External Morphology of Leafhopper Zelopsis sp. Evans 1966a, (Homoptera: Cicadellidae) from Iraq

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Abstract

The external morphology of leafhopper belong to the genus *Zelopsis sp.* Evans 1966a, has been described.

External morphological characters of the head, thorax and their appendages were used and abdomen of (male and female). Those characters were supported by study the male and female genitalia.

Key words:- Leafhopper, Homoptera, Discription.

Introduction

The Genus *Zelopsis sp.* Evans 1966a, belong to family Cicadellidae Evans 1966, subfamily Micropsinae Evans 1966.

The subfamily Micropsinae comprises about 360 species belong to 55 genera, worldwide distributed, from temperate to subtropical and tropical zones [1], it is known from many parts of the world from Asia including Japan, Malaysia, Indonesia, Australian and India [2] to Africa including Ethiopia and Madagascar [3], to Europe including England, Sweden, Denmark, New Zealand and Island [4] to North America[5].

Relatively few species of sub family Micropsinae are economically important, but there are some major pests which effect plants either directly through feeding [6,7] or indirectly through transmission of plant pathogenes [8].

The Micropsinae are mostly tree and shrub – inhabiting insects with considerable food – plant specificity [9].

Identification of subfamily Micropsinae species is difficult because of their tremendous diversity and the paucity of comprehensive identification keys [10].

Members of Micropsinae are small to medium size insects, and may be green, brown, black or multi – colored, the head large with vertex and face, lorum and epistomal suture distinct or absent, pronotum and mesonotum contain or with out spots, tegmen with regular venation and number of cross veins, with two or more of anteapical and apical cells, hind femur with 1 – 4 spines at apex, the sclerotized parts of the male genitalia consist of a pair of lateral styles, a medium connective, and an aedeagus, female genitalia ovipositor were represented [11,12].

Materials and Methods

The specimens of *Zelopsis* were collected from the following regions: Al – Falluja (May 2010), Al – Habania (Jun 2010) and Al – Saqlawia (July 2010).

Samples were collected by Light Trap, then they were fixed on a thick paper and kept in insect box. Date, place of collection were recorded[13].

Studies and drawings were made using a dissecting microscope (OLYMPUS JAPAN 426315)and compound microscope (OLYMPUS JAPAN 275282), using normal light. All figures have been improved with ocular micrometer.

The areas of collection consist of field and common gardens cultured with different types of trees, herbs, grasses and shrubs.

Results:- ***Zelopsis sp.* Evans 1966a**

Body

Length ♂, ♀, 4 – 4.5 mm.

The Head

Vertex: fig -1- , photo -1-

Yellow, short and rounded into face, not laminately expanded, anterior margin extended antered of eyes, contain spots.

Face: fig -2- , photo -2-

Yellow, frontoclypeus largest structure of the head in anterior view, with two ocelli, distinctly below margin of vertex, compound eyes large and black, gena large in size, lorum distinct, separated from gena by epistomal suture, anteclypus not clearly divided.

Pronotum: fig -3- , photo -3-

Yellow, width longer than length, strongly produced, anterior margin extended anterad of eyes, humped on anterior half, lightly convex posteriorly, contain small and black spots.

Mesonotum: fig -4- , photo -4-

Yellow, prescutum convex strongly and extends down the pronotum where the front covers mostly the latter, contain small spots and black, lateral margin wing – like somewhat, the scutum and scutellum divided by the scuteller suture.

Wings

Stem C and Sc veins indistinct of fore and hind wings.

Fore wing: fig -5- , photo -5-

Tegmen, brown, well developed, large and not delicate, extending behind abdomen, with three closed anteapical cells and four apical cells, longitudinal veins of the tegmen end in a marginal vein around the apex, stem R branch with five terminals; branch stem M with four terminals, stem R connected with stem M by veinlets r – m; stem Cu branch before outer margin with two terminals, stem M connected with stem Cu by three veinlets m – cu; anal vein separate throughout, by corio – claval suture, with out branched.

Hind wing: fig -6-

Membranous, submarginal vein not extended along costal margin basad, stem R branch with four terminals; branch stem M with four terminals, stem R connected with stem M by veinlets r – m; stem CuAP forked from rest of wing to CuA and CuP, stem CuA branch with two terminals, stem M connected with stem CuA by veinlets m – cuA; stems CuP, 1A and 2A reaching outer margin without branched.

