



ISSN NO. 2320-5407

Journal homepage: <http://www.journalijar.com>

INTERNATIONAL JOURNAL
OF ADVANCED RESEARCH

RESEARCH ARTICLE

Notes on the distribution and morphological description of *Glyphonotus sinensis* Uvarov, 1939 (Orthoptera: Tettigoniinae: Glyphonotini) from Pakistan.

* Waheed Ali Panhwar, Riffat Sultana, Muhammad Saeed Wagan and Santosh Kumar

*Department of Zoology, University of Sindh, Jamshoro.

Manuscript Info

Manuscript History:

Received: 10 October 2013

Final Accepted: 24 October 2013

Published Online: November 2013

Key words:

Morphology, Description,
Glyphonotus sinensis, Pakistan,
Photographs. Ovipositor.

Abstract

At the present distribution and morphological description of ♀ *Glyphonotus sinensis* was carried out from Pakistan with detailed characteristics of head, pronotum, leg- spines, wings and female ovipositor. Important and necessary illustration/ photographs are provided.

Copy Right, IJAR, 2013.. All rights reserved.

Introduction

Redtenbacher (1889) was first who established the genus *Glyphonotus* for the type species *Locusta thoracica* fischer von Waldheim. It was considered to be as genus of subfamily Glyphonotinae. Rentz and Colless (1990) on the basis of numerical phenetic and cladistic analysis considered Glyphonotini as a tribe of subfamily Tettigoniinae. At the present, genus *Glyphonotus* consists of 07 species and subspecies (Otte *et al*, 2012). Previously, *Glyphonotus sinensis* was based on only 01 ♂ type specimen collected from China by (Uvarov, 1939). But he did not provided detailed description of the female. More recent (Liu, 2013) gave detailed description of ♀ *Glyphonotus sinensis* from the China but none of the worker has provided the description of this species from Pakistan and this will be first record for this area.

Material and Methods

Study sites

The adult ♀ of *Glyphonotus sinensis* was collected by hand picking method through large forcep. Terminology of Rentz and Colless (1990) is adapted.

Killing and preservation of grasshopper

Field collected specimen was brought into the laboratory and was killed and preserved by adopting method of Vickery and Kevan (1983).

Depository

The collected material has been deposited in the Entomological Museum Department of Zoology, University of Sindh, Jamshoro.

Identification

Identification of specimen was carried out under the Stereoscopic Dissecting Binocular Microscope with the help of keys and description available in literature and on the "Web site (<http://www.orthoptera.org>) Orthoptera Species File Online" All the measurements are given in millimeter and were made with scale, divider, and ocular square graph.

Result and Discussion

Glyphonotus sinesis Uvarov, 1939

Glyphonotus thoracicus: Uvarov, 1933. Ark.Zool.A26 (1):1(nec Fischer-Waldheim,1846).

Glyphonotus sinesis : Uvarov,1939.Ann. Mag.nat.Hist.11 4:137.Jin & Xia, 1994. Jour. Orth.RES. 3:28.

