

**STUDIES ON SPIDER FAUNA OF COASTAL REGION OF INDIA :
DESCRIPTION OF TWO NEW SPECIES OF *PARDOSA* KOCH
(ARANEAE : LYCOSIDAE) FROM THE COASTAL REGION OF
SUNDARBANS, WEST BENGAL (PART–1)**

S. C. MAJUMDER

*Sundarban Field Research Station Zoological Survey of India,
Canning Town, South 24 Parganas, West Bengal, India*

INTRODUCTION

Indian coastal region is mainly divisible into three zones viz., Eastern, Western and Southern Zones. The Southern zone includes the coastal areas of Sundarbans, Orissa and Tamil Nadu. The Western Zone includes the coastal areas of Kerala, Karnataka, Maharashtra, Gujarat and Goa. Thirdly Andaman & Nicobar Island is included under Southern Zone.

Although there are several published papers on the spiders of coastal regions of India, (Tikader, 1977 & 1980; Tikader & Malhotra, 1980; Tikader & Biswas, 1981; Tikader, 1982; Sethi & Tikader, 1988; Majumder & Tikader, 1991; Biswas & Biswas, 1992; Biswas, 1995; Biswas & Majumder, (1996) but so far as the spider fauna of Sundarban coastal region is concerned, the published information is indeed scanty. Since wolf spiders are important bio-control agents specially of insect pests of agricultural crops and as this group is not adequately explored from Sundarban region, survey of this group in different crop fields were undertaken. The present paper deals with a description of two new species of *Pardosa* Koch.

SYSTEMATICS

Genus *Pardosa* Koch

1848. *Pardosa* Koch, *Die Arachnide*, 14 : 100.

Diagnosis : Cephalic region raised and almost entirely occupied by the two posterior rows of eyes. Chelicerae much smaller than most of the lycosids. Eyes in three rows, anterior row of eyes smaller, posterior row larger. Legs relatively long and are provided with long spines. Metatarsus IV as long as patella plus tibia. Tibia I provided with 3 pairs of ventral spines. Median septum of epigynum almost weakly developed at the anterior end. Median apophysis placed more centrally.

Type species : *Pardosa stritipes* Koch

Distribution : Asia, America and Europe.

Key to the species

1. Posterior end of the carapace wider; inner margin of the chelicera provided with 3 similar teeth and the outer margin with one large tooth..... *suchismitae*.
- Posterior end of carapace narrower; inner margin of the chelicera provided with one tooth and the outer margin with 3 smaller teeth *debolinae*.

1. *Pardosa suchismitae* sp. nov.