Hind leg: fig -7- , photo -6-

Slender, brown, coxa transverse, femur shorter than tibia, hind femur with three short, stout spines grouped at apex, one spine distinctly preapical, tibia quadrate, with spines of longitudinal rows large and conspicuous, tibia contain small and black spots along it, hind tarsomere with transverse row of blunt spines.

Abdomen of Male: fig -8- , photo -7-

Small, narrow and contain no spots and a few spines on the container at the end.

Abdomen of Female: fig -9- , photo -8-

Large, broad, containing spots and the end of the sword – like ovipositor represented.

Male genitalia: photo -9-

Aedeagus: fig -12- , photo -10-

Large, "C shape" end open toward the top, outer portion contains a pair of long thin structures, while the inner part so in a pointed, short and wide, the interior dark.

Conective: fig -12- , photo -10-

Elongate, it's base winder than the top.

Genital style: fig -13- , photo -11-

Dark, winding, related to the aedeagus by the link.

Genital plate: fig -13- , photo -11-

Plate of large irregularly shaped, contain large spines and long irregular arrangement is spread over the outer surface of the plate, contact with a genital style.

Female genitalia

The seventh abdominal sternum overlaps the bases of the ovipositor ventrally fig -10-, ovipositor consist of two pairs of blade – like structures fig -14-, first and second valves, the first valve V1 contain dorsal teeth or serration, the second valve V2 enclose the first.

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CO:Corium
CCSu:Corio–Claval Suture
AV:Anal vein
ScV:Subcostal vein
RV:Radial vein
MV:Medial vein
Cu:Cubital vein
ScAC:Subcostal apical vein
IAC:Interal apical cell
MAC:Medical apical cell
EAC:External apical cell
r-m:r-mVeinlets
m-cu:m-cuVeinlets

