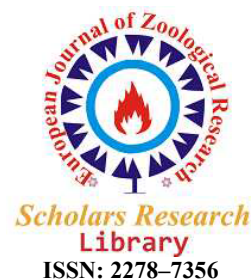




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First report of the genus *Draconarius Ovtchinnikov*, 1999 (Araneae: Agelenidae: Coelotinae) with description of a new species from India

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ABSTRACT

The genus *Draconarius Ovtchinnikov* sp. nov., 1999 (Family: Agelenidae) is for the first time reported from India with description of a new species *Draconarius joshimath* from Nanda Devi Biosphere Reserve, Western Himalaya. It includes taxonomic description of both sexes.

Keywords: *Draconarius*, Agelenidae, Western Himalaya, new species

Abbreviations: ALE: Anterior Lateral Eye; AME: Anterior Median Eye; fe: Femur; HT: Holotype; MOA: Median Ocular Area; mt: Metatarsus; OA: Ocular Area; PME: Posterior Median Eye; PLE: Posterior Lateral Eye; PT: Paratype; pa: Patella; ta: Tarsus; ti: Tibia; WILD: Wildlife Information Liaison Development Society

INTRODUCTION

Among Agelenids *Draconarius Ovtchinnikov*, 1999, is the most diverse genus under the subfamily Coelotinae. Coelotine spiders have a wide distributional range worldwide and commonly found in North America west to the Rocky Mountains and north to southern Canada; Europe north to southern Sweden and Finland; Asia north to southern far eastern Russia, south to Nepal, northern Vietnam, Laos and central Thailand [1-7]. East and Southeast Asian region is very rich in Coelotine spiders and comprises 83% (468 of 562) of all Coelotine species so far known.

Currently, it comes under family Agelenidae with more than half of the species of this family [8,9], found throughout the Palearctic [10], primarily ranging from western Tajikistan to Korea and south to Thailand. In Asia, this genus comprises more than 100 species, 80 out of which being found in China only [11]. Among these, 39 species are placed in nine separate species groups [12,13], rest being unclassified due to lack of either of the sexes. These spiders are primarily ground dwellers and usually occur under stones, rocks and leaf-litter. They do not get dispersed by ballooning and tend to show geographical and regional variations [14]. Thus, for proper classification and to understand more accurately the diversity and distribution of these spiders, reporting of both sexes is of prime importance.

MATERIALS AND METHODS

Specimens were collected from Joshimath, Nanda Devi Biosphere Reserve (NDBR: 30°08'-31°02'N Latitude, 79°12'-80°19'E Longitude), which is located in the northern part of Western Himalaya and comprises parts of Chamoli district in Garhwal, Bageshwar and Pithoragarh districts in Kumaun in the Uttaranchal state. Adult specimens were collected from the ground by active search method, preserved in 70% ethanol and examined under a stereomicroscope (MOTIC™); all the illustrations were prepared with the aid of a camera lucida. All measurements are in millimetres (mm) using an ocular micrometer. Epigyna were dissected and cleaned using 10% KOH. Photographs were taken with a Leica DFC 290 stereomicroscope. Type material was deposited in the public museum of Wildlife Information Liaison Development Society (WILD), Coimbatore, Tamil Nadu, India.

Taxonomy

Draconarius joshimath sp. nov.

(Figure 1: A-E female, Figure 2: F-K male and Table 1)

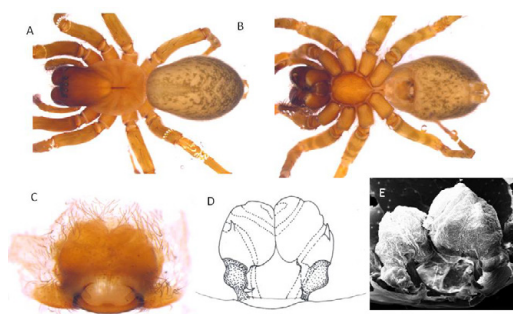


Figure 1: (A-E). *D. joshimath* sp. nov., holotype female: A-B, female habitus; C, external epigynum; D internalepiginum, scale=1.0 mm; E, SEM image of epigynum scale=100 µm.