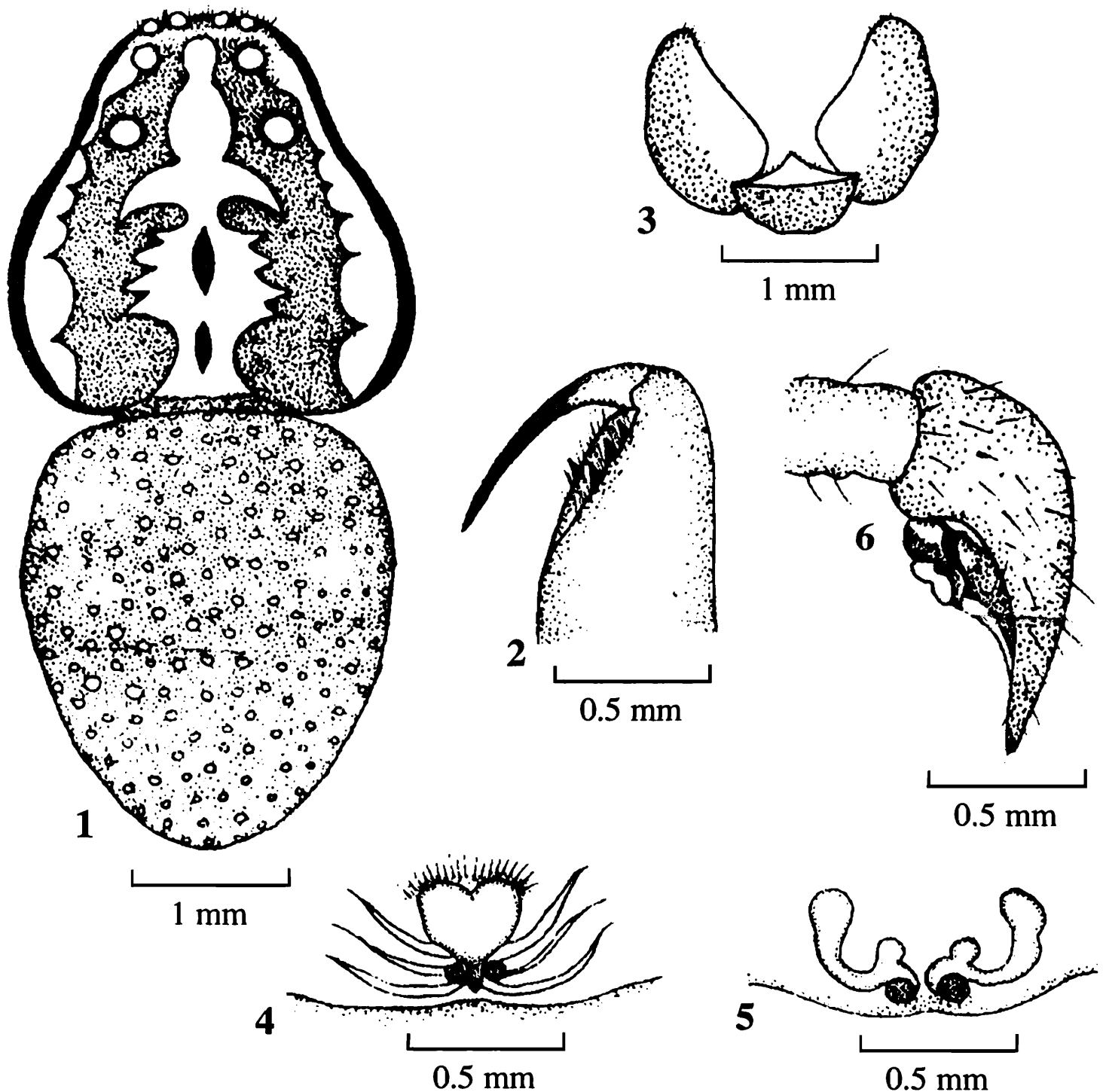
(Figs. 1-6)

General : Cephalothorax and legs redish brown, chelicerae deep brown, chelicerae deep brown; abdomen blackish in colour. Total length 5.30 mm. Carapace 2.60 mm. long and 2.10 mm. wide; abdomen 2.70 mm. long and 2.00 mm. wide.

Cephalothorax : Carapace longer than wide, anteriorly narrowed but wider posteriorly; cephalic region slightly raised. Anterior margin of the cephalothorax straight with anterolateral corner, raised and conical with a few blackish hairs. Thoracic region provided with two deeply distinct longitudinal fovea. Cephalothorax decorated with whitish patches one present mid-longitudinally and other two laterally. Eyes pearly-white encircled by black patches. Anterior row of eyes slightly recurved almost similar in structure; median eyes separated from each other. Eyes of the third row slightly larger than the second row. No prominent black field present in the ocular area (Fig. 1). Ocular quadrate longer than wide; wider posteriorly and narrowed anteriorly. Sternum heart-shaped pointed behind, covered with fine pubescence. Chelicerae not so strong, longer than wide, deep brown in colour. Inner margin provided with 3 similar teeth and outer margin with one tooth (Fig. 1). Maxillae longer than wide, redish brown in colour, anterior end narrowed and scopulated, posterior end wider. Labium wider than long, whitish and pointed anteriorly (Fig. 3). Legs relatively short but strong enough, covered by hair and spines. Tibia with ventral spines; tarsal scopulae distinct. Leg formula 2 1 3 4 and the measurements (in mm) as in Table-1. Tibia of the male palp without retrolateral apophysis, embolus narrowed and elongated. Cymbium long and cylinder without basal spur, tegulum more or less convex, provided with tegular apophysis (Fig. 6).

