

STUDIES ON SOME SPIDERS OF THE GENUS *SOSTICUS* FROM INDIA
(ARANEAE : GNAPHOSIDAE)

U. A. GAJBE

Zoological Survey of India, Central Regional Station, Jabalpur

ABSTRACT

The present paper deals with four new species of *Sosticus* (*naintalensis*, *dherkhanalensis*, *sundargarhensis*, *solanensis*.) Key to the identification of the Indian species has been given.

The spiders of the genus *Sosticus* are very little known. The genus was erected by Chamberlin (1922) to accommodate two species collected from America and subsequently Fox (1938) described a third species from Indiana. Ubick and Roth (1973) synonymised the three species into one species. Platnick and Shadab (1976) described two more species from America.

While studying the spiders of the family Gnaphosidae the author encountered four new species of *Sosticus*. This genus is being recorded here for the first time from India.

All type specimens are deposited in the collection of Zoological Survey of India, Calcutta.

Genus *Sosticus* Chamberlin

1922. *Sosticus* Chamberlin, *Proc. Biol. Soc.*, Washington, 85 : 160.

1940. *Sosticus* : Comstock, *The Spider Book*, New York, 329.

1976. *Sosticus* : Platnick and Shadab, *Amer. Mus. Novitates*, 2594 : 9.

Characters : Cephalothorax longer than wide, rounded in dorsal view, widest behind coxae II and gradually narrowed anteriorly, darkest at borders and ocular area. Cephalic area not elevated. Eyes rows distinctly separated. Anterior row of eyes slightly precurved (as seen from in front) ; medians smaller than the laterals. Posterior row of eyes straight or slightly recurved, medians triangular or irregular and smaller than the laterals. Anterior median eye diurnal, other nocturnal. Median ocular quadrangle longer than wide or roughly square. Clypeal height greater than the diameter of anterior median eye. Inner and outer margin of chelicerae with one or two and two or three teeth respectively. Sternum heart-shaped, pointed behind and strongly rebordered. Two spines are present on the dorsal surface of fourth tibia. Abdomen dark gray to black dorsally. Six spinnerets, anteriors widely separated.

Type-species : *Sosticus insularis* (Banks)

Distribution : America.

Key to Indian species of the genus *Sosticus* Chamberlin

1. Abdomen dorsally with white bands

- Abdomen dorsally without white bands... .. 8
- 2. Inner and outer margin at chelicera with two and three teeth. Abdomen with three transverse white bands.. .. *nainitalensis* sp. nov.
- Inner and outer margin of chelicera with two teeth each. Abdomen with two transverse white bands *dherikanalensis* sp. nov.
- 3. Abdomen with chalk-white round spots. Outer margin of Chelicera with two teeth. Patella of all legs with deep brown patches..... .. *sundargarhensis* sp. nov.
- Abdomen uniform, without chalk-white round spots. Outer margin with three teeth. Patella of all legs without deep brown patches *solanensis* sp. nov.

1. *Sosticus nainitalensis* sp. nov.

(Fig. 1, A—E)

General : Cephalothorax deep brown, legs brown, abdomen deep brown to black. Total length 6.50 mm. Carapace 2.50 mm. long, 2.20 mm. wide ; abdomen 3.80 mm. long, 2.30 mm. wide.

Cephalothorax : Longer than wide, oval, clothed with pubescence, posterior middle of cephalothorax provided with an inconspicuous short fovea. Radiating dark streaks diverge from short fovea to lateral sides of cephalo-

