Zoological Survey of India, Kolkata.

Abbreviations used are as follows: AME = Anterior median eyes, ALE = Anterior lateral eyes, PME = Posterior median eyes, PLE = Posterior lateral eyes, L = Length, W = Width, H = Height, IISC = Indian Institute of Science.

Results

Annandaliella ernakulamensis new species

(Fig.1 A-H, Fig. 2 A-B)

DIAGNOSIS: Similar to *A. travancorica* Hirst, 1909, distinguished by: larger and rounded AME, obliquely postioned ALE; inner margin of chelicerae with 12 teeth on right and 11 teeth on left, three peg like setae characteristic of the genus on chelicerae, tibial apophysis comb like with stout black spines, long and tapering embolus without a lipped keel at apical end.

TYPE: Holotype - male, Bhoothathankettu forests, Ernakulam district, (10˚06'09"N, 76˚42'13"E), coll. Sunil Jose K. 23rd Mar.2001, Deposited at the Arachnological collection of Department of Zoology, Sacred Heart College, Cochin, India.

ETYMOLOGY: Species name refers to name of Ernakulam district in Kerala state, India.

DESCRIPTION: - Coloration generally reddish brown, carapace with pairs of darkened bands radiating from fovea towards ocular area and leg coxae. A longitudinal light reddish yellow median band between eyes and fovea. Legs without any distinct markings or colour pattern. Abdomen uniformly reddish brown without any markings (Fig. 1A); ventrum clothed with hairs, pale at the anterior half, posterior half more darker; a pair of pale red longitudinal lines present on either side of median axis. Eyes pale, encircled by black rings. Abdomen reddish brown, longer than broad, clothed with fine hairs.

Carapace longer than broad, slightly broader posteriorly, low and clothed with fine hairs (Fig. 1A). Fovea deep and transverse. Anterior margin of cephalothorax with a linear row of small pits. Eyes eight, clustered on a slightly elevated tubercle (Fig. 1F). AE and PE row procurved; AME larger and round, ALE directed angularly; posterior eyes small, PLE elongated and oblique, PME closer to PLE than to each other. Abdomen hirsute, without any dark patterns.

Chelicerae strong, clothed with thick hairs on the lateral edges. Inner margin of chelicerae provided with 12 teeth on right chelicerae and 11 teeth on left chelicerae (Fig. 1B). Inner basal corner bears three distinct peg like ridged setae; basal part of the outer face bears few long modified setae (Fig. 2 A-B).

Sternum pointed posteriorly, more or less heart shaped, submarginal hairs present, one pair of submarginal sigilla opposite coxa III (Fig. 1C).

Labium slightly wider than long, 30 or more cuspules on anterior half. Posterior margin separated from sternum by a shallow groove. Anterior margin concave, anterior half broader than posterior.

Maxillae longer and subrectangular, posterior margin longer and angular at outer side. Inner lower margin bears some 60 or more black cuspules (Fig. 1G).

Legs longer, and stout, 4123. Tarsal scopulae partly divided by a line of stout setae in legs and clearly divided in legs. A strongly depressed notch at the junction between labium and sternum. Presence of tibial spur in the form of comb of spines (Fig. 1D). Two pairs of tibial spines on all legs. Distal end of metatarsus III bears two long dorsal spines and two ventral long spines. Distal end of metatarsus II with one spine, whereas distal end of tibia II with two spines at one side and one spine on other side (Fig. 1E).

Spination: Two pairs of spines on tibia I-IV; distal end of metatarsus III with two long dorsal and ventral spines, metatarsus II with one spine, metatarsus IV with three spines on one side and one spine on other side; ti-

