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## **STUDIES ON SOME SPIDERS OF THE FAMILY PHILODROMIDAE (ARANEAE : ARACHNIDA) FROM MADHYA PRADESH, INDIA**

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### **INTRODUCTION**

Philodromid spiders are small to medium size (2.50 to 8.00 mm. body length), the body generally flattened and coloured with subdued red-brown, or yellow shades of grey, body covering of soft, recumbent hair, through which longer, scattered, erect, fillform setae emerge. Carapace as wide as long, or nearly so, with the sides smoothly narrowed towards the front; eyes in two recurved rows, the posterior row wider and less curved than the anterior, and posterior median eyes situated closer to the posterior laterals than to each other. Eye tubercles small or absent. Legs moderately laterigrade, long and slender, longer and more slender in males than in females; legs II longest and both I and II slightly longer than III or IV; legs often speckled and ringed with dark pigment and sometimes longitudinally banded with black, tibiae I with 1 to 5 pairs of ventral macrosetae, usually 3 pairs. Abdomen slender to broad, usually smoothly rounded at sides but sometimes distinctly angular, widest in posterior half and tapered to blunt posteriorly. Tibia of male palpus as long as wide or longer, nearly always bearing a retrolateral apophysis with 1, 2 or 3 points, and in most cases also a ventral apophysis which may be free or be closely appressed to the ventral point of the retrolateral apophysis; embolus a slender spine, usually arising on the prolateral side or on the base of the tegulum and passing to the distal end of the later, occasionally arising retrolaterally or terminating there; tegulum with distinct suture, or fold, at point of origin of embolus. Epigynum usually with broad, flat median septum, beside which the copulatory openings are located; copulatory tubes usually visible in dorsal view often bearing spermathecal organ at point of junction with spermatheca; variable in shape, well sclerotized.

Amongst Philodromid spiders we also find the long and narrow bodied crab-spider like *Dieta* and *Tmarus*. The spider of the genus *Dieta* are green in colour with spots on the body and they sit in postures so that their long body and legs assume a long shape on the branch and they are difficult to see. They catch ants and small flies. Spiders of the genus *Philodromus* live on plants

and they attach two leaves together to form a hiding place in which they rest. If any insect approaches nearby, they come out from the retreat to catch it. Since they are dorsoventrally flattened, this flat retreat suits them. Some species of *Philodromus* prefer the brightly coloured leaves, under which they attach their egg sacs. The members of *Tibellus* are directly brown and straw coloured and frequent grass meadows and lie parallel to and close against the stem to keep themselves unnoticed.

The tarsi of the first and second pair of legs furnished with scopulae. Legs approximately equal in length; except *Ebo*. The upper margin of the furrow of the chelicerae armed with one or two teeth. These spiders are very active and pursue their prey with great rapidity. Most of the species live on plants; when at rest, the body is closely applied to the supporting objects, with the legs stretched out separate or in pairs.

The majority of Philodromid spiders thus wait for their prey to come within their reach and for this they can even change their colour to become inconspicuous. However members of some genera like *Tibellus*, *Thanatus* and *Philodromus* are fast runners and catch their prey with the help of the sense of touch as well as by sight.

Pocock (1900) in his 'Fauna of British India Arachnida', volume has dealt with spiders which are common and conspicuous. Apart from Scorpions, Uropygi, Amblypygi, Solifugae he recorded two hundred species of spiders from India, Burma and Sri Lanka. Many common and well known families like Philodromidae were not reported from India. Basu (1973), Tikader (1962a, b, 63, 65a, b, 66a, b, 71, 80) described many species of Philodromid spiders from India. Recently Gajbe and Rane (1992) described one species from Madhya Pradesh.

All the type specimens are deposited in National Zoological Collections, Zoological Survey of India, Kolkata.

#### Family PHILODROMIDAE Thorell

1870. *Philodromidae* Thorell, *Nova, Acta R. Soc. Scient. Upsal.*, 3(7) : 1-108.

