

## REDESCRIPTION OF MALE AND RANGE EXTENSION OF *Araneus viridisomus* GRAVELY, 1921 (ARANEAE: ARANEIDAE)

V. K. Patil<sup>1#</sup> and V. P. Uniyal<sup>2\*</sup>

<sup>1</sup>College of Forestry, DBSKKV, Dapoli, Ratnagiri, Maharashtra - 415712

<sup>2</sup>Wildlife Institute of India, Post Box No. 18, Chandrabani, Dehradun, Uttarakhand – 248 001

\*uniyalvp@wii.gov.in

#corresponding author: vinarachna@gmail.com

### ABSTRACT

Male of *Araneus viridisomus* Gravelly, 1921 is described in detail and illustrated for the first time including the palpal structure. Further, range of this species is extended to the western coastal region of India, thus making this species considerably widespread.

**Keywords:** spider, Araneidae, Konkan, Maharashtra, India.

### INTRODUCTION

The little known *Araneus viridisomus* Gravelly, 1921 (Araneae: Araneidae) described from Barkuda islands in Odisha, India was lost to science for nearly a century until it was recently reported from Tamil Nadu, India by Caleb & Mathai (2014). The diagnosis and illustrations of the female species provided therein helped in confirming the identity of the specimen in our collection as *A. viridisomus*. However, the original description of male by Gravelly (1921) is very brief and lacks illustrations and description of the palpal structure. Albeit, characters mentioned there are adequate enough to identify the males of this species. Thus, the male specimen could be identified as *A. viridisomus*, and a detailed description and illustrations of the male species are presented in the current paper.

### MATERIAL AND METHODS

The specimens were collected during fieldwork carried out in Dapoli taluka of Ratnagiri district in Maharashtra state of India during October 2013 to February 2015. The specimens were collected, photographed and preserved in 70% alcohol. They were examined with the help of a Labomed stereozoom microscope. Photographs were taken with a Dinolite digital microscope and measurements were taken with the help of Dinocapture 2.0 software. All measurements are in mm. Leg measurements follow the sequence: total (femur, patella+tibia, metatarsus, tarsus). The specimens are presently held in the spider collection of College of Forestry, DBSKKV, Dapoli. Subsequent to the publication of this paper, they will be deposited in a national repository.

**Abbreviations used:** AL = abdomen length, ALE = anterior lateral eye, AME = anterior median eyes, AW = abdomen width, aw/pw = anterior width/posterior width, CL = carapace length, CW = carapace width, l/w = length/width, MA = median apophysis, PME = posterior median eyes, STA = subterminal apophysis, TA = terminal apophysis.

### TAXONOMY

*Araneus viridisomus* Gravelly, 1921  
(Figures 1–11)

*Araneus viridisoma* Gravelly, 1921: 415, f. 3c ♂♀

*Araneus viridisomus* Caleb & Mathai, 2014: 3, f. 1-9 ♀

**Material examined:** 1 female, 12.XI.2013, mango plantation, Gavhe, 17°44'9.38"N 73°9'55.86"E, Vinayak Patil (CFOR-S331); 1 female, 30.X.2014, moist deciduous forest, Gavtale, 17°42'22.29"N 73°17'13.90"E, Vinayak Patil & Swastik Gawade (CFOR-S883); 1 male, 1.XI.2014, cashew plantation, Rukhi, 17°41'15.74"N 73°17'19.49"E, Vinayak Patil & Swastik Gawade (CFOR-S894); 1 female, 4.XI.2014, moist deciduous forest, Kadivali, 17°52'11.19"N 73°13'44.01"E, Vinayak Patil & Harshal Patekar (CFOR-S911).

**Diagnosis:** Caleb & Mathai (2014) provided a redescription and diagnosis for female *A. viridisomus* which included "longer wrinkled scape and ducts that run laterally outwards from the copulatory openings". However, this was in comparison with *A. nympa* Simon, 1889 which is apparently similar morphologically, but has very wide and short epigynal scape (figs. 458-461 in Tikader, 1982 & 289.2-4 in Hu, 2001) and the male palpal structure is also different (figs. 290.1-3 in Hu, 2001). The overall morphology and genitalic characters bring this species close to *A. pentagrammicus* (Karsch, 1879) and *A. amabilis* Tanikawa, 2001 - the species that have long narrow scape somewhat flattened at the tip.