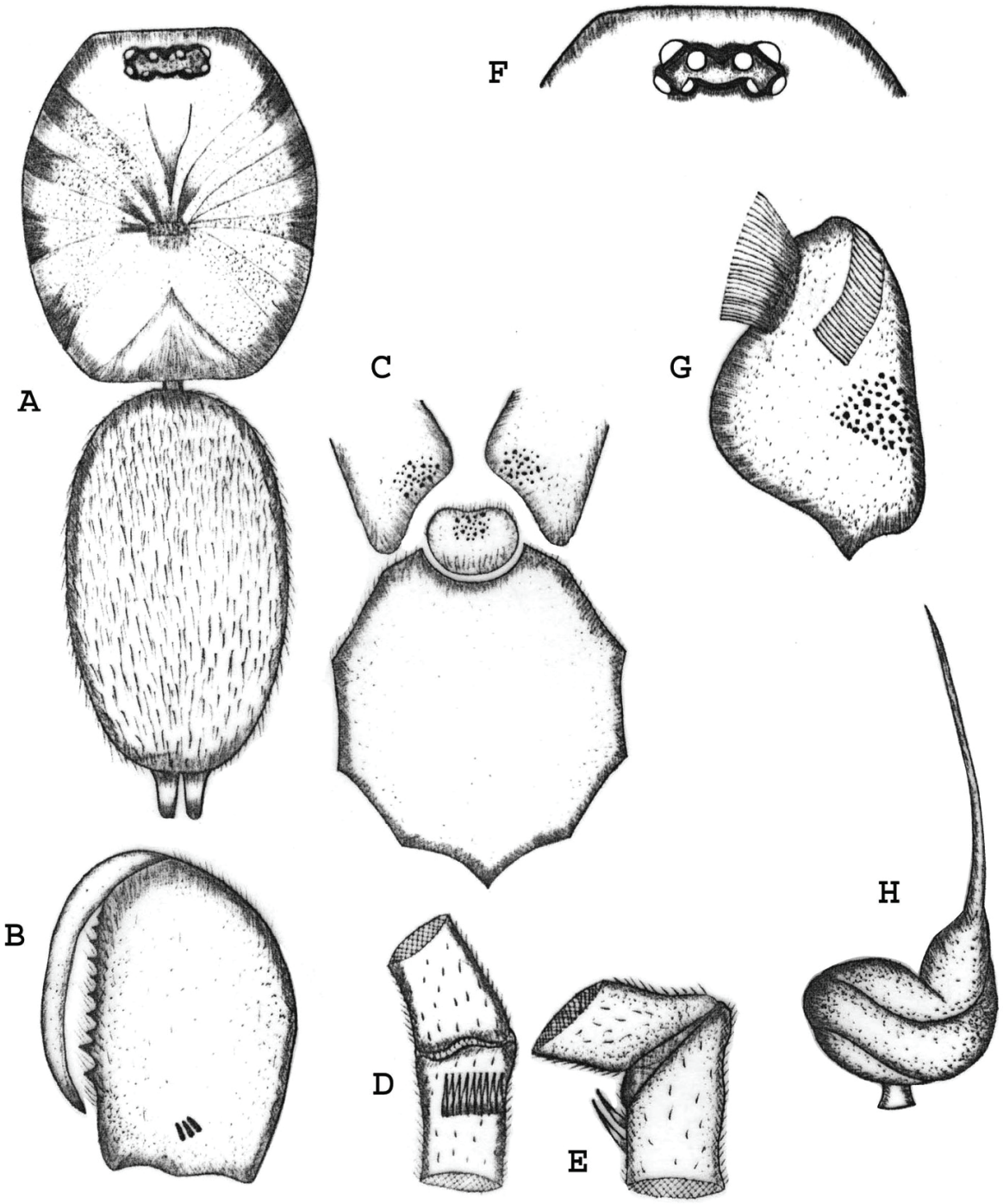

Fig.1. ***Annandaliella ernakulamensis*** sp. nov. A. Dorsal view of the male; B. Chelicerae, lateral view showing peg like ridged setae; C. Sternum with maxillae and labium showing peg like ridged setae; D. Tibia showing comb of spines; E. Tibia, lateral view; F. Ocular area; G. Inner view of maxillae; H. Palp.

bia II with two spines at one side and one spine on other side (Fig. 1E).

Palp: Bulbous wider, embolus long and tapering, without a lipped keel at apical end (Fig. 1H)

Spinnerets: PMS short, digitiform, PLS longer and three segmented, apical segment short, with distal cluster of spigots.