1975. *Philodromidae* : Haman, *Z. Morph. Tiere*, 80 : 182.

*Type-genus* : *Philodromus* Walckenaer.

*Distribution* : All over the world.

#### Key to the Genera of the Family PHILODROMIDAE

1. Anterior lateral eyes nearer to the anterior median eyes than to the posterior median eyes. Cephalothorax not much longer than wide ..... *Philodromus* Walckenaer
- Anterior lateral eyes nearer to the posterior median eyes than to the anterior median eyes. Cephalothorax much longer than wide. Posterior lateral eyes conspicuously removed behind. .... 2

2. Cephalothorax much longer than wide. Posterior lateral eyes conspicuously removed behind. .... *Tibellus* Simon  
 — Cephalothorax not much longer than wide. Posterior lateral eyes not removed behind. ....  
 ..... *Dieta* Simon

### Genus 1. *Philodromus* Walckenaer

1825. *Philodromus* Walckenaer, *Ent. Fr. Ar.*, 86.

1895. *Philodromus* : Simon, *Hist. Nat. Ar.*, 1(4) : 1063.

1980. *Philodromus* : Tikader, *Fauna of India, Spiders*, 1(1) : 1-181.

*Characters* : Cephalothorax broader than long, relatively narrow in front. Eyes small and uniform in size and in smaller crescent-shaped group with the anterior row shortest, posterior strongly recurved, the medians further from each other than from the laterals. Abdomen usually oval, not appreciably widened or truncated behind. Legs relatively long, II pairs of legs generally longer than I pair, III and IV pairs a little shorter than I and II pairs.

Most of the species of this genus live on plants over which they can run very rapidly and their flat bodies enable them to get under cracks in bark. They are protectively coloured and difficult to see except when they move.

*Type-species* : *Philodromus aureolus* (Clerck).

*Distribution* : All over the world.

### Key to species of the genus *Philodromus* Walckenaer

1. Carapace without patches. Clypeal margin provided with small hairs. Abdomen not pentagonal ..... *pawani* sp. nov.  
 — Carapace with patches. Clypeal margin without small hairs or with spines. Abdomen pentagonal. .... 2
2. Tibiae and metatarsi of I leg provided with two pairs of ventral spines. .... 3  
 — Tibiae and metatarsi of I leg provided with three pairs of ventral spines. .... 4
3. Abdomen laterally and middorsally provided with brownish patch. .... *ketani* sp. nov.  
 — Abdomen brown with whitish patches. .... *durvei* Tikader
4. Cephalothorax without a hammer-shaped white band. Abdomen dorsally and laterally with black longitudinal inconspicuous patches. .... *rajani* sp. nov.  
 — Cephalothorax with a hammer-shaped white band. Abdomen dorsally with three faint chevrons. .... *domesticus* Tikader

1. *Philodromus pawani* sp. nov.

(Figs. 1-3)

*General* : Cephalothorax and legs yellowish-green, abdomen light yellowish-green. Total length 7.80 mm. long, Carapace 3.00 mm. long, 2.80 mm. wide; abdomen 4.90 mm. long, 3.00 mm. wide.

*Cephalothorax* : Depressed, longer than wide, posterior region slightly over-lapped by the abdomen. Clypeus narrow margin provided with small hairs directed forward. Eyes eight in two rows, round and black, ringed with white tubercles. Anterior row of eyes slightly recurved (as seen from in front), anterior medians slightly larger than the laterals and closer to adjacent laterals than to each other. Posterior row of eyes recurved, posterior medians smaller than the posterior laterals and closer to adjacent laterals than to each other. Median ocular quadrangle broader than long and wider behind than in front. Sternum oval, pointed behind, clothed with fine hairs. Legs relatively long, II leg slightly longer than I, clothed with fine pubescence, dorsal side of I femur provided with pairs of spines directed outwards. Tibiae and metatarsi of I leg provided with two pairs of ventral spines each. Tarsal scopulae well developed and claw tuft prominent.