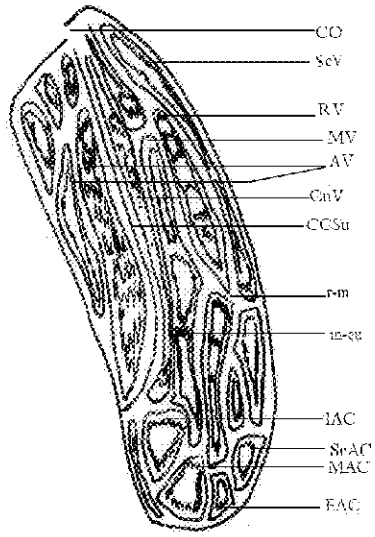


fig 5. fore wing

2A:Second anal vein
AF2 :Second anal fold

RV:Radial vein
MV:Medial vein
Cu:Cubital vein
PV:Peripheral vein

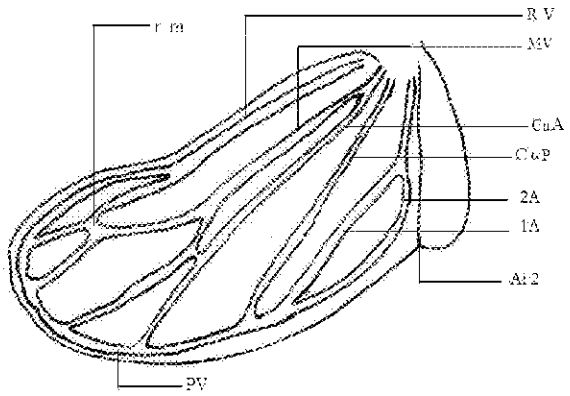


fig 6. Hind wing

0.3mm

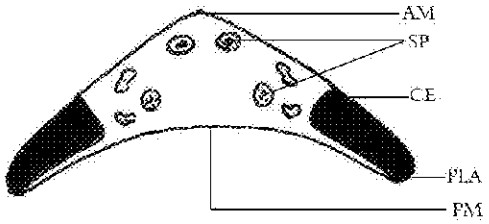
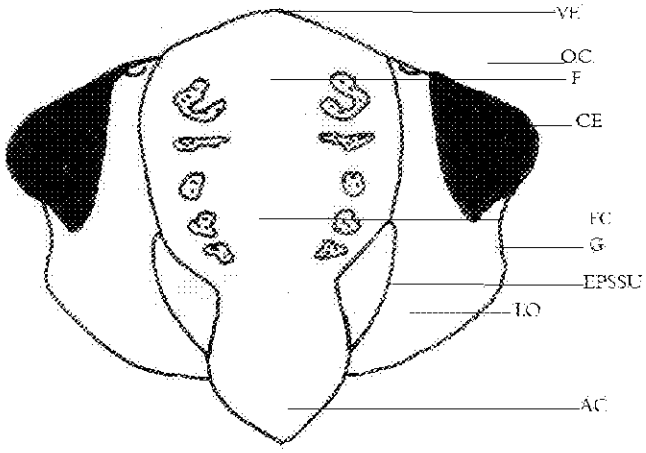


fig 1 Vertex

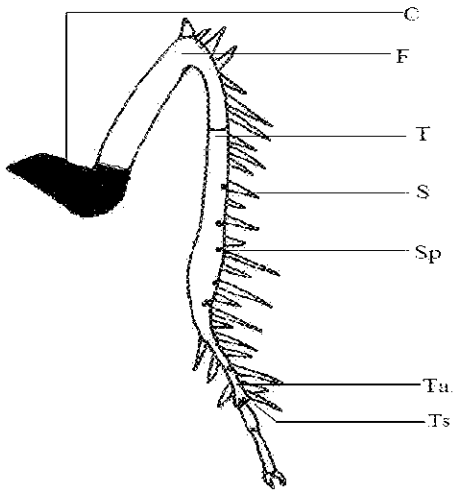
AM:Anterior margin
SP:Spot
CE:Compound eye
PLA:Posterior lateral angle
PM:Posterior margin



VE:Vertex
F:Frons
FC:Frontoclypeus
OC:Ocell
CE:Compound eye
G:Gena
LO:Lorum
EPSSu:Epistomal Suture
AC:Anteclypeus