MEASUREMENTS: Total length: 18L; Cephalothorax 8.5L, 7W; Abdomen 9L, 3W; Chelicerae 3.5L.

DISTRIBUTION: Bhoothathankettu forests, Ernakulam district, Kerala state, India.

Legs	Femur	Patella	Tibia	Meta	Tarsus	Total
I	7.0	3.0	5.5	4.8	3.5	23.8
II	6.0	2.7	4.8	4.0	3.5	21.0
III	5.5	2.7	4.0	3.7	3.0	18.9
IV	8.0	2.5	6.0	8.0	4.2	28.7
Palp	4.5	2.0	5.5	0.9	1.8	14.7

Table I Measurements of the leg and pedipalp segments of *Annandaliella ernakulamensis* sp. nov.

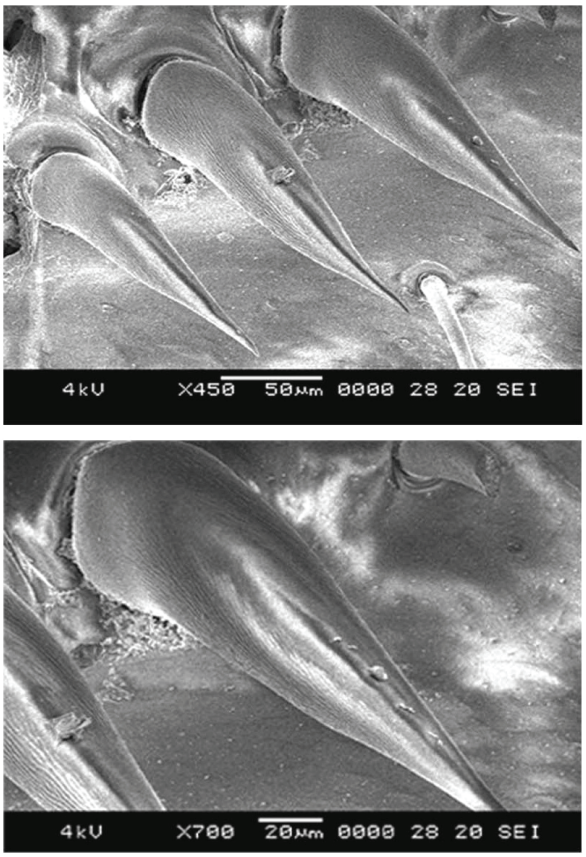

Fig. 2. SEM of peg like ridged setae in *Annandaliella ernakulamensis* sp. nov.

Sason robustum (O. P.-Cambridge)
(Fig. 3 A-E)

Sarpedon r. O. P.-Cambridge, 1883: 354, pl. 36, f. 1 (Df).
S. r. Simon, 1887: 195.
S. r. Simon, 1892: 130, f. 115-116.
Oecophlaeus cinctipes Pocock, 1892: 49, pl. 3, f. 1 (Df).
S. robustus Pocock, 1900: 173 (Dm).
S. cinctipies Pocock, 1900: 173, f. 56 (f).
S. armatoris Pocock, 1900: 174 (Dm).
S. r. Raven, 1986: 62, f. 1-2, 30-45 (mf, S).

REMARKS – This species was diagnosed and the male holotype re-described in the course of a generic revision by Raven (1986), but on the basis of a specimen rediscovered from south India after 100 years we are supplementing few additional details.

DIAGNOSIS: Similar to *S. andamanicum*, distinguished by: absence of teeth on the claws; cuspules present on maxillae and labium; rastellum absent; apex of tibia-I with a single stout prolateral spine, palpal bulb spherical and embolus tapering.