*Abdomen* : Longer than wide, depressed, clothed with very fine pubescence, posterior end pointed and dorsally provided with pigmented irregular brown spots as in fig. 1. Ventral side slightly lighter than the dorsal. Epigyne as in fig. 2. Internal genitalia as in fig. 3.

*Type-specimens* : *Holotype* : ♀, *Paratype* 1 ♀, in spirit, other details as above. Registration Nos. 5444-5445/18.

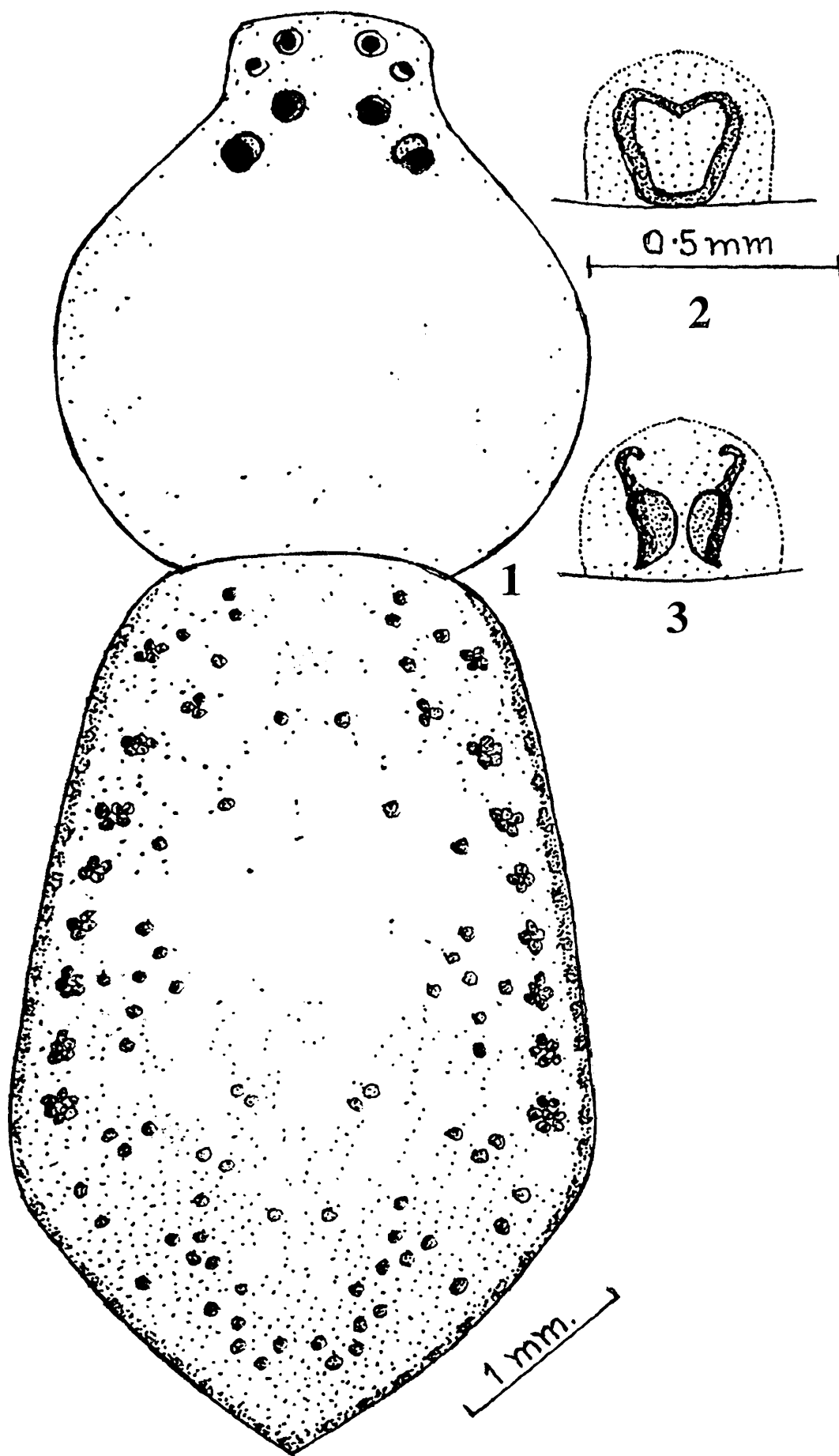
*Type-locality* : INDIA : Madhya Pradesh, Narayanganj, Mandla district, Coll. U.A. Gajbe, 23.1.1985. *Paratype* : INDIA : Madhya Pradesh, Chiraidongari village, Mandla district, Coll. U.A. Gajbe, 15.IX.1981.