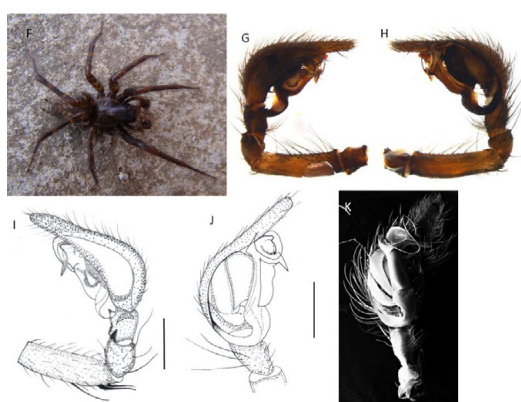


Figure 2: (F-K). *D. joshimath* sp. nov., Allotypemale: F, male habitus; G-K, male palp; G-J, prolateral view; I,retrolateral view, scale=1.0 mm; K, SEM image of ventral view of palp scale=100 µm.

Table 1: Leg morphometry of *Draconarius joshimath* sp. nov. from Nanda Devi Biosphere Reserve, holotype WILD-09-ARA-1305, allotype WILD-09-ARA-1306, paratype WILD-09-ARA-1307.

Legs	I			II			III			IV		
	HT	AT	PT	HT	AT	PT	HT	AT	PT	HT	AT	PT
Fe	1.7	2.2	1.7	1.4	2.1	1.6	1.3	1.9	1.4	1.8	2.1	1.8
Pa	0.8	0.9	0.9	0.7	0.7	0.8	0.6	0.6	0.7	0.6	0.7	0.8
Ti	1.6	1.9	1.7	1.1	1.6	1.4	1.1	1.1	1.1	1.2	1.8	1.6
Mt	1.6	1.5	1.6	1.5	1.4	1.5	1.4	1.4	1.2	1.9	1.8	2
Ta	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.9	0.9	0.8
Total	6.5	7.3	6.7	5.5	6.6	6.1	5.1	5.7	5.1	6.4	7.3	7

Material Examined

Type: Holotype: female, 16 July 2009, Joshimath, Chamoli District (NDBR), Uttarakhand, India, elevation 2293 m, N 30°32'57.6" E 79°36'02.4". WILD-09-ARA-1305 (Shazia Quasin). Allotype male same data as holotype, WILD-09-ARA-1306. Paratype: 1 female, 20 July 2009, elevation 2243m, N 30°33'02.6" E 79°33'14.0", WILD-09-ARA-1307 (Shazia Quasin).

Diagnosis: This new species is similar to *D. adnatus*, Wang et al., and *D. wudangensis*, Chen and Zhao but female can be distinguished from these known similar species by presence of broad atrium with epigynal teeth located on either side of posterior rim of atrium, and mathecae head having externally five rings appearing as broad coiled structure; in male Cymbium with distinct elongated fold covering basal $\frac{3}{4}$ cymbium length whereas in *D. adnatus* Cymbial furrow about $\frac{2}{3}$ rd of cymbial length.

Etymology: The specific epithet is a noun taken in apposition with reference to the type locality, Joshimath.

Colour in Alcohol: Carapace reddish brown, cephalic area darker than thoracic area, reticulation markings in patches; the margins of thoracic region lighter. Abdomen: grey with chevron markings; legs orangish-yellow, posterior end yellowish.

Description- Holotype: Female (WILD-09-ARA-1305)

Medium sized Coelotinae spider, total length 14.0. Carapace 6.5 long, 5.1 wide, abdomen 7.5 long, 5.3 wide. Carapace broad in posterior half, pear-shaped, covered with small pallid hair, having 4 pairs of patterned radial striae. Cephalic region slightly raised than thoracic region, anterior cephalic region including ocular area covered with long pallid hair, caput high, two pairs of long black hairs on mid-dorsal caput before fovea, fovea long, deep, chillum triangular, divided and distinct. Eyes eight, all on very low tubercle with black rim. Eye diameter: AME 0.1, PME 0.2, ALE 0.2, PLE 0.2. Interdistance between eyes: PME-PLE 0.3, ALE-PLE 0.1, AME-ALE 0.08, AME-AME 0.2, PME-PME 0.15, OQ 0.5 long, 1.5 wide, MOQ 0.6 long and 0.7 wide, clypeus 0.4 high. AME smallest, ALE, PME and PLE appear to be subequal. Sternum 2.5 wide, 3.5 long, slightly oval, bluntly acuminate posteriorly, covered with long black hair converging centrally; Labium 0.8 wide, 1.0 long, longer than wide, short-arrow shape; Endites 0.9 wide, 1.6 long, gently rounded on margins, broader posteriorly. Chelicerae longer than wide with three promarginal teeth and two retromarginal teeth, single condyles on retrolateral chelicerae. Leg formula: 4132. Abdomen longer than wide, oval, widest in middle, gradually narrowing posteriorly, dorsally yellowish brown completely mottled with black and yellowish patches, anterior median black marked, bordered with yellowish band for length, five-six pairs of light yellowish chevrons with dark margins in posterior half of light band, sides greyish-brown, ventrally abdomen light yellowish with small black patches scattered all over; six pairs of sigilla; cuticle not exposed, covered with fine short grey hair intermixed with long brown and pallid hairs, more dense laterally and posteriorly. 3 pairs of spinnerets, posterior spinneret longest.

