

APPENDIX

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I. Paper published: 1

1. Awate, M. R. and Sathe, T. V. (2007). On a new species of the genus *Gryllotalpa* Latreille (Orthoptera: Gryllotalpidae) from India. ***Indian J. Environ. & Ecoplann.* 14** (3), 625-628.

II. Paper accepted for publication in Journals: 1

1. Awate, M. R. and Sathe, T.V. (2008). On a new species of the genus *Gryllotalpa* Latreille (Orthoptera: Gryllotalpidae) from India. ***J. Curr. Sci;* 12** (1), (In Press).

III. Paper Presented in Conferences: 2

1. Awate, M. R. and Sathe, T.V. (2007). On a new species of the genus *Gryllotalpa* Latreille (Orthoptera: Gryllotalpidae). Proc. In International Conference on Recent Trends in Biodiversity and Biotechnology. Organized by Dept. of Zoology, Dr. B. A. M., University, Aurangabad, 84.
2. Awate, M. R. and Sathe, T.V. (2008). On a new species of the genus *Gryllotalpa* Latreille (Gryllotalpidae: Orthoptera) from India. National Conference on Animal Bio-diversity and Sustainable Development. Organized by Dept. Zoology Shrikrishna Mahavidyalya, Gunjoti Tal. Omurga Dist. Osmanabad, 83.

ON A NEW SPECIES OF THE GENUS *GRYLLOTALPA* LATREILLE (ORTHOPTERA : GRYLLOTALPIDAE) FROM INDIA

Manisha R. Awate and T. V. Sathe

Department of Zoology, Shivaji University, Kolhapur - 416 004, Maharashtra, India.

ABSTRACT

A new species of Mole cricket, *Gryllotalpa kolhapurensis* sp. nov. (Orthoptera : Gryllotalpidae) has been described for the first time from India. The species runs close to *G. ornata* Walker by having following characters: Size small (20 – 30 mm); Colour dark brown; Ocelli very small; However, it differs from the above species by having following features; Mirror elongately narrow; Flagellar formula; Hind tibia armed on the internal margin with 6 long and slender spines; Fore tibial structure.

Keywords : Mole cricket, description, *Gryllotalpa kolhapurensis* sp. nov; India.

INTRODUCTION

Order Orthoptera of class insecta is very important from the view point of economic importance of insects. Grasshoppers, locusts, crickets and mole crickets are important groups of insect which are included under this order. Mole crickets have special importance since they are associated with human habitation and they contaminate our food and secondly, they produce monotonous noise, hence they are nuisance to humans. Therefore, present work was aimed to study the taxonomy of mole crickets.

The order Orthoptera comprises twelve families. Out of which family Gryllotalpidae contain mole crickets. The Gryllotalpidae is known by their trivial name as mole Crickets. They have elongate body and small and conical head with two ocelli. Pronotum shape is convex and ovipositor is completely aborted and a typical modification in fore tibia. The family contain two genera viz. *Scapteriscus* Scudder and *Gryllotalpa* Latr.

The genus *Gryllotalpa* was erected by Latreille in 1802 with the help of type species *Gryllus* (*Acheta gryllotalpa*) L. The genus is distributed in Europe, Asia, Africa, Australia and Newzeland. From this genus five species have been reported from India (Chopard, 1969). In past Chopard (1928, 1933, 1935, 1951, 1969), Pantel (1886), Sandrasagara (1954), etc. attempted taxonomical studies on Crickets.

MATERIALS AND METHODS

Mole crickets have been collected from human habitations, specially hostels, hotels and in and around human dwellings by visiting frequently, 15 days interval. The mole crickets were collected with the help of insect net and killed in cyanide bottle or chloroform. The killed insects were pinned through mesothorax and kept for drying at 50°C in drying chamber for 2 to 4 days. The dried specimen were taken for taxonomical studies. Taxonomical studies were made on the various body parts, i.e. head, thorax and abdomen and their appendages. Slides of wings, antennia and cerci have been prepared for studies. The specimens are time being with T. V. Sathe, Zoology department Shivaji University Kolhapur and will be deposited to ZSI Kolkata.

RESULTS AND DISCUSSION

(Fig.1 : Male : *Gryllotalpa kolhapurensis* sp. nov.).

Male:30.00 mm long excluding anal appendages, head 5.00 mm long; thorax 14.00 mm long; elytra 14.00 mm long; hind wing 25.00 mm long; abdomen 11.00 mm long, yellowish brown; anal cerci 8.00 mm long, dark brown.