*Remarks* : This species closely resembles *Philodromus shillongensis* Tikader but differs from it as follows : (i) Cephalothorax without patches, but in *P. shillongensis* cephalothorax laterally provided with pigmented patches. (ii) Dorsal side of femur I provided with two pairs of spines directed outward but in *P. shillongensis* dorsal side of femur I provided with one pair of spines directed outward. (iii) Abdomen provided with pigmented irregular brown spots but in *P. shillongensis* dorsum pigmented with irregular brown dots, antero-medially with a spear shaped light brown marking. (iv) Epigyne and internal genitalia also structurally different.

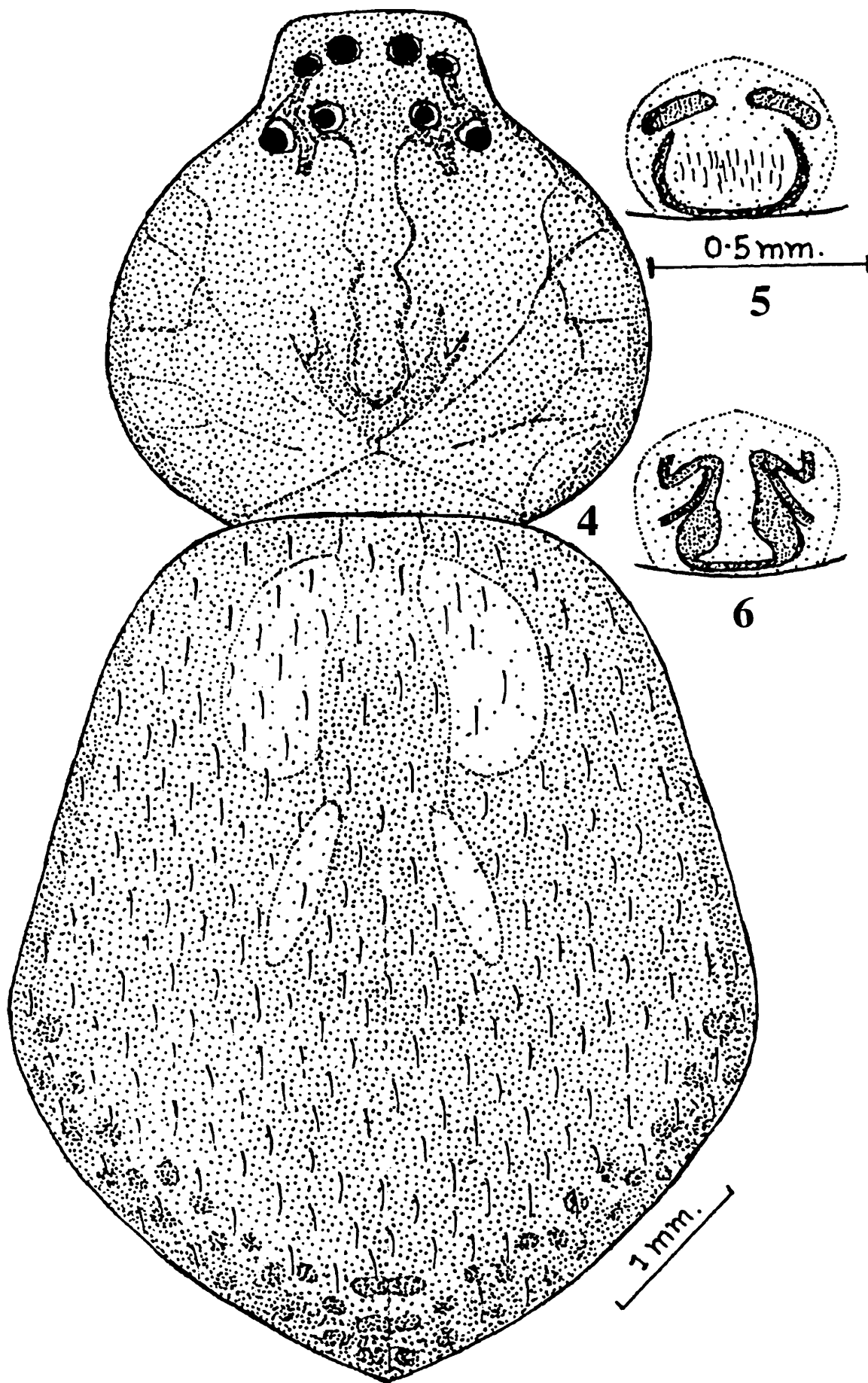
2. *Philodromus ketani* sp. nov.