Epigynum: Epigynal teeth short arising on either side of atrium anterolaterally, pointed posteriorly; epigynal hood on anterior margin of atrium; atrium broad, large, wider than long, margins sclerotized, shallow with a wide posteriolateral tip, situated close to the epigastric furrow; Spermathecae large, globular and on stalks, anteriorly strongly converging, stalks widely separated, prolateral sides of the spermathecae distinct; Spermathecae head having externally five rings appearing as broad coiled structure. Copulatory ducts long, broad, above fertilization ducts, emerging on stalks of spermathecae and covering entire spermathecae in three loops.

Allotype: Male (WILD-09-ARA-1306)

Total length 12.4. Carapace 6.3 long, 4.5 wide. Abdomen 6.1 long, 3.9 wide. Clypeus 0.45 high; Eyes: AME=0.2, PME=0.21, ALE 0.2, PLE 0.1. Distance between eyes: PME-PLE=0.3, ALE-PLE=adjacent, AME-ALE=0.1, AME-AME= 0.15, PME-PME=0.18, OQ=0.3 long, 1.6 wide, MOQ=square (0.5 long and 0.5 wide). Endites 0.8 wide 1.6 long, Labium 0.7 wide 0.9 long, Sternum 2.1 wide 2.6 long. Specimen in live is with lighter margin and striae in carapace. Carapace blackish brown. Legs banded. Abdomen greyish brown with five yellowish chevrons. Chelicerae with two retro and three promarginal teeth. Cuticle is exposed, covered with sparse short and long hairs. Posterior spinnerets longest. Reticulate markings on carapace not as dense as in female. Chillum divided. Rest data same as holotype female.

Male Palp: Palp with one patellar apophysis distinct and broad and distinctly longer than RTA, with a rounded tip. RTA short, broad with blunt tip. Lateral apophysis short like a flap, broad and with curved edge. Cymbium with distinct elongated fold covering basal $\frac{3}{4}$ cymbium length, dorsal cymbium edge concave. Embolus origin posteriorly in 6 o'clock position, with broad base, gradually narrowing down, long, coiled distally. Conductor broad narrowing down distally; Conductor lamellae and dorsal apophysis present.

Paratype: Female (WILD-09-ARA-1307)

Total length 13.4. Carapace 6.2 long, 4.5 wide. Abdomen 7.2 long, 4.8 wide. Clypeus 0.4 high; Eyes: AME= 0.2, PME=0.1, ALE 0.2, PLE 0.2. Distance between eyes: PME-PLE=0.2, ALE-PLE=0.1, AME-ALE=0.1, AME-AME=0.2, PME-PME=0.2, OQ=0.4 long, 1.4 wide, MOQ=square (0.4 long and 0.6 wide). Endites 1.2 wide 1.4 long, Labium 0.8 wide 0.4 long, Sternum 2.2 wide 1.2 long.

Distribution: Joshimath, Nanda Devi Biosphere Reserve, India. Known only from the type locality.

Distribution: Joshimath, Nanda Devi Biosphere Reserve, Uttarakhand India.

DISCUSSION

Here in described Female have abdomen longer than wide, oval, widest in middle, gradually narrowing posteriorly, dorsally yellowish brown completely mottled with black and yellowish patches, anterior median black marked, bordered with yellowish band for length, five-six pairs of light yellowish chevrons with dark margins in posterior

half of light band, sides greyish-brown, ventrally abdomen light yellowish with small black patches scattered all over. While the Male have abdomen greyish brown with five yellowish chevrons, Chelicerae with two retro and three promarginal teeth. Cuticle is exposed, covered with sparse short and long hairs, posterior spinnerets longest. Reticulate markings on carapace not as dense as in female. Chillum divided. Rest data same as holotype female.

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