fig 2 Face

0.3mm



C:Coxa
F:Femur
T:Tibia
S:Spine
SP:Spot
Ta:Tarsus
Ts:Transverse spines

fig 7. Hind Leg

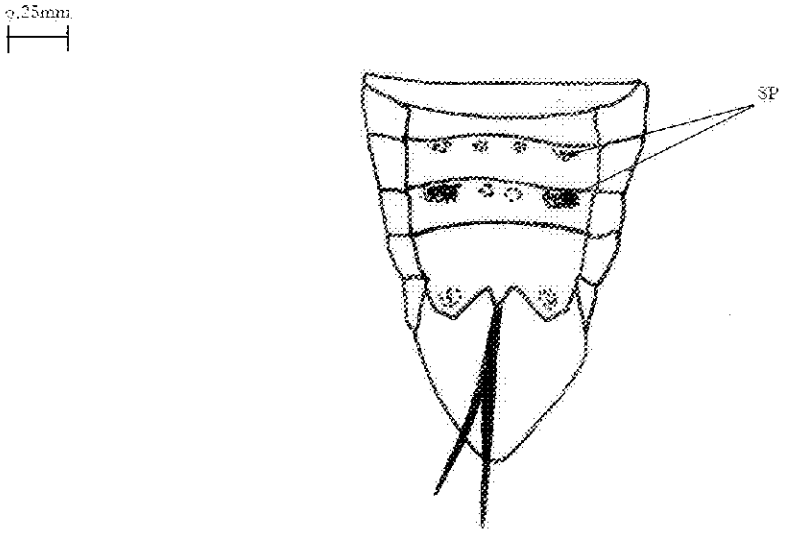


fig.9. Abdomen of female

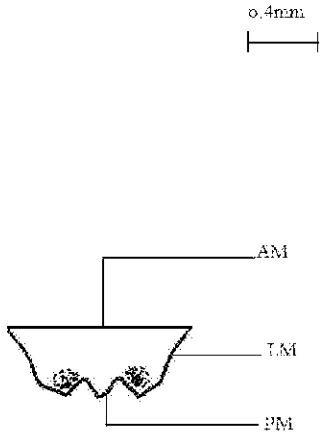


fig10. Seventh Abdominal Sternum

AM:Anterior margin
LM:Lateral margin
PM:Posterior margin
SP:Spot

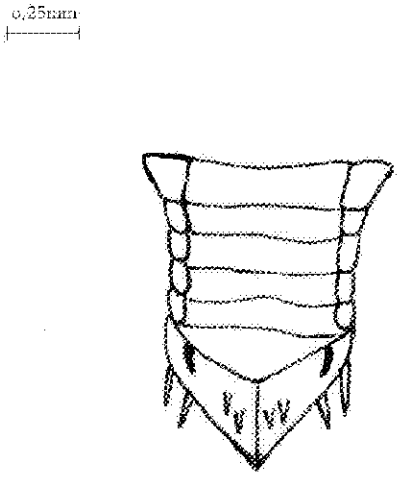


fig 8. Abdomen of male

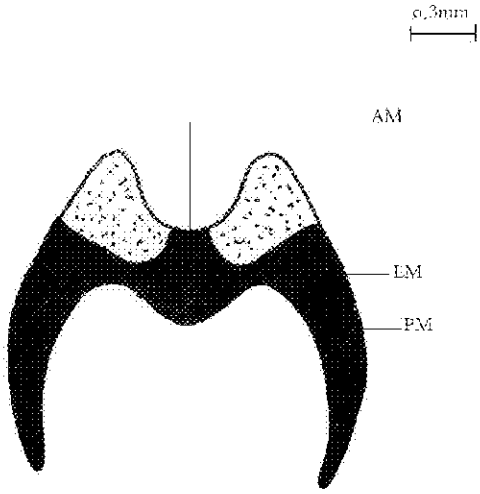


fig11. Basal Abdominal Apoderme

0.4mm

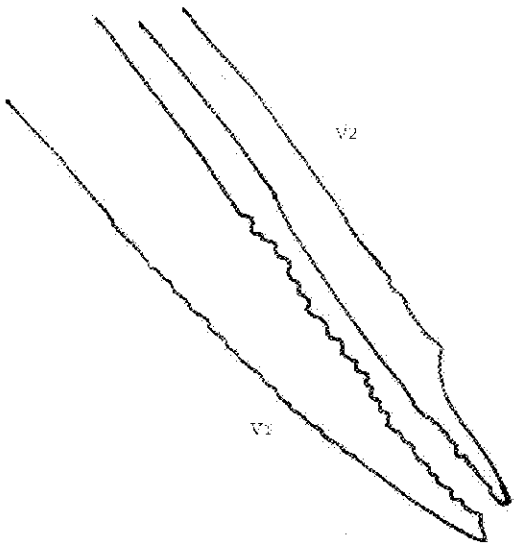


fig14. Ovipositor