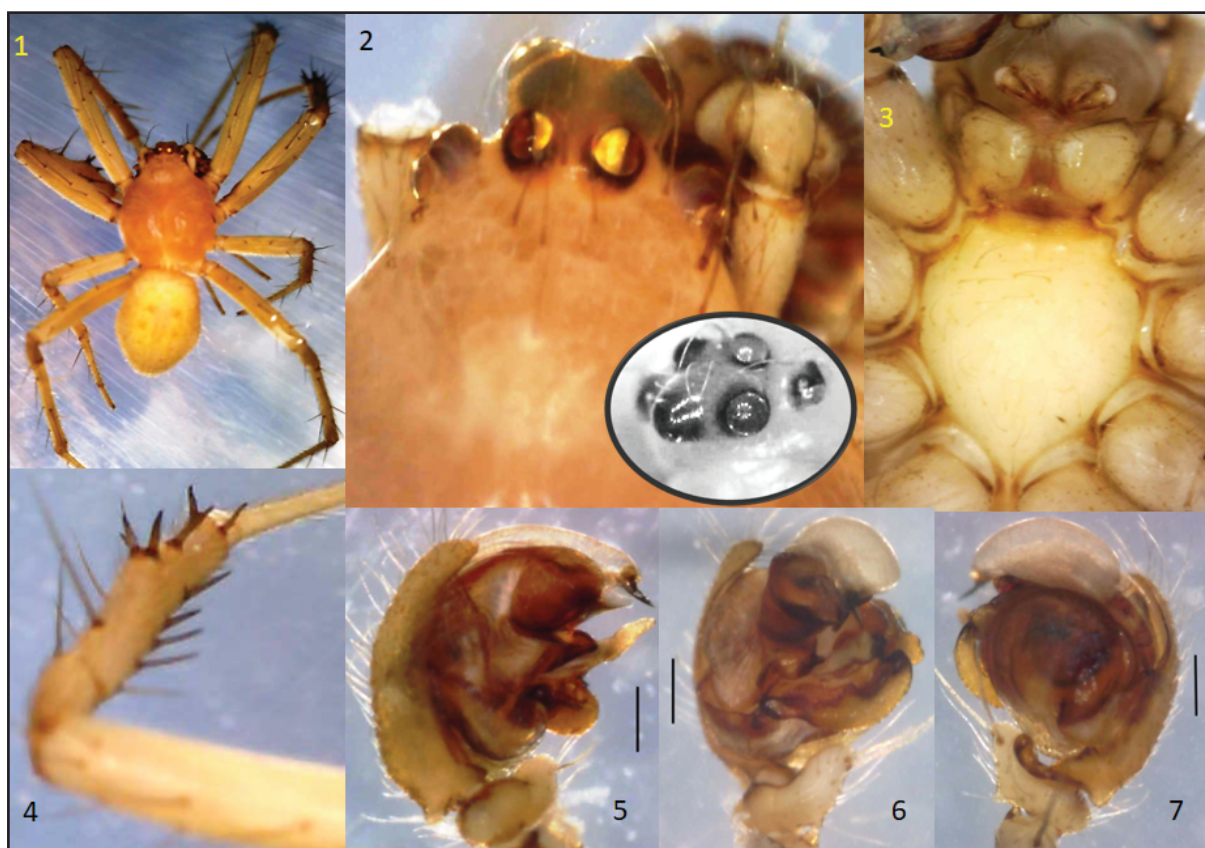
Gravely (1921) provided only spination on tibia of leg II as diagnostic feature. It included "a row of 4 or 5 stout spines on the basal two thirds of the ventral surface and a group of about 4 similar spines rather more than half way along the inner surface with a subapical spine beyond them." This character is observed in the male examined (Figure 4). However, such characteristic spines are not recorded on the corresponding legs in the females of this species. The male palpal structure recorded for the first time in the present study also shows affinity with *A. pentagrammicus* and *A. amabilis*. All the three species show a long and pointed TA but differ in the shape of the STA. In *A. viridisomus*, the STA is leaf shaped. The conductor is long and narrow. The MA is basally dumbbell shaped and distal end is turned like a hook.

#### **Description: Male** (Figures 1-7)

Live specimen green entirely, except on the dorsum of abdomen which is chalk-white to yellowish white. However, the colour is lost in alcohol and the entire specimen turns yellowish white. Total length 5.25 (CL 2.31, AL 2.94); CW = 1.78; AW = 1.56.

Cephalothorax longer than wide, cephalic region narrowed. Both eye rows recurved, the anterior more than the posterior. AME largest and located on prominently produced area. Eye measurements: AME 0.12, PME 0.09, ALE 0.08, PLE 0.08. Interocular distances: AME-AME 0.10, PME-PME 0.08, AME-ALE 0.16, PME-PL 0.12. MOQ aw/pw 0.36/0.30, l/w 0.28/0.32. Chelicerae uniformly coloured with 4 promarginal and 3 retromarginal teeth. Sternum, labium and maxillae uniformly coloured, typical *Araneus* shaped, covered sparsely with long setae. Legs uniformly yellowish white, covered with numerous spines. Spination in leg II typical: femur bears a ventral row of 7-8 strong spines covering almost the entire length, tibia bears a ventral row of 5 stout spines on the proximal two-third length, a group of 4 stout spines prolaterally more than halfway along the length followed by a similar apical and a subapical spine. Leg measurements: I 10.33 (2.82, 3.36, 3.08, 1.07); II 8.32 (2.34, 2.41, 2.60, 0.97); III 5.11 (1.61, 1.64, 1.26, 0.60); IV 8.16 (2.33, 2.67, 2.38, 0.78). Leg formula 1243. Abdomen longer than wide, uniformly coloured without any distinct markings, clothed with hairs; 4 pairs of sigillae present.

Palpal structures as described in the diagnosis and shown in Figures 5-7.