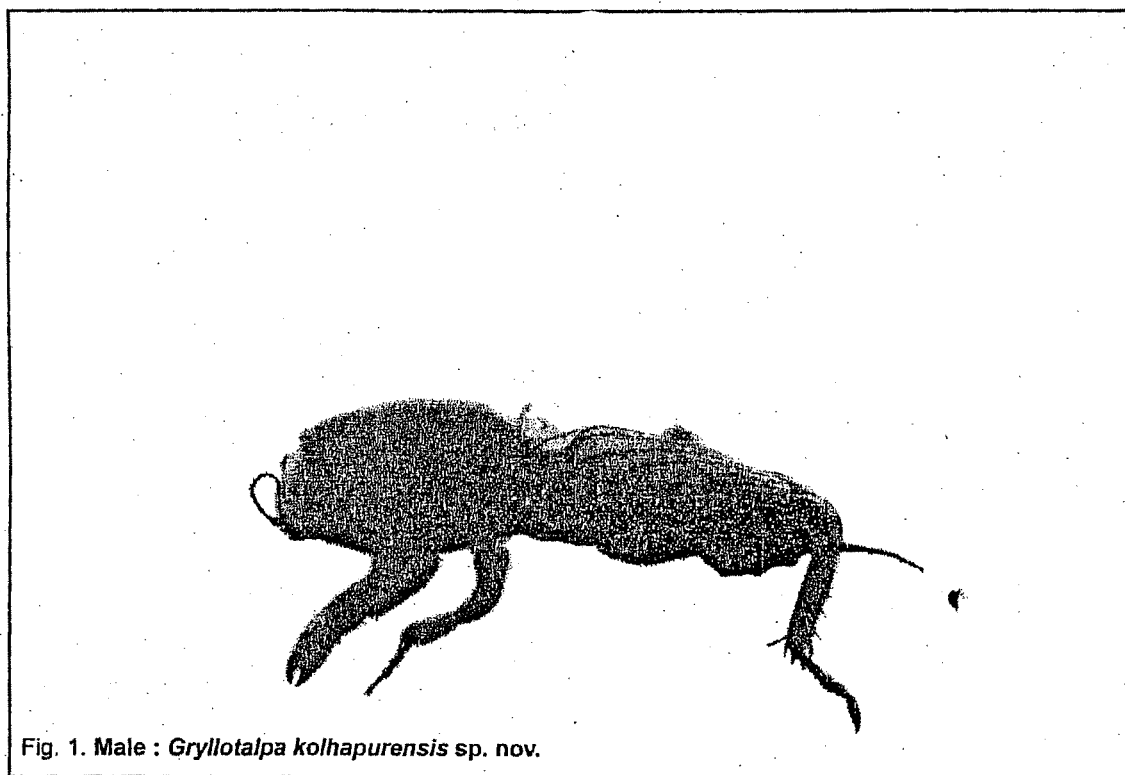


Fig. 1. Male : *Gryllotalpa kolhapurensis* sp. nov.

Head: 5.00 mm long, 4.00 mm broad, triangular, occiput black, hairy, compound eyes dark black; ocular distance 0.72 mm ; interocular distance 1.83 mm ; 2 ocelli whitish brown ; pronotum with regularly convex side, broad posteriorly.

Antenna: 8.00 mm long, 0.16 mm broad, dark brown, black margin on antennal segment, hairs present on antennal segment; scape 0.50 mm long, 0.38 mm broad, yellowish brown; pedicel 0.29 mm long, 0.25 mm broad; flagellum 92 segmented, 1st segment 0.16 mm long, 0.19 mm broad, 15th segment 0.09 mm long, 0.16 mm broad, terminal segment 0.08 mm long, 0.09 mm broad.

Flagellar formula: $I=L/W=0.84, 15=L/W=0.56, Ts=L/W=0.88, A=0.76$

Thorax: 14.00 mm long, 7.00 mm broad, metallic brownish golden, hairy.

Elytra: Long narrow, extended to the 3rd abdominal tergite; mirror elongately narrow, discoidal cell twice as long as wide; 13.00 mm long, 8.00 mm broad, dark brown.

Hind wing: 25.00 mm long, 12.00 mm broad, brown.

Legs : Legs lighter than body colour.

Fore leg: 16.58 mm long, 3.00 mm broad; coxa 4.00 mm long, 3.00 mm broad, yellowish brown; trochanter, reddish brown; 3.00 mm long, 3.00 mm broad; spine present at tip of trochanter, densely hairy, yellowish brown; femur straightly builded, reddish brown, densely hairy at inner margin, 6.00 mm long, 3.00 mm broad; tibia reddish brown, densely hairy at outer margin; 3.00 mm long, 2.00 mm broad; tibia modified into four tibial dactyls; dactyls short and wide, 1st tibial dactyl 0.62 mm long, 0.52 mm broad; 2nd tibial dactyl 1.00 mm long, 0.41 mm broad; 3rd tibial dactyl 0.75 mm long, 0.45 mm broad; 4th tibial dactyl 1.28 mm long, 0.41 mm broad, fourth tibial dactyl bifurcated, black at tip and reddish brown in colour, densely hairy; tarsus 0.58 mm long, 0.35 mm broad.