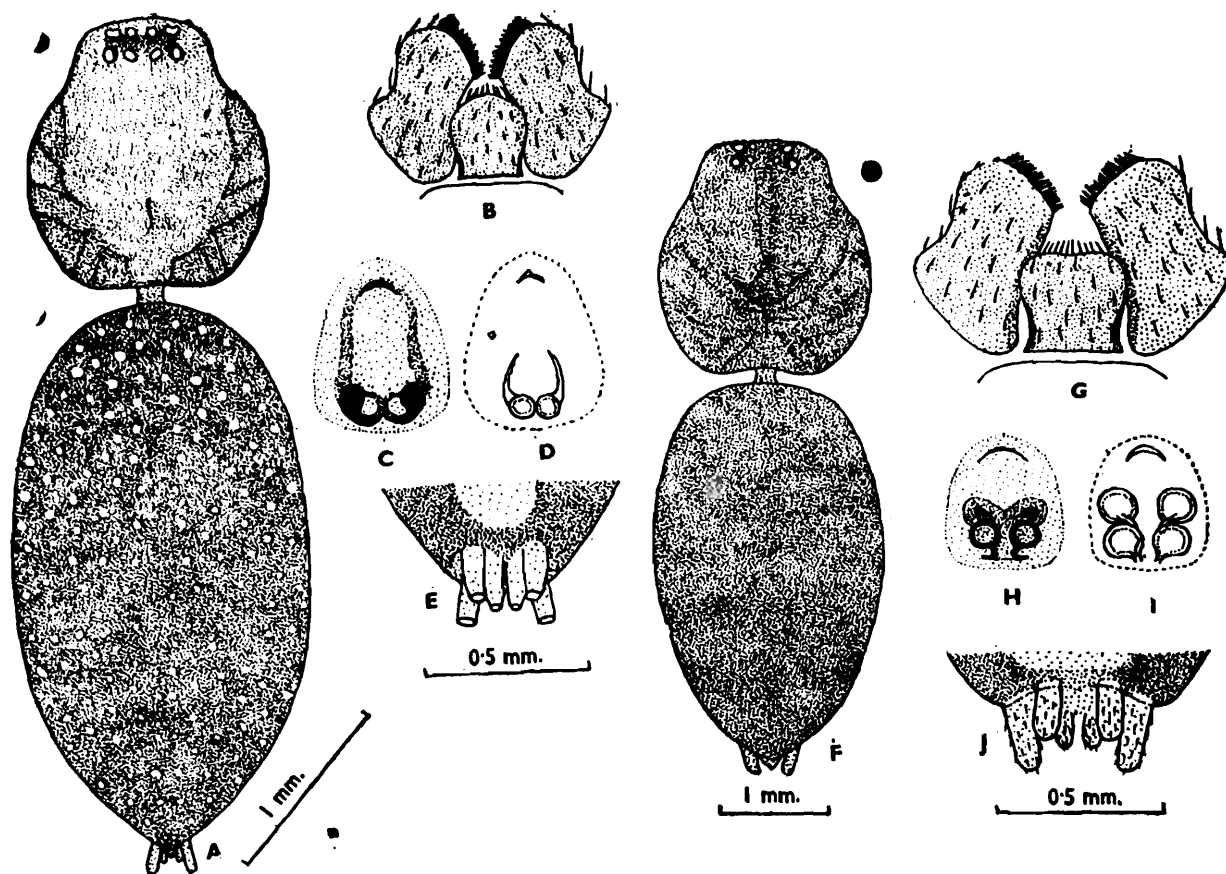


Fig. 1 (A—E) *Sosticus nainitalensis* sp. nov., A—Dorsal view of female, legs omitted, B—Labium and maxillae, C—Epigyne, D—Internal genitalia, E—Spinnerets, (ventral view) ; (F—J) *Sosticus dherikanalensis* sp. nov., F—Dorsal view of female, legs omitted, G—Labium and maxillae, H—Epigyne, I—Internal genitalia, J—Spinnerets, (ventral view).

thorax. Eyes row distinctly separated, pearly white except anterior medians which are black, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front); medians smaller than the laterals and closer to adjacent laterals than to each other. The median ocular quadrangle longer than broad and wider behind than in front. Clypeal height greater than the diameter of the anterior median eye. Sternum heart-shaped, pointed behind, strongly rebordered, clothed with black hairs. Labium longer than wide, anterior end of labium and maxillae provided with scopulae, shape as in fig. 1B. Chelicerae moderately strong, vertical, inner margin provided with two small teeth and outer margin with three teeth. Legs relatively long and thin, clothed with hairs and spines. Tibia IV provided with two dorsal spines. Scopulae reach up to the base of metatarsi I and II and up to the middle of metatarsi III and IV. Leg formula 4123.