(Figs. 4-6)

*General* : Cephalothorax reddish-green, legs brownish-green, abdomen brown. Total length 8.60 mm. Carapace 3.40 mm. long, 3.40 mm. wide; abdomen 5.40 mm. long, 4.50 mm. wide.



Figs. 1-3. *Philodromus pawani* sp. nov.;  
1. Dorsal view of female, legs omitted; 2. Epigyne; 3. Internal genitalia.



Figs. 4-6. *Philodromus ketani* sp. nov.;  
4. Dorsal view of female, legs omitted; 5. Epigyne; 6. Internal genitalia.

*Cephalothorax* : Depressed but cephalic region slightly high, as long as wide, narrowing in front, laterally provided with brownish patch and at the posterior half V-shaped brownish patch as in fig. 4 Clypeus medium and margin provided with spines directed forward. Eyes eight in two rows, round and black, ringed with white tubercles. Anterior row of eyes slightly recurved (as seen from in front), anterior medians are larger than the anterior laterals and closer to adjacent laterals than to each other. Posterior laterals are closer to adjacent laterals than to each other. Median ocular quadrangle broader than long and broad behind than in front. Sternum oval, clothed with fine hairs. Legs relatively long and strong, II leg slightly longer than I clothed with fine pubescence and spines. Femur I dorsally provided with two pairs of spines directed forwards. Tibiae and metatarsi of I leg provided with two pairs of ventral spines each. Tarsal scopulae well developed and claw tuft prominent.

*Abdomen* : Longer than wide, nearly pentagonal, widest behind the middle, clothed with hairs, posterior end obtusely pointed, laterally provided with brownish patch and middorsally provided with brownish patch and two whitish patches. Ventral side slightly lighter than the dorsal. Epigyne as in fig. 5. Internal genitalia as in fig. 6.

*Type-specimen* : *Holotype* : ♀, in spirit, other details as above. Registration No. 5446/18.

*Type-locality* : INDIA : Madhya Pradesh, Barela village, Jabalpur district, Coll. U. A. Gajbe, 22.XII.1981.

*Remarks* : This species resembles *Philodromus devhutai* Tikader but differs from it as follows : (i) Cephalothorax laterally provided with patch and middorsally V-shaped brownish patch but in *P. devhutai* cephalothorax laterally with conspicuous pigmented patch. (ii) Abdomen laterally with brownish patch and mid-dorsally with two whitish patches but in *P. devhutai* abdomen with very prominent black bands. (iii) Epigyne and internal genitalia also structurally different.

