

ON A NEW SPECIES OF THE GENUS *HIEROGLYPHUS* KRAUSS (ORTHOPTERA : ACRIDIIDAE) FROM INDIA

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A new species *Hieroglyphus kolhapurensis* is reported and described for the first time from India. Female : 48 mm long, tegmina 32 mm long, 6 mm wide; hind wing 34 mm long, 10 mm wide; antenna brownish with yellow bands; ovipositor 9 mm long, upper lamellae 5 mm long and lower lamellae 4 mm long, anal cerci 4 mm long. Male : 41.3 mm long, tegmina 26 mm long, 4 mm wide; hind wing 26.5 mm long; antenna 23 mm long, brownish with yellow bands.

Key words : New species, *Hieroglyphus kolhapurensis*, description, paddy pest.

INTRODUCTION

The present species, *Hieroglyphus kolhapurensis* sp.nov. belongs to family : Acridiidae of Order : Orthoptera and is exclusively herbivorous, occurring abundantly in monsoon season and is most injurious to agricultural crops such as Paddy, Jowar, Maize, Wheat, Sugarcane etc. It is a very close relative of locust. The genus *Hieroglyphus* is erected by Krauss in 1877 and widely distributed in China, India, Myanmar and Senegal. From India 5 species have been reported under this genus (Bhowmik, 1986). In past, Stal (1860), Walker (1870, 1871), Kirby (1914), Bolivar (1902, 1909 & 1918), Manal *et al.* (1990), Hazra *et al.* (1993) contributed on Indian grasshoppers.

MATERIALS AND METHODS

Adult grasshoppers have been collected from plain region of Kolhapur district in September to November with the help of insect net at evening and morning. The collected specimen were pinned, dried at 55°C and kept in insect box and taxonomical studies have been made by consulting Kirby (1914) and Bhowmik (1986). The type material time being is with T.V.Sathe, Department of Zoology, Shivaji University, Kolhapur and will be deposited at ZSI, Kolkatta.

RESULTS AND DISCUSSION

Hieroglyphus kolhapurensis sp.nov.

ORDER : ORTHOPTERA : FAMILY : ACRIDIDAE

Female : 45 mm long, green, broader than the male.

Head : 6 mm and 5 mm wide, green; eyes reddish brown, oval in shape; three ocelli present, interocellar distance 3 mm; frontocellar space 4 mm; one ocelli present on middle part of frontal ridge and other two ocelli present lateral side on tempora, tempora pentagonal, carina narrow towards the eyes; mandibles strong and toothed; labrum thick, broad, reddish brown; scratch like marking present on the dorsolateral side of the head.

Antenna : Antenna much longer than the head, 19.09 mm long, 24 segmented, not

green, brownish with yellow bands, placodes absent; scape brown, 1 mm long; pedicel green, 0.11 mm long; flagellum 1.8 mm long, 22 segmented.

Flageller formula : $1\text{ L/W} = 1.25$, $4\text{ L/W} = 1.4$, $\text{T L/W} = 1.6$, $\text{A} = 1.4$.

Thorax : Green, 14 mm long and 8 mm wide; pronotum smooth, not unicoloured, four sulci present on pronotum, first obsolete above the second on the side and last two continuous and 41 mm narrow; pronotum 8.5 mm long, larger than the head; meso and metasternal lobe less separated by a groove.

Fore wing : Fore wing (tegmina) thick, green dark on base and faint on tip, 32 mm long and 6 mm wide, slightly shorter than the hind wings, subhiline, densely reticulated. Mediastinal vein 26 mm long. Tegmina form 'y' shaped black mark when folded. Laterobasal black lines on tegmina, scapular 34 mm long; middle radial 34.5 mm long; posterior ulnar 79.5 mm, anterior ulnar 33 mm; anal 29 mm and axillary 21 mm.

Hind wing : Green, transparent, slightly longer than the tegmina, 33 mm long and 18 mm wide, scapular vein 34.5 mm, middle radial vein 36 mm long, posterior radial 35.2 mm, anterior ulnar 33.5 mm, posterior ulnar 22 mm, anal 34 mm and axillary 31.5 mm long.

Fore leg : 20 mm long; coxa 0.9 mm long; trochanter 0.2 mm long, black; femur 7.3 mm, smooth; tibia 6.5 mm long, on tibial front side with 8 spine and back side with 6 spines with small valvate hair; tarsa 5.1 mm long, three segmented, Ist and IIIrd longer than the IInd, at the tip of tarsae two hook like claws present, an arolium in between the claws.

Mid leg : Slightly longer than the fore leg; coxa 1 mm; trochanter black, 0.2 mm long; femur 7.8 mm long, smooth; tibia 7 mm long, on front side 5 black spines and back side 9 black spines, front side spines bigger than the back side, spined tarsae, 5.1 mm long, size of tarsal segment like fore leg.

Hind leg : It is 58 mm long; coxa 4 mm long; trochanter black, 1 mm long; femur 24 mm long; tibia 20 mm long, blue colour; Tarsae 9 mm long, three segmented, Ist and IIIrd tarsal segments longer than the IInd tarsal segment, at the joint of tibia and tarsus an apical spine and calcaria present, 10 black spines present on both sides of tibia.

Abdomen : 30 mm long, green narrow posteriorly, 10 segmented, first segment submerged in thorax; tympanal organ situated laterally on the first abdominal segment. Ist tergite 4 mm, IInd tergite 4.1 mm, IIIrd tergite 4 mm, IVth tergite 3.7 mm, Vth 3mm, VIth 2.3 mm; VIIth 2.1 mm, VIIIth 2.3 mm, XIth and Xth are modified as ovipositor; ovipositor short, 9 mm long, curved, with upper lower lamillae, upperlamillae slightly curved upward, 5 mm long, lower laminal tip slightly curved downward, 4 mm long; small reduced anal cerci 1.03 mm long.