Abdomen: Longer than wide, nearly elliptical, clothed with thick pubescence. Abdomen dorsally provided with three transverse white bands, one at the anterior end, second at just above the middle and third above the anal tubercle as in fig. 1A. Ventral side lighter than the dorsal. Epigyne as in fig. 1C. Internal genitalia as in fig. 1D. Spinnerets prominent, anterior spinnerets widely separated, posterior spinnerets longer than others as in fig. 1E.

Male: Unknown

Holotype: Female in spirit.

Type-locality: INDIA: Uttar Pradesh; Koladurgi forest, Dist. Nainital. date 22.xii. 1970. coll. Asket Singh. (Reg. No. 4318/18).

This species resembles *Sosticus insularis* (Banks) but differs from it as follows:
(i) Inner margin of chelicera provided with

two teeth but *S. insularis* inner margin of chelicera with one tooth. (ii) Abdomen provided with three transverse white bands but in *S. insularis* abdomen uniform gray. (iii) Epigyne also structurally different.

2. *Sosticus dherikanalensis* sp. nov.

(Fig. 1 F—J)

General: Cephalothorax brown, legs reddish-brown, abdomen brownish-black. Total length 6.40 mm. Carapace 2.60 mm. long, 2.20 mm. wide; abdomen 3.60 mm. long, 2.20 mm. wide.

Cephalothorax: Longer than wide, oval, convex, clothed with pubescence, posterior middle provided with a conspicuous short fovea. Radiating black streaks diverge from short fovea to lateral sides of cephalothorax. Eye rows distinctly separated, pearly white except anterior medians which are black, posterior row of eyes slightly longer than the anterior row. Anterior row of eyes slightly procurved (as seen from in front); medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes slightly recurved, medians oval, smaller than the laterals and slightly closer to adjacent laterals than to each other. The median outer quadrangle longer than broad and wider behind than in front. Clypeal height greater than the diameter of the anterior median eye. Sternum heart-shaped, pointed behind, strongly rebordered, clothed with some black hairs. Labium longer than wide, anterior end of labium and maxillae provided with scopulae, shape as in fig. 1G. Chelicerae moderately strong, vertical, inner and outer margin provided with two small and two bigger teeth each. Legs relatively long, thin, clothed with hairs and some spines. Tibiae IV, provided with two dorsal spines. Scopulae reach up to the metatarsi I and II and up to the middle of metatarsi III and IV, legs formula 4123.