Table 1. Measurements (in mm) of different parts of legs of *Pardosa suchismitae* sp. nov.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	2.70/2.70	3.00/3.00	2.10/2.10	1.15/1.15	8.95/8.95
II	3.05/3.05	3.30/3.30	2.20/2.20	1.25/1.25	9.80/9.80
III	2.20/2.20	2.65/2.65	2.00/2.20	1.05/1.05	7.90/8.10
IV	2.05/2.05	2.20/2.20	1.75/1.75	0.90/0.90	6.90/6.90



Figs. 1-6 : Illustration of *Pardosa suchismitae* sp. nov. 1. Dorsal view of female, legs emitted. 2. Chelicera showing arrangement of teeth. 3. Maxillae and labium, (ventral view). 4. Epigyne, (ventral view). 5. Internal genitalia, (dorsal view). 6. Male palp, (lateral view).

Abdomen : Oval in shape, slightly longer than wide, conical posteriorly. Dorsum without ornamentation, provided with a number of white spots, covered by fine pubescence. Venter pale yellow in colour. Epigyne as rounded plate with distinct copulatory openings (Fig. 4). Internal genitalia provided with elongated copulatory tubes bent upwards, divisible into two parts (Fig. 5).

Type locality : HOLOTYPE : 1 ♂, Reg. No. 5474/18 N.C., Z.S.I. (H.Q) Hasnabad proper (near Rly. Stn.), P. S. Hasnabad, Dist. North 24 Parganas, West Bengal, India, 15.10. 1993, coll. S. C. Majumder. PARATYPES : 6 ♀, Reg. No. 5475/18. N.C., Z.S.I. (H.Q) Chigrikhali, P.S. Hingalgunj,

Dist. North 24 Parganas, West Bengal, India. 14.1.1994, coll. S. C. Majumder. 2 ♀, Bakra, P.S. Hingalgunj, Dist. North 24-Parganas, West Bengal, India. 13.1.1995, coll. S. C. Majumder. 2 ♀, Kalitala, P.S. Hingalgunj, Dist. North 24 Parganas, West Bengal, India. 21.2.1995, coll. S. C. Majumder. 4 ♀, Katakali, P.S. Hingalgunj, Dist. North 24 Parganas, West Bengal, India. 25.2.1995, coll. S. C. Majumder. 2 ♀, Dauthpur, P.S. Sandeshkhali, Dist. North 24 Parganas, West Bengal, India, 18.1.1994, coll. N. P. Debnath. ALLOTYPES : 1 ♀, Reg. No. 5476 18, N. C., Z.S.I. (H.Q) Sibitala, P.S. Hingalgunj, Dist. North 24 Parganas, West Bengal, India. 26.2.1995, coll. S. C. Majumder. 1 ♂, Kumirmari, P.S. Gosaba, Dist. South 24 Parganas, West Bengal, India. 20.1.1994, coll. D. B. Ranamagor.

Distribution : INDIA : Coastal zone of Sundarban (Hasnabad, Hingalgunj, Sandeshkhali, Dist. North 24 Parganas; Gosaba Dist. South 24 Parganas, West Bengal.

Remarks : This species resembles to *Pardosa sngosa* Tikader and Malhotra in general appearance but differs from it in the following particulars :

- (1) Maxilla and labium narrower anteriorly whereas in *Pardosa sangosa* Tikader & Malhotra maxilla and labium broader anteriorly.
- (2) Chelicerae not so strong, inner margin provided with 3 similar teeth and the outer margin with one large tooth whereas in *P. sangosa* Tikader & Malhotra chelicera strong enough, inner margin provided with 4 dissimilar teeth and the outer margin with 2 small teeth.
- (3) Epigyne and internal genitalia structurally different.

Etymology : The species is named after the name of author's younger daughter Suchismita who helped this study.

2. *Pardosa debolinae* sp. nov.

(Figs. 7-12)

General : Cephalothorax and legs redish brown; abdomen dark brown in colour. Total length 5.50 mm. Carapace 2.50 mm long and 1.80 mm wide; abdomen 3.00 mm long and 1.80 mm wide.