Mid leg: 9.00 mm long, 2.00 mm broad, coxa 2.00 mm long, 2.00 mm broad, yellowish brown; trochanter 2.00 mm long, 2.00 mm broad, yellowish brown, hairy; femur 6.00 mm long, 2.00 mm broad, dark brown at outer margin, sparsely hairy; tibia 5.00 mm long, 1.00 mm broad, 3 reddish brown spines present at base of tibia; tarsus 2 segmented, 4.00 mm long, 0.3 mm broad ; 1st segment 3.00 mm long, 0.3 mm broad ; 2nd segment 1.00 mm long, 0.3 mm broad, yellowish brown sparsely hairy; claws reddish brown.

Hind leg: 26.00 mm long, 2.00 mm broad; coxa 3.00 mm long, 2.00 mm broad, yellowish brown, hairy; trochanter 2.00 mm long, 2.00 mm broad, yellowish brown, sparsely hairy;

femur 9.00 mm long, 3.00 mm broad, reddish brown tinge at outer margin, sparsely hairy; tibia 7.00 mm long, 1.00 mm broad, reddish brown tinge at margin, densely hairy, 7 tibial dark reddish brown spines present; tarsus 5.00 mm long, 0.5 mm broad, 2 segmented 1st segment 3.00 mm long, 0.5 mm broad, 2nd segment 2.00 mm long, 0.5 mm broad, yellowish brown; claws reddish brown.

Abdomen: 11.00 mm long, 7.00 mm broad, tapering to posterior side, dark brown, 10 segmented; anal cerci 8.00 mm long, 0.5 mm broad, yellowish brown, hairs present.

Colour

Yellowish brown: Fore leg coxa, mid leg coxa, trochanter, tarsus, hind leg coxa, trochanter, tarsus.

Dark brown: Fore wing, hind wing, mid leg femur, abdomen, anal cerci, antenna.

Dark black: Compound eye, tibial dactyls, head, black margin on antennal segment.

Reddish brown: Fore leg trochanter, femur, tibia, tibial dactyls, tibial spines of mid leg, tibia, femur margin of hind leg, tibial margin of hind leg, tibia of hind leg, fore leg tarsus, claws of mid leg, hind leg.

Holotype: Male, India, Maharashtra, Coll. 4 - X - 2006; Awate M.; Antenna, fore wing, hind wing, cerci on slide labelled as above; other parts with pinned form, labelled as above.

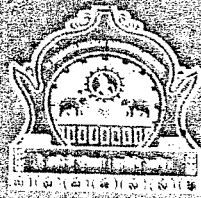
Paratype: 8 males, 0 females; Coll. From 10 - X - 2006 to 22 - IX - 2007. Same data as above.

Gryllotalpa kolhapurensis runs close to *G. ornata* Walker by having Size small (20-30mm), Colour dark brown, Ocelli very small. However, it differs from the above species by having Mirror elongately narrow, Flagellar formula, Hind tibia armed on the internal margin with 6 long and slender spines and Fore tibial structure.

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40) On a new species of the genus *Gryllotalpa* (Orthoptera : Gryllotalpidae)

Awate Manisha R. and Sathe, T.V.,

Department of Zoology, Shivaji University, Kolhapur 416004, India

A new species of mole cricket, *Gryllotalpa kolhapurensis* sp. nov. (Orthoptera : Gryllotalpidae) has been described for the first time from India. The species runs close to *G. ornata* (Walker) with following characters:

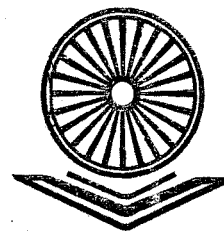
- 1) Size small - (20-30 mm),
- 2) Colour - dark brown,
- 3) Ocelli - very small.

However, it differs from the above species by having following features:

- 1) Mirror elongately narrow
- 2) Flagellar formula
- 3) Hind tibiae armed on the internal margin with 6 long and slender spines.
- 4) Fore tibial structure.



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**ABSTRACTS
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SHRIKRISHNA MAHAVIDYALAYA GUNJOTI,

DIST. OSMANABAD (M.S.) - INDIA

**N C A B S D - 2008
(January 11, 12)**

[PP-56]

**“On A New Species of The Genus Gryllotalpa Lateralle
(Gryllotalpidae: Orthopetra) From India.”**

Manisha Awate and Sathe T. V.

Department of Zoology, Shivaji University, Kolhapur, Pin 416008, India.

Mole crickets are visualized as pests. Hence in the present study a new species, *Gryllotalpa westerni* sp. nov. (Gryllotalpidae: Orthoptera) have been described for the first time. The male measures 31.00mm in body length excluding anal appendages; head 4.00mm long, thorax 14.00mm

long, clytra 12.00mm long, hind wing 26.00mm long, abdomen 13.00long, dark brown; anal cerci 11.00mm long, yellowish brown.

Remarks:

This species runs close to *Grylotalpa fossar* Scudder in the key of Chopard(1933) by having species medium sized and colour velvety black, however, it differs from the *G. fossar* by having,

1. Pronotum not perfectly rounded behind.
2. Pronotum somewhat parallel sided.
3. Mirror size shape.
4. Flagellar formula.
5. Anal cerci hairy, longer than *G. fossar*.