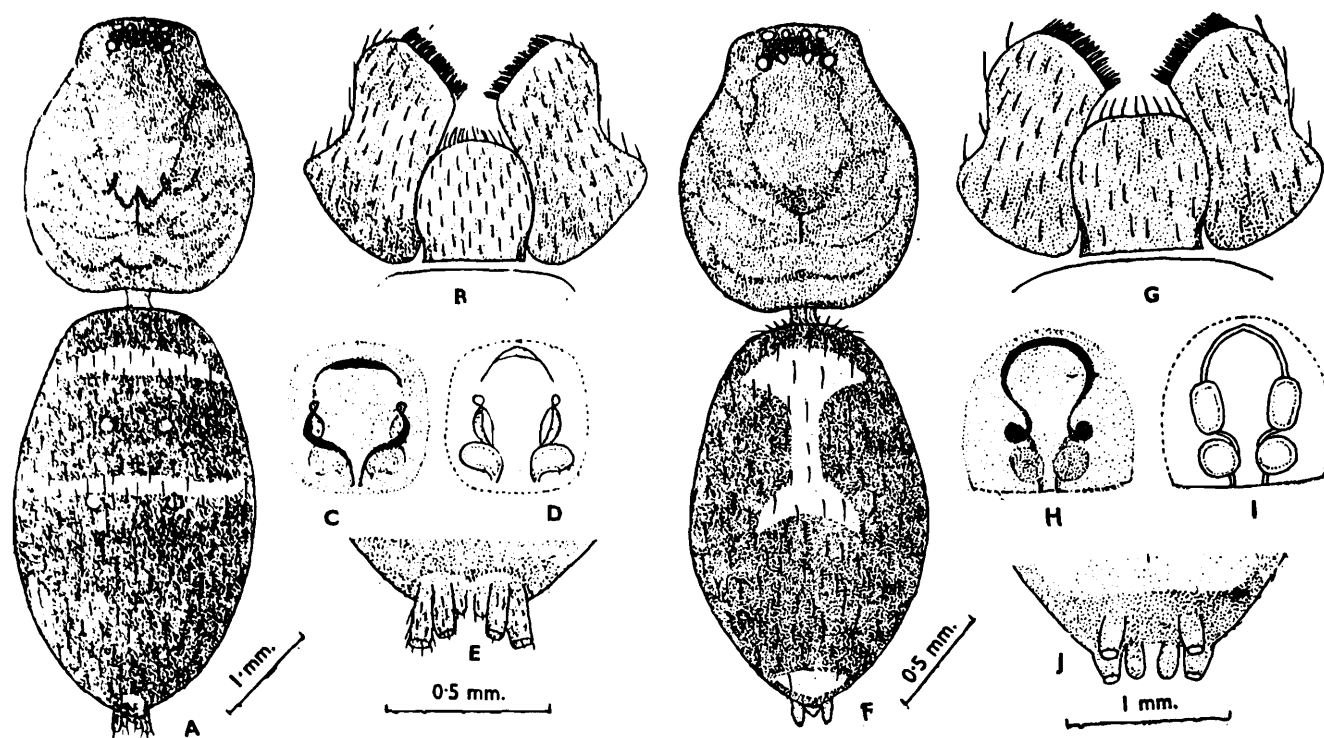


Fig. 2 (A—E) *Sosticus sundargarhensis* sp. nov. A—Dorsal view of female, legs omitted, B—Labium and maxillae, C—Epigyne, D—Internal genitalia, E—Spinnerets. (ventral view: (F—J) *Sosticus solanensis* sp. nov., F—Dorsal view of female, legs omitted, G—Labium and maxillae, H—Epigyne, I—Internal genitalia, J—Spinnerets (Ventral view).

Abdomen : Longer than wide, broadest behind the middle, clothed with pubescence and some spine like hairs. Abdomen dorsally provided with two white bands, one at the anterior to the middle and second just above the anal tubercle as in fig. 1F. Ventral side much lighter than the dorsal and clothed with hairs. Epigyne as in fig. 1H. Internal genitalia as in fig. 1I. Spinnerets prominent, anterior spinnerets widely separated and same in size to the posterior spinnerets as in fig. 1J.

Male : Unknown.

Holotype : Female in spirit.

Type-locality : INDIA : Orissa, Tikarpara Dist. Dherikanal, date 29.ii.1972, Coll. J. K. Sen (Reg. No. 4319/18).

This species resembles *Sosticus nainitalensis* sp. nov. but differs from it as follows : (i) Inner and outer margin of chelicera provided with two teeth each but in *S. nainitalensis* inner margin with two and outer margin with three teeth. (ii) Abdomen dorsally provided with two white bands but in *S. nainitalensis* abdomen with three bands. (iii) Epigyne also structurally different.

3. *Sosticus sundargarhensis* sp. nov.

(Fig. 2 A—E)

General : Cephalothorax and legs reddish-brown, abdomen brownish black. Total length 4.40 mm. Carapace 1.40 mm. long, 1.30 mm. wide ; abdomen 2.90 mm. long 1.60 mm. wide.

Cephalothorax : Longer than wide, oval, narrow in front, clothed with pubescence, posterior middle provided with inconspicuous short fovea. Black reticulations are present on the lateral sides of cephalothorax. Eye rows distinctly separated, pearly white except anterior medians which are black, posterior row of eyes very slightly longer than the anterior row.

Anterior row of eyes slightly procurved (as seen from in front); medians smaller than the laterals and closer to laterals than to each other. Posterior row of eyes straight, medians oval, smaller than the laterals and closer to adjacent laterals than to each other. Median ocular quadrangle longer than wide and wider behind than in front. Clypeal height more than the diameter of anterior median eye. Sternum heart-shaped, pointed behind, strongly reborded, clothed with fine hairs. Labium longer than wide, anterior end of labium and maxillae provided with conspicuous scopulae, shape as in fig. 2B. Chelicerae moderately strong, vertical, inner margin provided with one minute tooth and outer margin with two larger teeth, Legs relatively long and thin, clothed with hairs and same spines. Patella of all legs much larger and provided with deep brown patches. Tibiae IV provided with two dorsal spines. Scopulae reach up to the base of metatarsi I and II and up to middle of metatarsi III and IV. Leg formula 4123.

