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GENUS *OROSIUS* DISTANT (HEMIPTERA: CICADELLIDAE: DELTOCEPHALINAE: OPSIINI) FROM PAKISTAN

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ABSTRACT

Genus *Orosius* Distant from Pakistan is described with two species *O. albicinctus* Distant, 1918 and *O. aegypticus* Ghauri, 1966. The use of incorrect name in the region is also discussed.

Key-words: *Orosius*, Hemiptera, Cicadellidae, Pakistan

INTRODUCTION

Genus *Orosius* is commonly found on grasses. From Pakistan the first evidence of the genus goes back towards Mahmood's Technical report, (1979), he figured the species on plate 17 but did not identified it, the first identification from his report was given by Khatri and Webb, (2010), they also provided checklist with the presence of two species of *Orosius* including *O. albicinctus* and *O. aegypticus*, both the species are illustrated in present paper.

Genus *Orosius* is the vector of Plant Phytoplasmas and viruses. The diseases caused by Phytoplasmas include; potato purple top, tomato big bud, legume little leaf; viruses include: chickpea chlorotic dwarf virus and tobacco yellow dwarf virus (Fletcher and Mitchell, 2007). It causes losses to sesame in India (Vasudeva and Sahambi, 1955; Vasudeva, 1961). It causes phyllody of sesame and chickpea (Akhtar *et al*., 2009) other crops include sun hemp, oilseeds and berseem in Pakistan.

The use of the name *O. orientalis* by different workers from Pakistan cannot be confirmed; as according to the view of Fletcher and Mitchell, (2007) *O. orientalis* is distributed in the eastern oriental and Australian regions, that the species occurring in this region is *O. albicinctus* Distant, which is distributed from Middle East, North Africa to India and *O. orientalis* does not occur in these regions.

MATERIALS AND METHODS

Leafhopper material includes Tando Jam and Tharparkar of the Sindh Province. For the preparation of material, the process of macerations was followed (Knight, 1965). Leafhoppers were dissected under 3D microscope, and for the detailed study of specimens and line drawing 2D microscope was used. For the improvement of the line drawing, a software adobe illustrator was also used. Species were identified following Dietrich (2005) and Viraktamath (2005a,b)

Depositories. The material on which this study is based is deposited in the institutions that are abbreviated in the text as follows.

BMNH: Brirish Museum of Natural History, London, England, UK
IKC: Imran Khatri's Private Collection
ZMUK: Zoological Museum of the University of Karachi, Karachi, Pakistan

Results

Genus: *Orosius* Distant, 1918.

Type-species: *Orosius albicinctus* Distant, 1918b: 85. by original designation.

Description. Small leafhoppers with irregular brown bands and striation on head, thorax and forewing. Head about as long as breadth between eyes. Face longer than broad, lateral margins moderately convex. Ocelli yellowish red, located on margins between crown and frons, scutellum wider at base then median length, forewing four times as long as broad with typical deltocephaline venation.

Pygofer posterior lobe with moderately long setae, male plate triangular broad at base and finger like impression at anterior margin with very long setae. Subgenital plates triangular, broad at base, external margin with a row of 5-8 setae. Connective U-shaped. Aedeagal shafts separate right from base and without ventral pair of processes, aedeagus with two gonopores laterally, anal tube is of moderate length and membranous, except some are weakly sclerotized.

This genus is very close to *Nesophrosyne*, but it differs in subgenital plate, aedeagus and anal tube. In *Nesophrosyne* anal tube is sclerotized where as in *Orosius* it is membranous (Ghauri, 1966).