Cephalothorax : Carapace longer than wide, anterior and posterior end narrower but wider at the middle portion, covered with fine pubescence. Anterior margin of the cephalothorax straight with the anterolateral corner raised and conical without blackish hair. Cephalothorax decorated with a whitish patch extends from the base of the cephalothorax to the middle of the third eyes. Two distinct fovea present at the middle of the cephalothorax. Eyes pearly white encircled by black patches at the bases. Anterior row of eyes slightly procurved, medians slightly smaller than laterals. The second and third eyes more or less similar in structure. Ocular quadrate wider than long (Fig. 7). Sternum heart-shaped pointed behind, covered with fine pubescence. Chelicerae not

so strong, longer than wide, deep brown in colour. Inner margin provided with one tooth, outer margin with 3 similar teeth (Fig. 8). Maxillae longer than wide redish brown in colour, anterior end narrowed and slightly curved. Labium wider than long, whitish and pointed anteriorly (Fig. 9). Legs relatively short but strong enough, covered with hair and spines. Tibia with ventral spines; tarsal scopulae distinct. Leg formula 4 3 2 1 and the measurements (in mm) as in table-2. Tibia of the male palp without latrolateral apophysis, embolus narrowed not elongated. Cymbium long blunt anteriorly without basal spur, tegulum more or less convex provided with flower like tegular apophysis (Fig. 12).

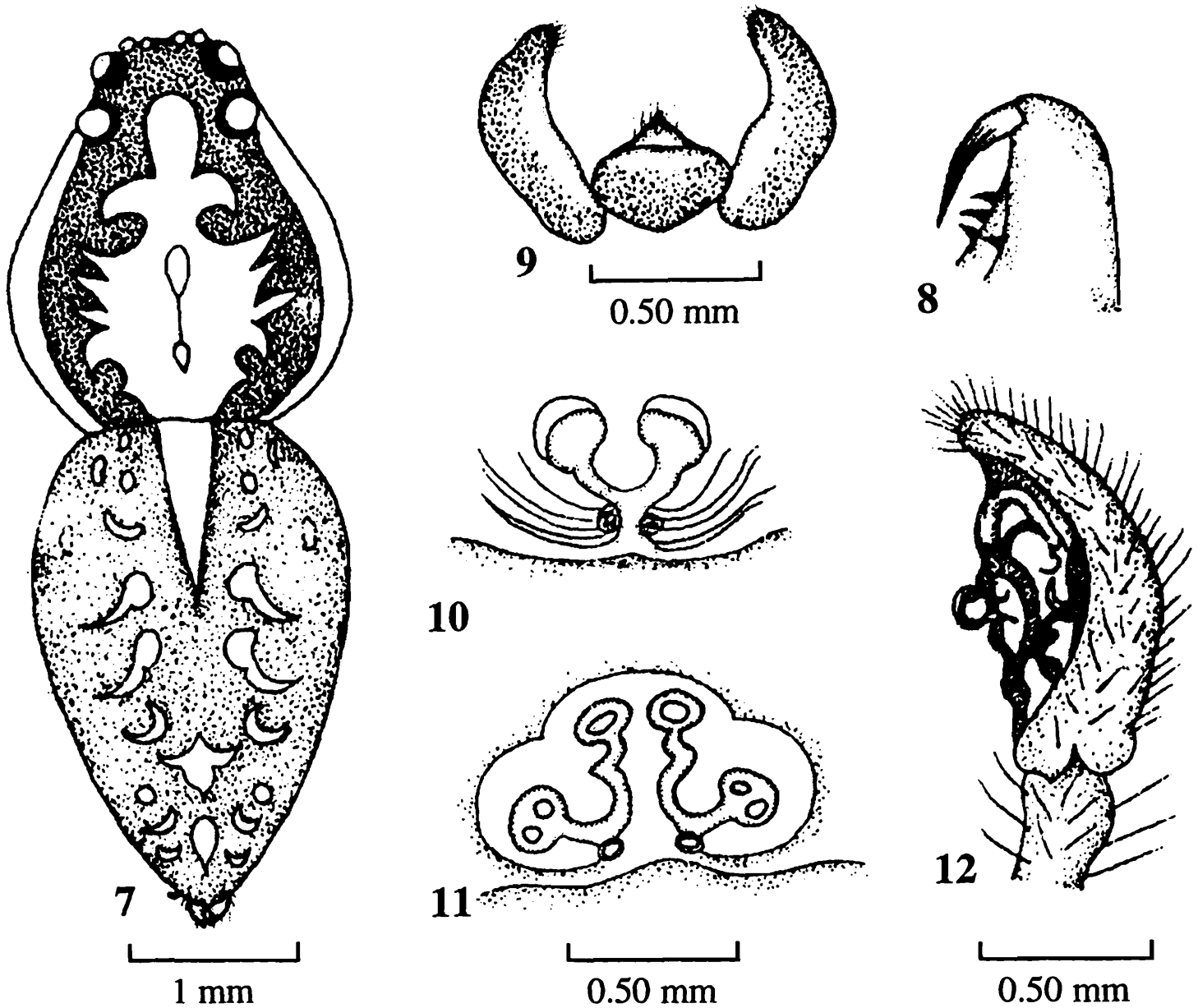
Table 2. Measurements (in mm) of different parts of legs of *Pardosa suchismitae* sp. nov.