### 3. *Philodromus durvei* Tikader

1980. *Philodromus durvei* Tikader, *Fauna of India, Spiders*, 1(1) : 204.

*Specimen examined* : 1 ♂, Supkhar, Chilpura tank, Kanha National Park, Mandla district, Madhya Pradesh, Coll. R. K. Singh, 1.XII.1986, (Reg. No. A/1771).

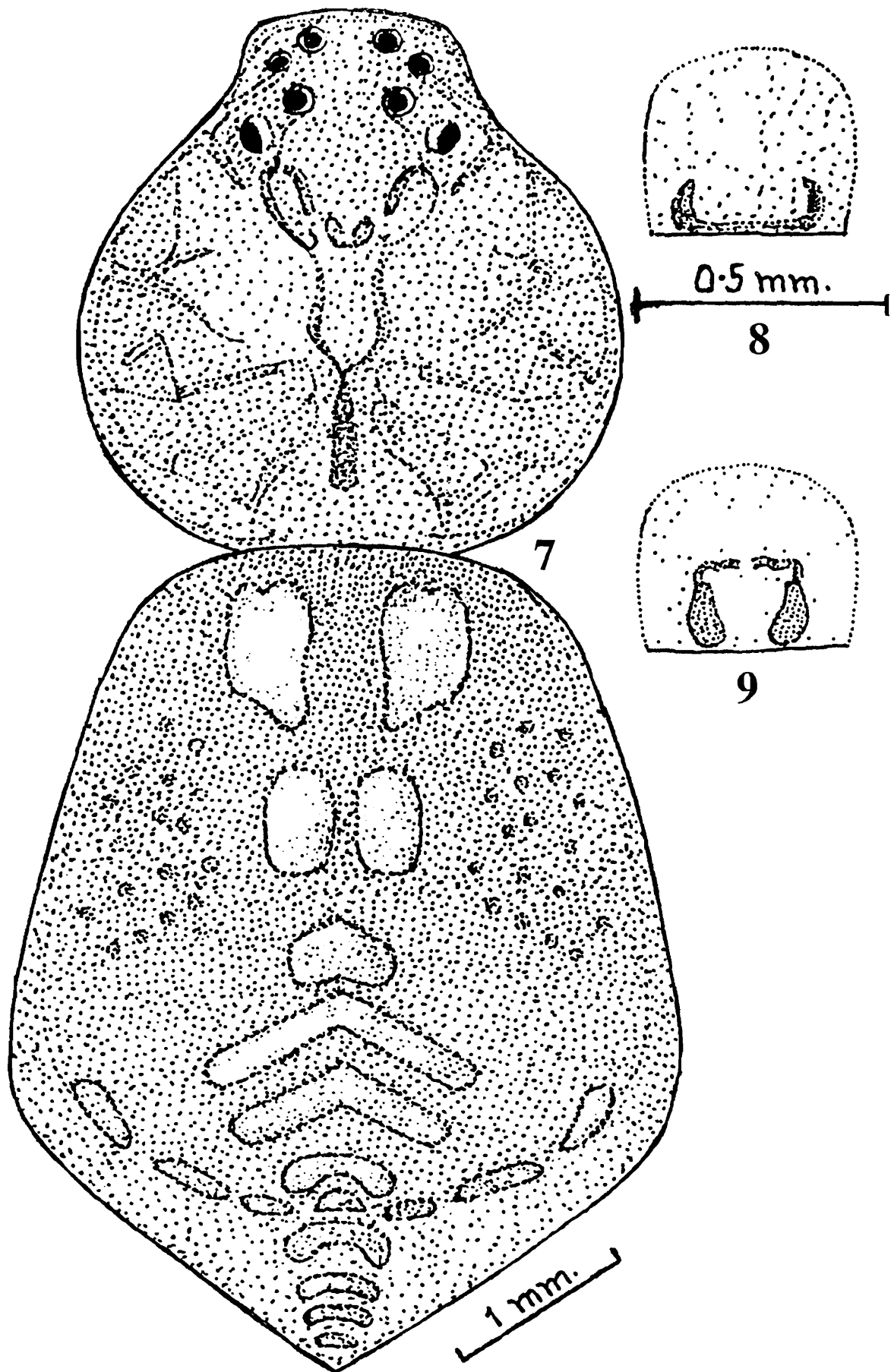
*Distribution* : INDIA : Jabalpur, Madhya Pradesh.