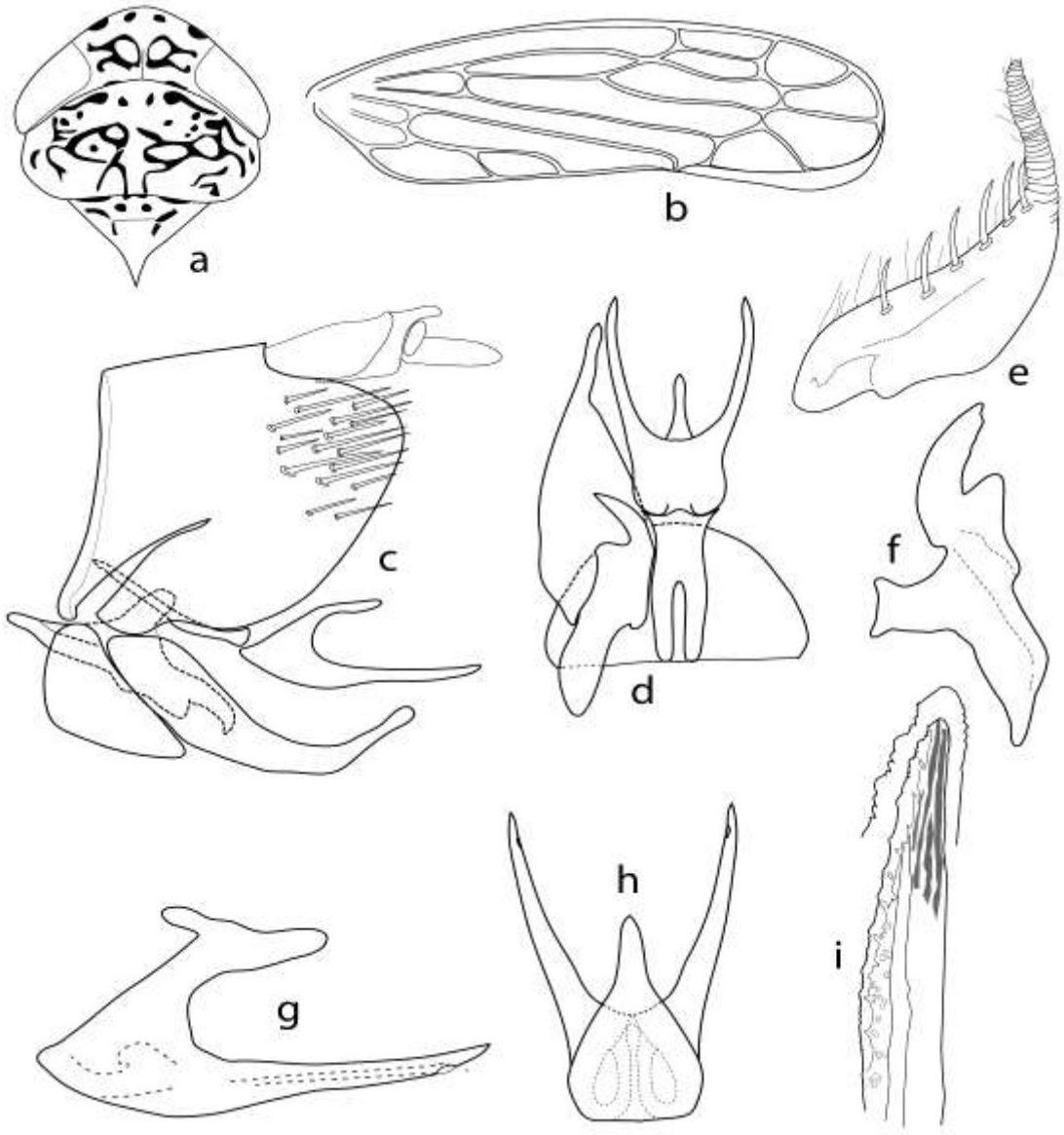

Fig. 1. *Orosius albicinctus* Distant

a, head and thorax, dorsal view; b, forewing; c, pygofer, lateral view; d, left subgenital plate, style, connective, aedeagus and valve; e, subgenital plate; f, style; g, aedeagus, lateral view; h, aedeagus, dorsal view; i, female second valvulae.