V1\1LV:(First)lower valve
V2\2MV:(Second)middle valve

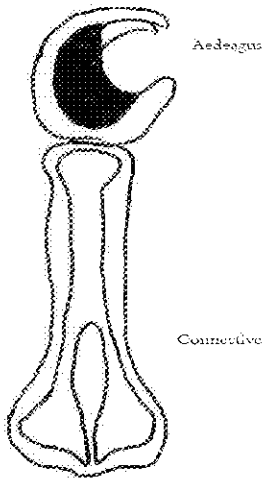


fig 12 Connective and Aedeagus

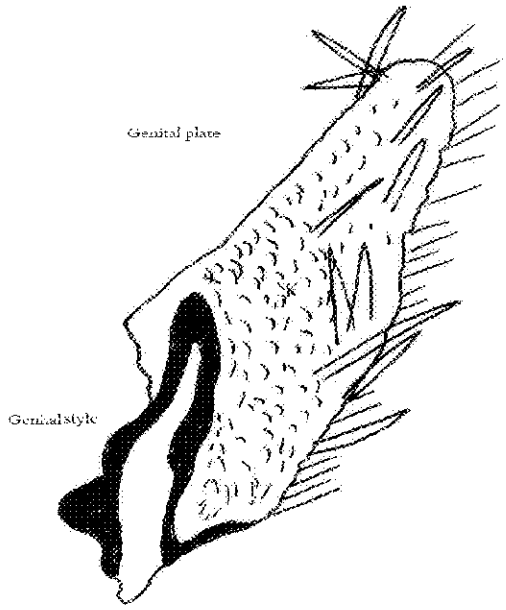


fig 13 Genital plate and Genital style

Photo -2-

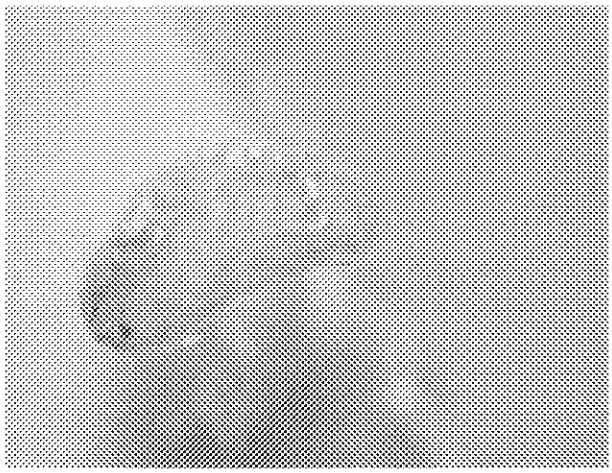
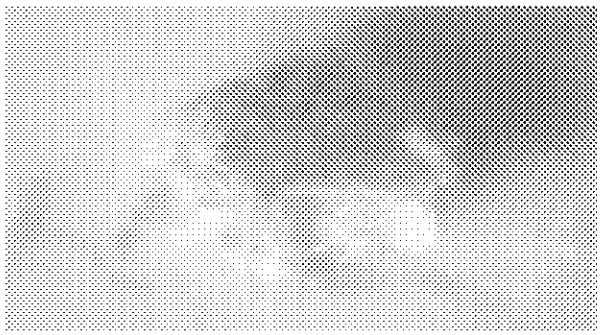


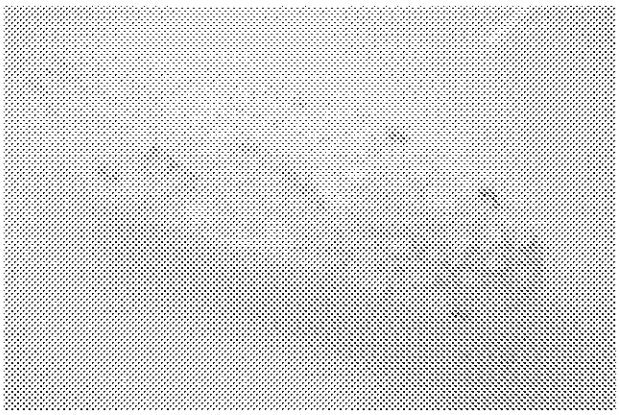
Photo -3-

3x10 pronutum



2.5x10 Mesonutum

Photo -4-



2.5x10Fore wing

Photo -5-

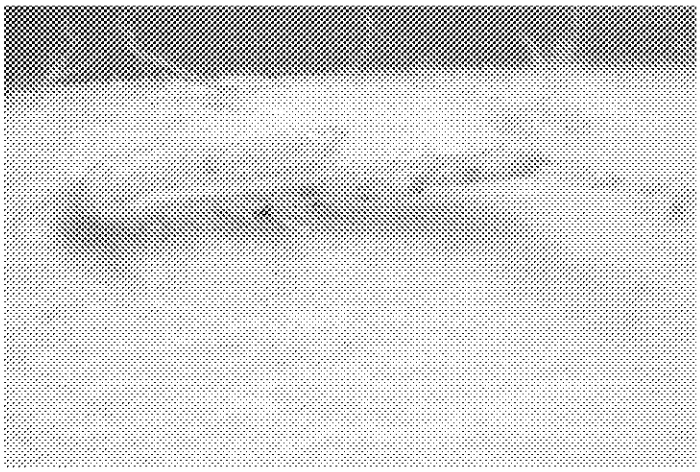
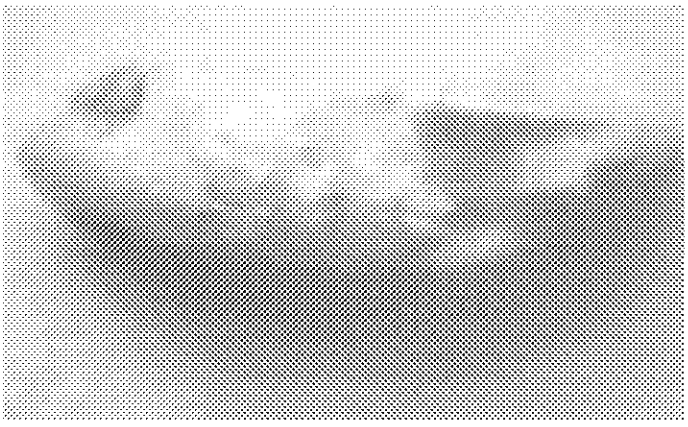