DESCRIPTION: - Coloration generally light brown; hairs on chelicerae, labium, scopulae and inner side of maxilla, and claws slightly reddish brown. A pair of dark brown oblong patches behind ocular region. Area anterior to eye group subdivided into posterior, fully pigmented zone with fringe of hairs separating it from anterior hyaline zone. Carapace with pairs of darkened bands radiating from fovea towards ocular area and leg coxae. Brown annulations on distal end of tibia, patella and metatarsi I-IV. No annulations in proximal tibia I-IV as reported by Raven, 1986. Abdomen dark with three pairs of white, dorsolateral patches in the anterior half and two median white patches in the posterior half. Ventrum pale, cream coloured, broad patches in the middle, anterior patch wider and conspicuous. Palp similar to legs, a dark distal ring on tibia. Inner side of maxilla with reddish brown hairs.
Carapace: Longer than wide, broadest about the middle; fovea deep and situated in the posterior half (Fig.3A).
Eyes: Grouped into a rectangular tubercle, arranged in three rows, ocular area blackish; AE procurved, ALE in front of others, AME largest.
Labium: Wider than long, anterior margin bluntly convex, with transverse distal row of 8 pointed cuspules. Raven, 1986 mentions only 6 cuspules. Ventral surface with long, thick bristle like hairs.
Maxillae: Longer than broad, 5 cuspules on inner basal corner; inner margin concave, scopulate, lower upper corner provided with 8 cuspules, which are visible only if maxillae is detached (Fig. 3D).
Sternum: Longer than wide, narrower at coxa I, broadest at coxa III, (Fig. 3E); hirsute, separated from labium by shallow groove, only posterior two pairs of small, oval, submarginal sigilla visible.
Chelicerae: Porrect, promargin provided with 7 peg like teeth, distal one smaller, and other six thick. Retromargin bears long reddish bristles, fang long and pointed (Fig. 3C). Raven 1986 mentions only 6 teeth. Rastellum absent.
Palp: Bulbus ovoid, with embolus long and tapering to a fine point.