Abdomen : Longer than wide, narrowing posteriorly; clothed with pubescence and provided with some round chalk-white spots as in fig. 2A. Ventral side lighter than the dorsal. Epigyne as in fig. 2C. Internal genitalia as in fig. 2D. Spinnerets six, anterior spinnerets widely separated, posterior spinnerets longer than others as in fig. 2E.

Male : Unknown.

Holotype : Female, paratypes two females in spirit.

Type-locality : INDIA : Orissa ; Bonai-garh Dist. Sundergarh, date. 15. VI. 1972, coll. D. P. Sanyal (Reg. No. 4320/18). Paratypes : 1 ♀, Orissa ; Barkuda Islands, Chilka Lake, Ganjam Dist. date. 20. VII. 1916, coll. F. H. Gravely (Reg. No. 4321/18). 1 ♂, Assam ; Bhungtilang Aigal, Dist. Mizo, date. 22.X.1960, coll. T. G. Vazirani. (Reg. No. 4322/18).

This species resembles *Sosticus solanensis* sp. nov. but differs from it as follows : (i) Outer margin of chelicera provided with two teeth but in *S. solanensis* outer margin with three teeth. (ii) Abdomen dorsally provided with some rounded chalk-white spots but in *S. solanensis* abdomen uniform. (iii) Epigyne also structurally different.

4. *Sosticus solanensis* sp. nov.

(Fig. 2, F-J)

General : Cephalothorax deep brown legs reddish-green, abdomen gray. Total length 5.80 mm. Carapace 2.10 mm. long, 1.90 mm. wide ; abdomen 3.60 mm. long, 2.10 mm. wide.

Cephalothorax : Longer than wide, oval, narrowed in front, clothed with pubescence, posterior middle provided with a conspicuous short fovea. Radiating dark streaks diverge from fovea to lateral sides of cephalothorax. Eye rows distinctly separated, pearly white except anterior medians which are black, posterior row of eyes very slightly longer than the anterior row. Anterior row of eyes straight (as seen from in front); medians smaller than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes slightly recurved, medians oval, smaller than the laterals and closer to adjacent laterals than to each other. Median ocular quadrangle longer than wide and wider

behind than in front. Clypeal height more than the diameter of anterior median eye. Sternum heart-shaped, pointed behind, strongly rebordered, clothed with fine hairs. Labium longer than wide, anterior end of labium and maxillae provided with conspicuous scopulae, shape as in fig. 2G. Chelicerae moderately strong, vertical, inner margin provided with one minute tooth and outer margin with three longer teeth. Legs relatively long and thin, clothed with hairs and some spines. Tibiae IV provided with two dorsal spines. Scopulae reach up to the base of metatarsi I and II and up to middle of metatarsi III and IV. Leg formula 4123.

Abdomen : Longer than wide, elliptical, uniform, clothed with pubescence and some long hairs as in fig. 2F. Ventral side lighter than the dorsal. Epigyne as in fig. 2H. Internal genitalia as in fig. 2I. Spinnerets prominent, anterior spinnerets widely separated posterior spinnerets slightly larger than the anterior as in fig. 2J.

Male : Unknown.

Holotype : Female in spirit.

Type-locality : INDIA : Himachal Pradesh ; Simla Hills, Dist. Solan, date. 24. VI. 1968. coll. O. B. Chhotani, (Reg. No 4323/18). This species resembles *Sosticus nainitalensis* sp. nov. but differs from it as follows ; (i) Inner margin of chelicera provided with one minute tooth but in *S. nainitalensis* inner margin with two teeth. (ii) Abdomen dorsally uniform but in *S. nainitalensis* abdomen dor-

sally provided with three transverse white bands. (iii) Epigyne also structurally different.

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