*Remarks* : This species is being reported here for the first time from Mandla district of Madhya Pradesh.

### 4. *Philodromus rajani* sp. nov.

(Figs. 7-9)

*General* : Cephalothorax and legs deep yellowish-green, abdomen brown. Total length 7.40 mm. Carapace 3.10 mm. long, 2.90 mm. wide; abdomen 4.40 mm. long, 3.50 mm. wide.



Figs. 7-9. *Philodromus rajani* sp. nov.;  
7. Dorsal view of female, legs omitted; 8. Epigyne; 9. Internal genitalia.



**Cephalothorax** : Depressed, longer than wide, posterior region slightly over-lapped by the abdomen, clothed with fine hairs, laterally and middorsally provided with brown reticulations. Clypeus narrow. Eyes eight in two rows, round and black, ringed with white tubercles. Anterior row of eyes slightly recurved, anterior medians slightly larger than the laterals and close to laterals than to each other. Posterior row of eyes strongly recurved, medians very smaller than the laterals and closer to lateral than to each other. Median ocular quadrangle broader than long and broader behind than in front. Sternum oval, pointed behind, clothed with fine hairs. Legs relatively long, II leg slightly longer than I, clothed with fine pubescence, dorsal side of I femur provided with two pairs of spines directed outwards. Tibiae and metatarsi of I leg provided with three pairs of ventral spines each. Tarsal scopulae developed and claw tufts prominent.

**Abdomen** : Nearly pentagonal, longer than wide, widest behind the middle, clothed with hairs, posterior end obtusely pointed and provided with silvery white patches as in fig. 7. Ventral side lighter than the dorsal and laterally provided with black longitudinal incontinuous patches. Epigyne as in fig. 8. Internal genitalia as in fig. 9.

**Type-specimen** : *Holotype* : ♀, in spirit, other details as above. Registration No. 5447/18.

**Type-locality** : INDIA : Madhya Pradesh, Bangal village, Patan Tahsil, Jabalpur district, Coll. U.A. Gajbe, 19.X.1981.

**Remarks** : This species resembles *Philodromus betrabatai* Tikader but differs from it as follows : (i) Cephalothorax mid-dorsally and laterally provided with brown reticulations but in *P. betrabatai* lateral margins with pigmented patches. (ii) Abdomen dorsally provided with silvery white patches but in *P. betrabatai* abdomen provided with pale triangular patch on either side of the median line and faint pale chevrons. (iii) Epigyne and internal genitalia also structurally different.

### 5. *Philodromus domesticus* Tikader

1962. *Philodromus domesticus* Tikader, *Proc. zool. Soc. Calcutta*, **15**(1) : 39.

1980. *Philodromus domesticus* : Tikader, *Fauna of India, Spiders*, **1**(1) : 183.

**Specimen examined** : 2 ♀ ♀, Ajoygarh forest, Panna district, Madhya Pradesh, Coll. R.K. Singh, 13.II.1987, (Reg. No. A/1772).

**Distribution** : INDIA : Shillong, Meghalaya, Panna, Madhya Pradesh.

**Remarks** : This species is being reported here for the first time from Madhya Pradesh.

### Genus 2. *Tibellus* Simon

1875. *Tibellus* Simon, *Ar. Fr.*, **2** : 307.