Leg	Femur	Patella & Tibia	Metatarsus	Tarsus	Total
I	2.60/2.60	2.75/2.75	2.10/2.10	1.05/1.05	8.50/8.50
II	2.65/2.65	2.80/2.80	2.15/2.15	1.10/1.10	8.70/8.70
III	3.02/3.02	3.35/2.35	2.25/2.25	1.20/1.20	9.82/9.82
IV	3.05/3.02	3.40/3.40	2.30/2.30	0.25/0.25	10.00/9.97

Abdomen : Oval in shape, longer than wide, covered with fine pubescence, narrowed posteriorly but wider anteriorly. Dorsum decorated with a number of white patches arranged laterally (Fig. 7). Venter uniformly coloured. Epigyne as a bifurcated dumbbell shaped tube with distinct copulatory tubes bent downwards, divisible into two parts (Fig. 11).

Type locality : HOLOTYPE : 1 ♀, Reg. No. 5477/18. N.C., Z.S.I. (H.Q) Bankra, P.S. Hingalgunj, Dist. North 24 Parganas, West Bengal, India. 13.1.1994, coll. S. C. Majumder. PARATYPES : 1 ♀, Reg. No. 5478/18. N.C., Z.S.I. (H.Q) Chhotomollakhali, P.S. Gosaba, Dist. South 24 Parganas, West Bengal, India. 18.1.1994, coll. D. B. Ranamagor. 1 ♀, Monipur, P.S. Hingalgunj, Dist. North 24 Parganas, West Bengal, India. 14.1.1994, coll. S. C. Majumder. 1 ♀, Madhabkati, P.S. Hingalgunj, Dist. North 24 Parganas, West Bengal, India. 22.2.1995, coll. S. C. Majumder. 1 ♀, Sarupkati, P.S. Hingalgunj, Dist. North 24 Parganas, West Bengal, India. 26.2.1995, coll. S. C. Majumder. ALLOTYPES : 1 ♂, Reg. No. 5479/18, N.C., Z.S.I. (H.Q) Hemnagar, P.S. Hingalgunj, Dist. North 24 Parganas, West Bengal, India. 14.1.1994, coll. S. C. Majumder. 1 ♂, Sandeshkhali Bazar, P.S. Sandeshkhali, Dist. North 24 Parganas, West Bengal, India. 16.1.1994, coll. S. C. Majumder. 1 ♂, Dayapur, P.S. Gosaba, Dist. South 24 Parganas, West Bengal, India. 17.1.1994, coll. N. P. Debnath.

Distribution : INDIA : Coastal zone of Sundarban (Hingalgunj, Sandeshkhali, Dist. North 24 Parganas; Gosaba, Dist. South 24 Parganas), West Bengal.



Figs. 7-12. : Illustration of *Pardosa debolinae* sp. nov. 7. Dorsal view, legs emitted. 8. Chelicera showing arrangement of teeth. 9. Maxillae and labium, (ventral view). 10. Epigyne, (ventral view). 11. Internal genitalia, (dorsal view). 12. Male palp, (lateral view).

Remarks : This species resembles to *Pardosa sumatrana* Thorell in general appearance but differs from it in the following particulars :

- 1) Anterior row of eyes procurved, medians not longer than the laterals whereas in *P. sumatrana* Thorell the anterior row of eyes straight. The medians larger than the laterals.
- 2) Maxillae and labium longer and narrowed anteriorly, whereas in *P. sumatrana* Thorell maxillae and labium broader anteriorly and not so longer.
- 3) Epigyne structurally different.

Etymology : This species is named after the name of author's elder daughter Debolina who helped the study.

SUMMARY

The present paper deals with descriptions and illustrations of two new species of *Pardosa* Koch, viz., (i) *Pardosa suchismitae* sp. nov. (2) *Pardosa debolinae* sp. nov. collected from the coastal region of Sundarban, West Bengal, India.

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