Male : Smaller than the female.

Head : 4.3 mm long, 3.4 mm wide, green, shape as like a female; eyes oval, reddish brown; three ocelli present, position as per the female; other character of head more or less similar to the female, size small.

Antenna : 23 mm long, 24 segmented, remaining characters more or less similar to female.

Flageller formula : $1 L/W = 1.6$, $4 L/W = 1.66$, $T L/W = 2$, $A = 1.72$.

Thorax : 17 mm long and 5 mm wide; pronotum 6.5 mm long and 4 mm wide, on sternum small whitish valvete hair present. Shape as like a female, all remaining characters more or less similar to the female except sexual characters.

Fore wing : 26 mm long, 4 mm wide.

Hind wing : 26.5 mm long.

Fore leg : Greenish; coxa 1 mm; trochanter 0.2 mm, femur 6.0 mm long, white hairs present on femur, tibia 5.6 mm; apical spine and calcaria absent, tarsae 5 mm long.

Mid leg : Coxa 1 mm; trochanter 0.1 mm, femur 6.5 mm and tibia 6.5 mm long; apical spines and calcaria absent; tarsae 5 mm; white hairs present on whole leg.

Hind leg : Coxa 2 mm, trochanter 0.2 mm, femur 8.5 mm; tibia 15 mm long blue; black tipped spines arranged in two rows, in Ist row and IInd row 8 spines present; apical spines and calcaria present; three segmented tarsae with claws and arolium, tarsus 5 mm long.

Abdomen : Green in colour, 20 mm long, nine segmented, scleroids, small as compared to female, 9th segment modified as a genitalia, subgenital lamina pointed, 2.6 mm long; anal cerci well marked, 1.5 mm long.

Holotype : Female, India, Maharashtra, Kolhapur. Coll. Bhusnar A.R. 06.IX.2010, head, antenna, legs, wing and abdomen mounted on the card sheet, rest body parts pinned and labeled as above. Male, India, Maharashtra, Kolhapur. Coll. Bhusnar A.R. 10-IX-2010, head, antenna, leg, wing and abdomen mounted on the card sheet, rest body parts pinned and labeled as above.

Paratype : 3♂, 5♀, sex ratio (M:F) 1:1.6, coll. Bhusnar A.R. Oct. 2010 to Nov. 2010.

Etymology : The species described in the text is reported from Kolhapur region for the first time hence the name *Hieroglyphus kolhapurensis*.

REMARKS

Hieroglyphus kolhapurensis sp.nov. runs close to *H. banian* F. by having following characters :

- Pronotum smooth
- Tegmina subhyaline
- Antenna much longer than head

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

- Tibial and femoral number of spines and their proportion
- Pronotum with black narrow lines on dorsal side, 2½ black lines on lateral side.
- Antenna and body proportion, antenna brown with yellow bands.

Flagellar formula :

Female : 1 L/W = 1.25, 4 L/W = 1.4, T L/W = 1.6, A = 1.4.

Male : 1 L/W = 1.6, 4 L/W = 1.66, T L/W = 2 A = 1.72.

- Hind femoral and tibial colour and number of spines.
- Tegmina : wings longer than tegmina.
- White hairs present on whole mid leg.

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REFERENCES

- BHOWMIK, H.K. 1986. Grasshopper fauna of West Bengal, India (Orthoptera : Acrididae) *Zool. Surv. India Tech. Monogr.* **14** : 1-192.
- BOLIVAR, I. 1902. Les orthopteres de st. Joseph's College, a Trichinopoly (Sud de l'Inde). 3 partie *Annls Soc. Ent. Fr.* **70** : 580-634.
- BOLIVAR, I. 1909. Nouvelles especes d' Acridians du Musee de Geneve. *Bol. Real. Soc. Esp.* **9** : 393-408.
- BOLIVAR, I. 1918. Contributonal conocimiento de la fauna indica Orthoptera (Locustidae vel. Acridiidae. *Revta R. Acad. Cienc. exact. fis. nact. Madr.*, (2)**16** : 278-412.
- HAZRA, A.K.; TANDOM, S.K., SHISHODIA, M.S., DEY, A. & MANDAL, S.K. 1993. *Acridoidea* (Insecta - Orthoptera) State fauna - series 3 fauna of West Bengal, Part **4** : 287-354.
- KIRBY, W.F. 1914. The fauna of British India, including Ceylon and Burma. *Orthoptera* (Acridiidae) London. ix + 276 pp.
- MANDAL, S.K., HAZRA, A.K. & TANDON, S.K. 1990. Studies on Taxonomy, Biology and Ecology of Grasshoppers infesting field crops and vegetables with notes on Nymphal Taxonomy of some species in West Bengal. *Rec. Zool. Surv. India*. Occasional paper No. **173** : 1-178.
- STAL, C. 1860. Orthoptera species novas descripsit King.sevens. Fregtten Eugenics Omkrong Jorden, Stockholm. **3** : 299-350.
- WALKER, F. 1870. Catalogue of the specimens of Dermaptera and Saltatoria in the collection of the British Museum. Part IV. Acrididae : **4** + 605-809. London (*Brit. Mus. Nat. Hist.*).
- WALKER, F. 1871. Catalogue of the specimens of Dermaptera and Saltatoria in the collection of British Museum. Part V. Tettrigidae and supplements to earlier parts. **4** + 811-850 + 43 + 116. London (*Brit. Mus. Nat. Hist.*).