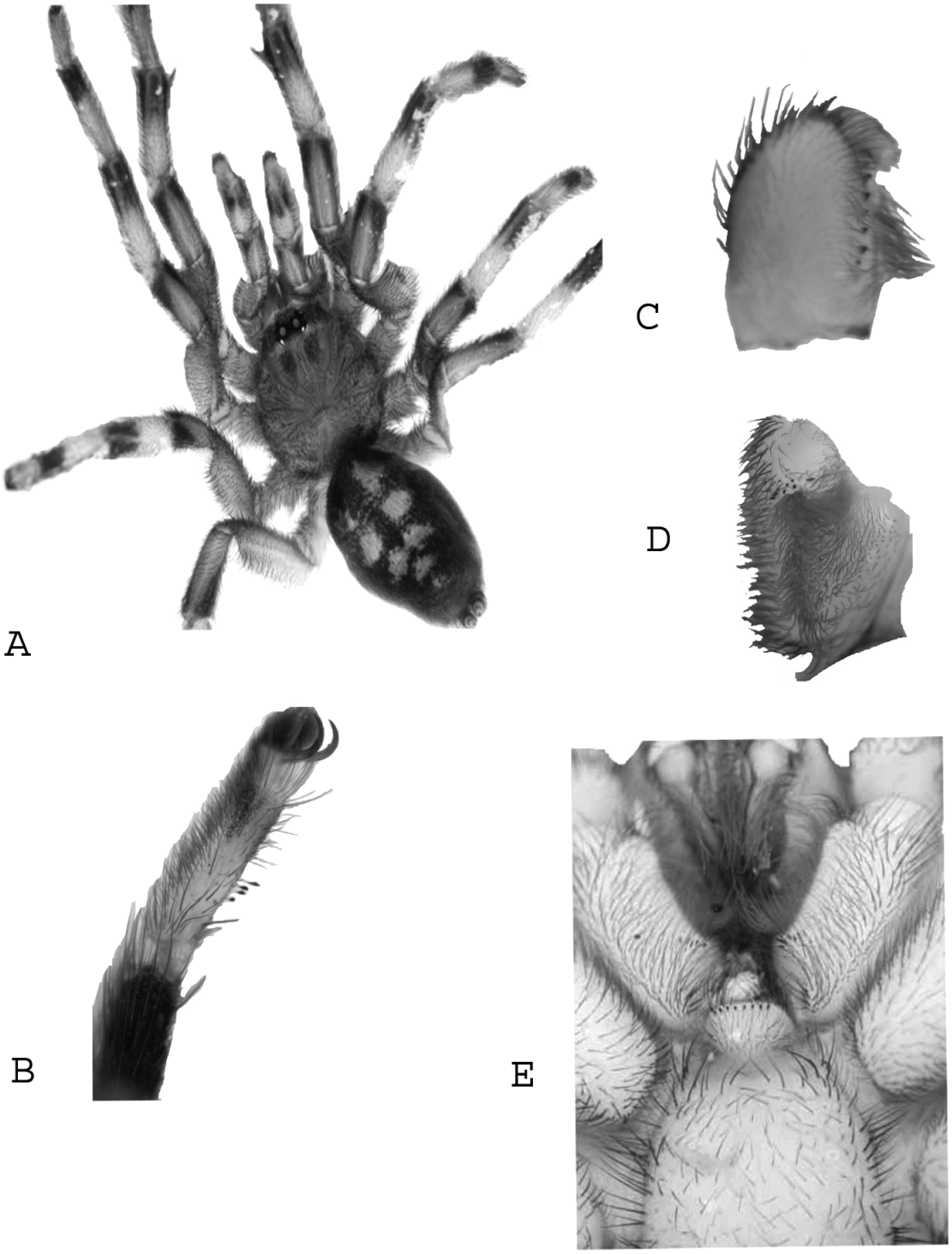

Fig.3. ***Sason robustum*** (O. P.-Cambridge). A. Dorsal view of male; B. Tarsus showing spatula like bristle; C. Chelicerae showing lateral view; D. Inner view of maxillae; E. Sternum with maxillae and labium

Legs: Long, stouter, densely covered with long hairs. Apex of tibia I provided with a single stout prolateral spine. Tibia II with five stout bristle on the ventrum, of which two are situated at the apex as a pair. Tarsus and metatarsus of I, II, III, IV divided partly by a row of longitudinally arranged hairs. Dorsal surface of tarsus of all legs and palp bears "spatula like" special bristles (Fig. 3B). Claws: tarsus keep two superior claws, each claw bears a small tooth in the middle. (Raven, 1986 mentions two small teeth, but in the present specimen only one tooth is present, (Fig 3B). At joints of the body and leg, long fringes of hairs present.

Abdomen: Longer than wide, somewhat oblong, broadest a little above the middle. Spinnerets: PMS short and

digitiform, the PLS three segmented, apical segment much shorter than other two, distal segment longer and stouter.
Spinnerets: PMS short and digitiform, the PLS three segmented, apical segment much shorter than other two, distal segment longer and stouter.

MEASUREMENTS: Total length: 14 L; Cephalothorax 7 L, 6.5W, 3.5H; Abdomen: 7.0L, 4.5W, 4.5H.

MATERIAL EXAMINED: 1♂, Tenmalai, 12.ix.2002, Coll. Sunil Jose K. 8°55'40"N, 77°6'38"E. Deposited at the Arachnological collection of Department of Zoology, Sacred Heart College, Cochin, India.

NATURAL HISTORY: Collected from the surface of rock where it lives with in a silk lined retreat. The nest is protected by a trapdoor and excellently camouflaged with the algae grown rock surface.

DISTRIBUTION: India: Tenmalai, Campus of Tenmalai Ecotourism. The place is about 100 kms interior from the west coast of Kerala state. It is also close to the previous localities of this species, namely Ponmudi and Trivandrum by about 60 kms.

Legs	Femur	Patella	Tibia	Meta	Tarsus	Total
I	7.5	3.8	5.1	4.2	3.0	23.6
II	7.5	3.5	6.5	4.8	2.5	24.8
III	6.8	2.8	5.0	4.0	2.0	20.6
IV	8.0	3.5	7.0	5.5	3.0	27.0
Palp	4.0	2.8	3.5	--	1.5	11.8

Table II Measurements of the leg segments of *Sason robustum* (O. P.-Cambridge)

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