Photo -6-

4x10 Hind leg

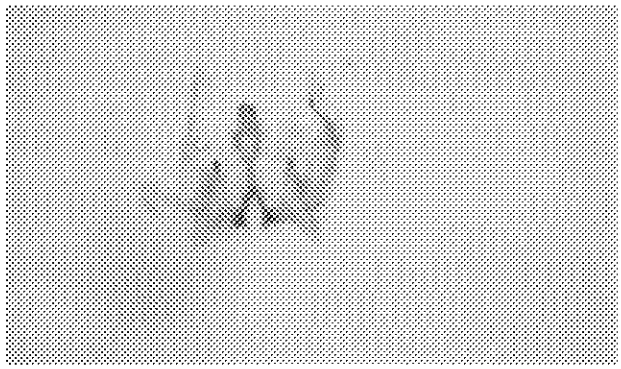
Photo -7-

2.5x10 male



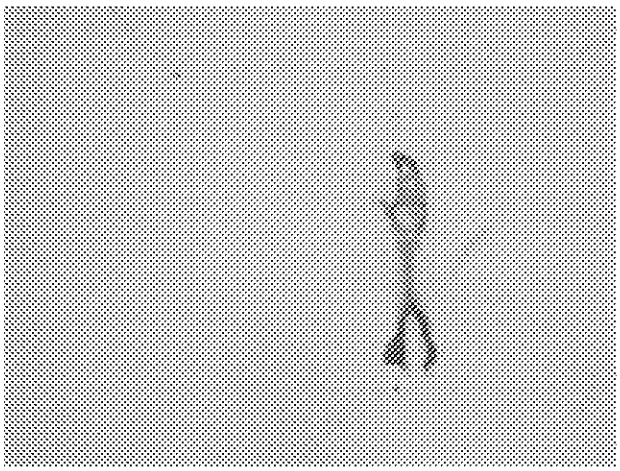
2x10 Femal

Photo -8-



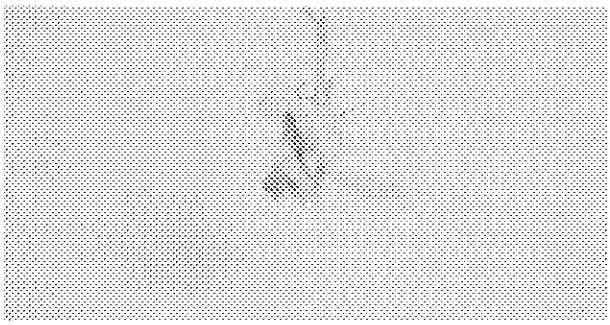
3x10 Genitalia of male

Photo -9-



3x10Aedeagus and connectiv

Photo -10-



4x10Genital plat ,Genital styal

Photo -11-

المظهر الخارجي لقفاز الورق *Zelopsis sp.* Evans 1966a, من العراق (Homoptera: Cicadellidae)

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المستخلص

تم وصف المظهر الخارجي لقفّاز الورق المتمثل بالجنس *Zelopsis* Evans 1966a.

يتضمن البحث وصف صفات المظهر الخارجي للرأس والحلقات الصدرية ولواحقها (الأرجل والأجنحة) والحلقات البطنية للذكر والأنثى، كما تم تعزيز صفات المظهر الخارجي بالإعتماد على السوءتين الذكرية والأنثوية.

الكلمات المفتاحية:- قفّاز الورق، متماثلة الأجنحة، وصف.