**Figures 1-7** *Araneus viridisomus*, 1. male habitus, 2. eyes area with frontal view inset, 3. sternum, 4. tibia of left leg II, 5. palpal bulb- prolateral, 6. ventral and 7. retrolateral. Scale bar- 0.2 mm.

### Female (Figures 8-11)

Total length 9.25 (CL 3.55, AL 5.69); CW = 2.62; AW = 4.29

Eye measurements AME 0.15, PME 0.12, ALE 0.12, PLE 0.10; Interocular distances: AME-AME 0.13, PME-PME 0.14, PME-PL 0.23, AME-ALE 0.18. MOQ aw/pw 0.40/0.35, l/w 0.35/0.40. Coloration same as male and description provided adequately in Caleb & Mathai (2014).

**Distribution:** India: Odisha; Tamil Nadu; Maharashtra (this report).

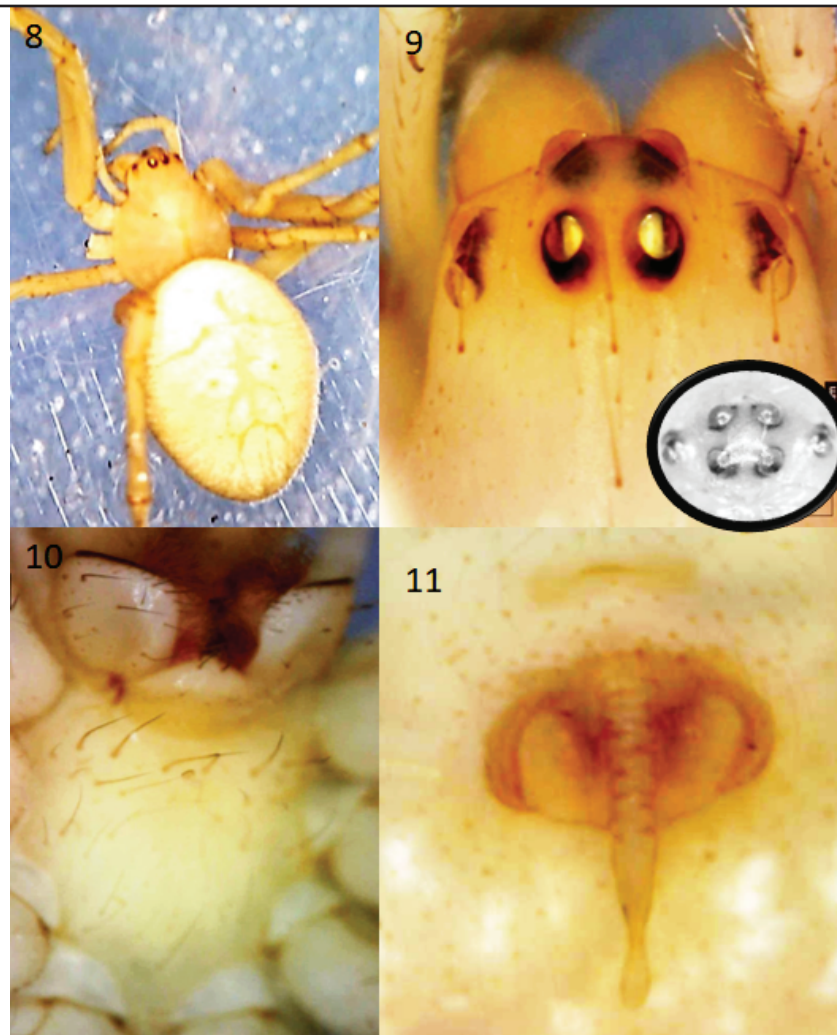
### ACKNOWLEDGEMENTS

We are thankful to the volunteers who accompanied the first author to field. We also express our gratitude towards Dr. S. S. Narkhede, Associate Dean, College of Forestry, Dapoli and Dr. P. K. Mathur, Dean, Wildlife Institute of India, Dehradun for support and encouragement. Thanks are also due to Dr. John Caleb for supporting this manuscript and the anonymous referee whose comments helped to improve it.

### REFERENCES

**Caleb T. D., J. & Mathai, M. T. (2014).** Record of *Araneus viridisomus* Gravelly, 1921 (Araneae: Araneidae) from Tamil Nadu, India. *Indian Journal of Arachnology* 3(2): 1-5.





**Figures 8-11** *Araneus viridisomus*, 8. female habitus, 9. eyes area with frontal view inset, 10. sternum, 11. epigyne.

**Gravely, F. H. (1921).** The spiders and scorpions of Barkuda Island. *Records of the Indian Museum*, Calcutta 22: 399-421.

**Hu, J. L. (2001).** *Spiders in Qinghai-Tibet Plateau of China*. Henan Science and Technology Publishing House, 658 pp.

**Tanikawa, A. (2001).** Twelve new species and one newly recorded species of the spider genus *Araneus* (Araneae: Araneidae) from Japan. *Acta Arachnologica*, Tokyo 50: 63-86.

**Tikader, B. K. (1982).** Family Araneidae (=Argiopidae), typical orbweavers. *Fauna India (Araneae)* 2: 1-293.