Morphological description: ♀ Head greatly ovoid (Fig.a,b); fastigium narrow, occiput convex and smooth. Fastigium vertex is well-developed & dorsally sulcate, distinctly narrower than tegminal first segment. Fastigium of vertex inversely ovoid, dorsal apex distinctly narrower than fastigium vertex usually separated with fastigium verticis by a rather large gap. Eyes rounded, obliquely(Fig.b). Antenna long and thick (Fig.e). Pronotum having caudal margin angulate(Fig.a), lateral carinae is parallel; surface lack median carina; surface of disk is tuberculate and rugose, have two deeply incised transverse grooves, between the disk is strongly contracted and lowered, lateral carina outside the first groove tuberculate, irregular; lateral lobe is rimmed, longer than deep. Fore femur having 11 spines on both margins of ventral surface; middle femur having 13 ventral spines on dorsal surface; ventral surface of hind femur having 11 spines on internal and 18 spines on external margins. Fore tibia having 2 spines anterior and 3 spines on posterior margins of dorsal surface, and 9 spines on both margins of ventral surface; middle tibia having 4 spines on anterior and 7 spines on posterior margins of dorsal surface, 11 spines on both margins of ventral surface; hind tibia having 13 and 16 spines on internal and external margins of dorsal surface, 15 anterior and 16 posterior spines on both margins (Fig.f). Genicular lobe of each femur armed with a minute spine. Tegmen macropterous, distinctly surpassing end of abdomen and posterior femur at rest. Tegmen slightly translucent, with regular veinlets; costa distinct; sub costal vein and radial vein joined at base, then separated but closely abutted together till apical part of Tegmen (Fig.g); radical sector distinctly branching before middle of tegmen and emitting three sub-branches from apical third one part; apex of tegmen rounded. Ovipositor ensiform weakly curved upwards, dorsal and ventral margins smooth, apex acute(Fig.c). Apex of sub genital plate divided into two minute acute triangular lobes; median incision V- shaped, shallow, as long as middle of the plate (Fig.d).

Distribution: Pakistan and China

Material Examined: Pakistan, Sindh Shikarpur 1♀10.06.2012 (Waheed A.P and Riffat S)

General Colorations: Body usually green, Eyes gray in color. Base of antennae, face, gena and legs grayish white. Antennae green slightly seen as light in coloration; Tegmen green in coloration with veins and veinlets while the veins of hind wings and veinlets in anal part of hind wings green in color.

Measurement of body parts: Length of Head 5mm, Length of Pronotum 8mm, Length of Tegmen 54mm, Length of Femur 34mm, Length of Tibia 32 mm, Length of tarsi 7mm, Length of Ovipositor 34 mm, Total body length without Ovipositor 33 mm.

Comparative note: Uvarov (1939) reported 02 ♂ and 01 ♀ of *Glyphonotus thoracicus* from eastern Tianshan Mountain China. *G.sinesis* was reported as new species by Uvarov in (1933). More recent Liu (2013) reported first ♀ from China. However, a single ♀ of *G.sinesis* is for the first time described and reported from Pakistan.