1895. *Tibellus* : Simon, *Hist. Nat. Araign.*, **1**(4) : 1065.

**Characters** : Cephalothorax appreciably longer than wide. The change in position of the eyes have gone further than in the genus *Thanatus*, and the eyes of the anterior row, with the posterior

median pair, form a small compact hexagonal group from which the posterior laterals conspicuously removed. Abdomen long and cylindrical or cigar-shaped. Legs relatively long, bearing scopulae on both tarsi and metatarsi. These spiders are found in grass and on bushes; when at rest the legs are stretched out longitudinally, two pairs forward and two pairs backward.

*Type-species* : *Tibellus oblongus* (Walckenaer).

*Distribution* : EUROPE, AMERICA, AFRICA and ASIA.

#### 6. *Tibellus poonaensis* Tikader

1962. *Tibellus poonaensis* Tikader, *J. Univ. Poona Sci. & Tech.*, **22** : 135.

1980. *Tibellus poonaensis* : Tikader, *Fauna of India, Spiders*, **1(1)** : 215.

*Specimen examined* : 1 ♀, Mura village, Betul district, Madhya Pradesh, Coll. H.S. Sharma, 24.II.1990, (Reg. No. A/1773).

*Distribution* : INDIA : Poona, Maharashtra, Betul, Madhya Pradesh.

*Remarks* : This species is being reported here for the first time from Madhya Pradesh.

#### 7. *Tibellus elongatus* Tikader

1960. *Tibellum elongatus* Tikader, *J. Bombay nat. Hist. Soc.*, **57(1)** : 177.

1980. *Tibellus elongatus* : Tikader, *Fauna of India, Spiders*, **1(1)** : 217.

*Specimen examined* : 3 ♀ ♀, Singhpur, Panna district, Madhya Pradesh, Coll. R.K. Singh, 16.II.1987, (Reg. No. A/1774). 1 ♀, Shikara village, Lakhanadon Tahsil, Seoni district, Madhya Pradesh, Coll. U.A. Gajbe, (Reg. No. A/1775).

*Distribution* : INDIA : Kolkata, West Bengal, Panna, Seoni, Madhya Pradesh.

*Remarks* : This species is being reported here for the first time from Madhya Pradesh.

#### Genus 3. *Dieta* Simon

1880. *Dieta* Simon, *Ann. Soc. ent. Fr.*, **10(5)** : 108.

1980. *Dieta* : Tikader, *Fauna of India, Spiders*, **1(1)** : 233.

*Characters* : Cephalothorax flat, longer than wide and abruptly narrowing anteriorly on the ocular area. Eyes prominently tuberculated, lateral eyes larger than medians, both rows recurved but anterior row more recurved than the posterior row. The four median eyes form a rectangular area as wide behind as in front. Legs I and II remarkably long and spinnerets situated at the posterior end of abdomen.

*Type-species* : *Dieta parnassia* Simon.

*Distribution* : AFRICA, ASIA, Oriental regions and JAPAN.

### 8. *Dieta elongata* Tikader

1980. *Dieta elongata* Tikader, *Fauna of India, Spiders*, 1(1) : 234.

*Specimen examined* : 2 ♀ ♀, on the bank of Megha river, 7 km. from Forest Rest House, Kukru, Betul district, Madhya Pradesh, Coll. H.S. Sharma, 1.IV.1990, (Reg. No. A/1776). 1 ♀, Patehi village on Katawadi, Shahpur road, Betul district, Madhya Pradesh, Coll. H.S. Sharma, 21.III.1990, (Reg. No. A/1777).

*Distribution* : INDIA : Poona, Maharashtra; Betul, Madhya Pradesh.

*Remarks* : This species is being reported here for the first time from Madhya Pradesh.

### SUMMARY

This paper deals with 8 species under 3 genera of the family Philodromidae out of which 3 species are described as new to science.

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