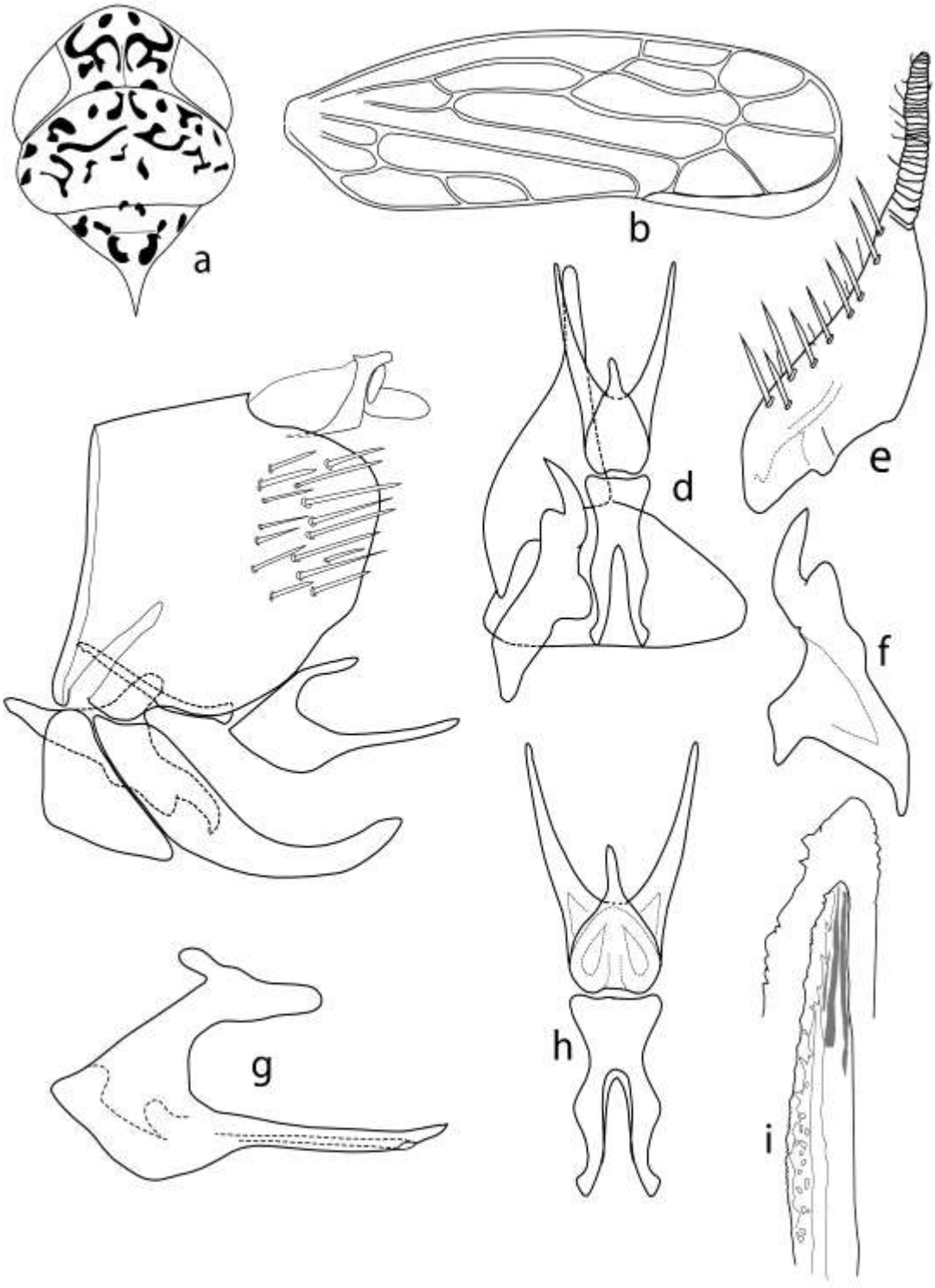

Fig. 2. *Orosius aegypticus* Ghauri

a, head and thorax, dorsal view; b, forewing; c, Pygofer, lateral view; d, left subgenital plate, style, connective, aedeagus and valve; e, subgenital plate; f, style; g, aedeagus, lateral view h, aedeagus and connective, dorsal view; i, female second valvulae.

***Orosius albicinctus* Distant, 1918** (Fig. 1).

Type. Holotype ♀ of *O. albicinctus*, Kodaikanal, S. India, (BMNH).

Measurements (mm). Male total length 3.0, forewing length 2.37, crown length at middle 0.26, crown width across eyes 0.81, interocular width at anterior 0.46, eyes length in cross 0.35, pronotum width 0.77, pronotum length 0.40, mesonotum length 0.088, scutellum length 0.22.

Material examined. Pakistan: 5♂, 8♀, Sindh Prov., Tando Jam, 8.ii.06, I. Khatri, lentil; Holotype ♀ of *O. albicinctus*, Kodaikanal, S. India, (BMNH).

Remarks. Males are darker than females and eyes dark brown, crown with two wavy markings. It is closely related to the *O. aegypticus* in external features except head markings and aedeagus not bulbuls. Specimens compared to the Holotype at (BMNH) and to the figures given by Ghauri (1966).

***Orosius aegypticus* Ghauri, 1966** (Fig. 2).

Type. Holotype ♂. EGYPT: Siwa, 12.v.1935, (J. Omer-Cooper), Armstrong College Expedition BM. 1935-354, in (B.M.N.H.) holotype ♂ bearing a determination label *Orosius cellulosus* Lindbergh by W. Wagner, 1955.

Measurements (mm). Male total length 3.34, forewing length 2.66, crown length at middle 0.33, crown width across eyes 0.95, interocular width at anterior 0.55, eyes length in cross 0.44, pronotum width 0.97, pronotum length 0.48, mesonotum length 0.096, scutellum length 0.28.

Material examined. Pakistan: 1 ♂, 15♀, Sindh Prov., Tharparkar, 12.ix.07, I. Khatri. Holotype ♂. EGYPT: Siwa, 12.v.1935, (J. Omer-Cooper), Armstrong College Expedition BM. 1935-354, in (BMNH), holotype ♂ bearing a determination label *Orosius cellulosus* Lindbergh. by W. Wagner, 1955.

Remarks. Crown and pronotum with few dark markings. Lateral branches of aedeagus parallel with broad at base as compared to *O. albicinctus*. Specimens compared to the original figures and to the holotype (BMNH). Ghauri observed only single specimen which he suspected as a diseased specimen or may be not. Our specimen confirms that this is a valid species.

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