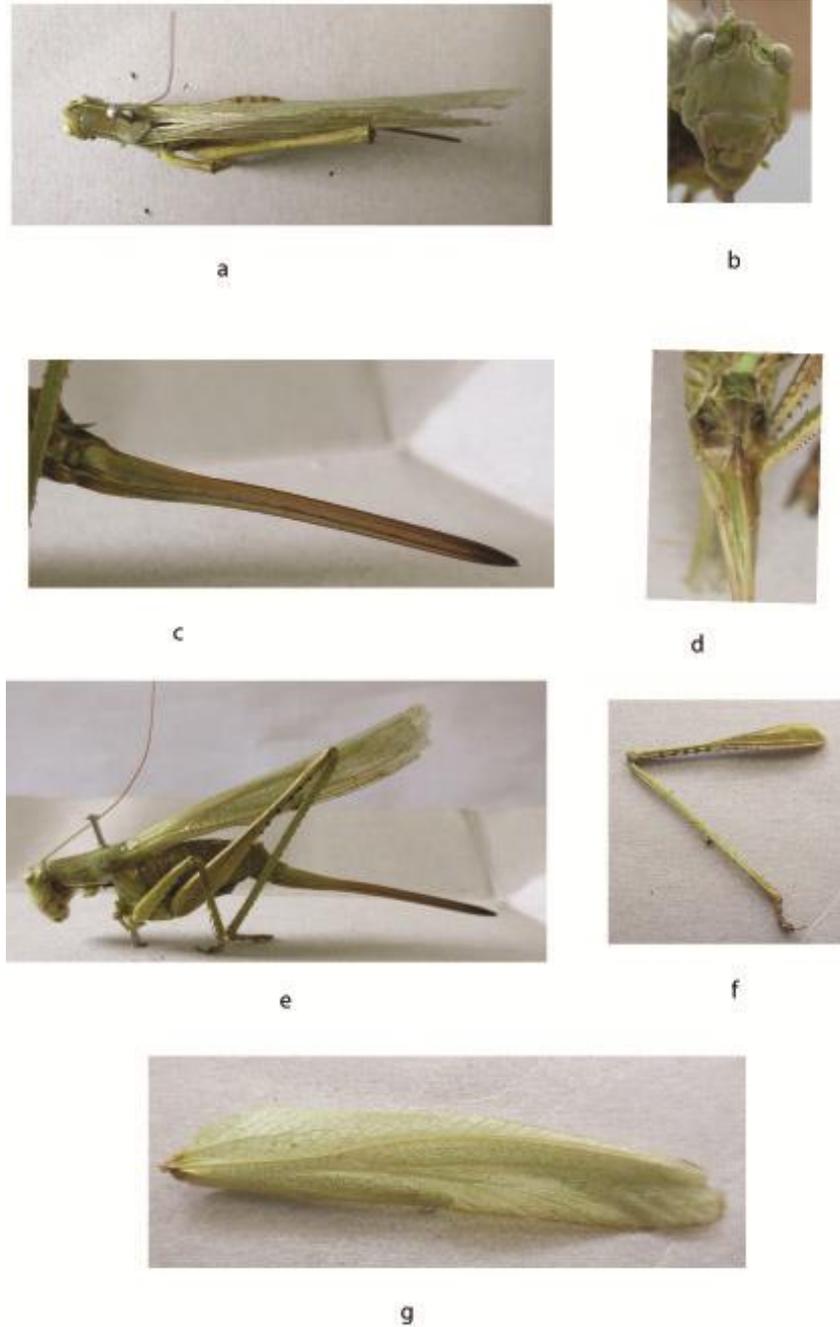


Plate.1 *Glyphonotus sinensis* Uvarov, 1939 **Fig. a.** dorsal view, **Fig.b.**Frontal view of head,**Fig.c.** Ovipositor **Fig.d.** Female subgenital plate **Fig.e.** Adult female lateral view **Fig.f.** Leg showing femur, tibia & tarsi **Fig.g.** Tegmina view

Acknowledgements

The study was financially supported by Pakistan Science Foundation under Research Project No. PSF (SU/Bio-423). The Author is highly thankful to David Rentz for his guidance and in support of providing Literature.

References

- Eades, D.C., Otte, D., Cigliano, M.M and Brun, H. (2012)** Orthoptera Species File Online. Version 2.0/4.0. Available from : <http://Orthoptera.Speciesfile.org>.
- Liu, C.X. (2013)** First female description of *Glyphonotus Sinesis* Uvarov, 1939 (Orthoptera: Tettigoniidae: Tettigoniinae) from China. *Zootaxa*, 3599 (6): 593-596.
- Redtenbacher, J. (1889)** Beitrage zur naheren Kenntnis der Arten der Gattung *Glyphontous* Redt. (Tettigoniidae, Orthoptera) *Konowia, Zeitschrift fur Systematische Insektenkunde (Konowia)*, 14, 256-267.
- Rentz, D.C.F and Colles D.H (1990)** A classification of the shield-backed katydids (Tettigoniinae) of the world. In: Bailey W.J. & Rentz, D.C.F. (Eds.). *Tettigoniidae: Biology, systematic and evolution*. Springer-Verlag, Berlin 365 pp.
- Uvarov, B.P. (1933)** Schwedisch-chinesische wissenschaftliche Expedition nach den nordwestlichen Provinzen Chinas. 6. Orthoptera. 5. Tettigoniidae. *Arkiv for Zoologi, A* 26(1), 1-8, 2 pls.
- Uvarov, B.P. (1939)** New and less known palaearctic Tettigoniidae. *Annals and magazine of Natural History*, London, 11(4), 132-138.
- Vickery, V.R, and D.K. McE Kevan. (1983)**. *The Grasshoppers, Crickets and Related Insects of Canada and Adjacent Regions*. Ottawa: Canadian Government Services.