

# DESCRIPTION OF NEW SPECIES OF SCORPIONS *Compsobuthus iraqnsis*, (ARACHNIDA : BUTHIDAE) FOR THE FIRST TIME IN IRAQ AND WORLD

Z. N. Al-Azawii

Lecturer

Department of Biology, Collage of Education for Pure Science (Ibn Al-Haitham), University of Baghdad, Baghdad, Iraq  
[zeinanabil196@yahoo.com](mailto:zeinanabil196@yahoo.com)

## ABSTRACT

A new species of the scorpions *Compsobuthus iraqnsis* sp. nov., was described for the first time in Iraq and world which is collected from Salahuddin governorate in Iraq. This species are characterized by pedipalps and chela are very thin and very long, the sixth segments of metasoma are very tall and less in width. The body color and legs are yellowish except the end of aelus is radish, the total length between 26-40 mm, and the rows of granules on the movable finger of pedipalp have 10 rows. The *Compsobuthus. iraqnsis* sp. nov. is almost similar to the species *Compsobuthus. persicus*, (11) from Iran, which it differed by some characters, Internal granules in all rows on the movable finger of pedipalp and in the number of granular in the metasoma segment. This study for the first time is described and recorded this species.

Key Words: pedipalps, sting organ, rows of granules, movable finger

الغزوي

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وصف نوع جديد من عقارب (*Compsobuthus iraqnsis*, (Arachnida: Buthidae) لأول مرة في العراق والعالم

زينة نبيل الغزوي

مدرس

قسم علوم الحياة، كلية التربية للعلوم الصرفة (ابن الهيثم) / جامعة بغداد، بغداد، العراق

[zeinanabil196@yahoo.com](mailto:zeinanabil196@yahoo.com)

المستخلص

تم وصف نوع جديد من عقارب *Compsobuthus. iraqnsis* sp. nov. لأول مرة في العراق والعالم، وقد جمع من محافظة صلاح الدين في العراق، هذا النوع شخص بواسطة الاقدام الملقطية والشبلا والتي تكون طويلة ونحيفة، القطع الستة المكونة للمنطقة اللاحقة تكون طويلة واقل عرضا، لون الجسم والارجل يكون اصفر باهت عدا نهاية عضو اللسع يكون ذو لون مائل الى الاحمرار، يتراوح الطول الكلي للجسم بين 26-40 ملم وتفرعات الحبيبات الموجودة في الاصابع المتحركة من الاقدام الملقطية 10 تفرعات. هذا النوع *Compsobuthus. iraqnsis* sp. nov. في الغالب يشابه مع نوع *Compsobuthus persicus* (11) من ايران، لكنه يختلف عنه ببعض الصفات منها : جميع الحبيبات داخلية الموقع في جميع تفرعات الاصابع المتحركة المكونة للاقدام الملقطية وعدد الحبيبات الموجودة في قطع المنطقة اللاحقة . في هذه الدراسة ولأول مرة وصفت وسجلت صفات هذا النوع .

الكلمات المفتاحية : الاقدام الملقطية ، عضو اللسع ، تفرعات الحبيبات ، الاصابع المتحركة

## INTRODUCTION

Scorpions are belonging to the phylum Arthropods, subphylum chelicerata. These arthropods are considered as the most ancient terrestrial animals (13). All the scorpions are large or small and tiny, and the Genus *Compsobuthus* or Arabian Scorpion is belonging to the family of Buthidae scorpion which includes most of the deadly scorpions. (2,3). Buthidae family have 84 genus and more than 800 species and it is the largest family and more distributed on in tropical and sub-tropical areas (4) and it is widely distributed in Europe, Africa and Asia, especially in Arabian countries like Jordan, Lebanon, Syria, Iraq and etc.... (17) This genus is recorded in Iraq in the past, but the objective of this study is described and recorded new species of scorpions for the first time in Iraq and in the world.

## MATERIALS AND METHODS

This samples was collected from Tikrit in Salahuddin governorate in the Longitude Line are: 43.68° N and Latitude Line: 34. 59° E during 20-10-2014.

The scorpions were found under objects (bricks, wood, flagstone, trees...etc.). Samples were put in Iron box and transferred to laboratory for study. The first step is to kill the scorpions in boiled water at (99° C), then put in fixation solution (Formalin 12%, Isopropyl Alcohol 30%, Glacial Acetic Acid 2% and Distilled Water 56%) for 24-48 hr. Then transferred to 50% of Isopropyl Alcohol for 1 hr. and 70% of Isopropyl Alcohol for storage (20). This sample was examined under dissecting microscope, photographed using camera with resolution of 10 pixel. The genus and the species is identified in the laboratory according to the keys of Kovarik (5,7), but the species is confirm the identified in the American Museum of Natural History at New York by Dr. Lorenzo Prendini and the sample is saved in the Museum of American.

## RESULTS AND DISCUSSION

### Taxonomic position:

Family Buthidae, are recognized by, triangular sternum, three to five eyes usually present and the telson have accessory spines (1,8).

### Genus *Compsobuthus* Vachon, 1949:

This genus belong to the family Buthidae the general diagnostic characteristic to the Genus *Compsobuthus* Vachon, 1949 is: different length ranges between 26-40 mm, coloration is yellow or brown, the crest (C.) in the carapace is small granular arrange as series linear (plate1-3). Carapaces has carina lateral central (CLC), and carina central posterior (PLC) and both are linked as linear, target of mesosoma segment having three carina (C.) (plate2), ventral carina (VC) to the fifth segment with little different size of granular or smooth (plate3) (16)

**Color** Body generally yellow or brown Pedipalp consist fixed finger almost as long as femur but movable finger shorter, movable finger have three accessory granular (AG.) below apical teeth (AT.) chella is broadly and have hair (plate4) different size (12). Manus is stout, longer than femur, shorter (plate5) patella small size and ventrally is smooth (plate6) Trichobothrial pattern of pedipalp 'B' type like diverge angel and towards inside it (plate7,8), chelicerae consist of fixed finger and movable finger, fixed finger have denticles two basal (B.) and one medium (M.) and both is fused composing bicuspe (Bi), outer side of fixed finger have seta (S.), movable fingers consist of one sub distal (Sd) teeth and two basal (B.) teeth and movable fingers is branched (plate9), (10).

**Prosoma** Carapace strong and granular, Dorsal side of Carapace is granular but the lateral side is smooth, have pair of black median eye (ME.) in the center of carapace and three pairs of black lateral eyes (LE.) in the front of the carapace (14), ventral side of carapace is smooth and have little seta (S.) (plate10).

### Coxosternal region and Pectin teeth .

Coxosternal region (Co.) have sternum triangular shape (TSt.) and small (plate11), Pectin well developed and almost four times longer than wide, middle lamellae or fulcra present and small (9). Number of pectin teeth are different between female and male, in the female are ranges between 20-35 but in the male are less between 10-25 pectin teeth, (plate12).

**Opisthosoma :Mesosoma:**

Dorsal side of all segment have granular(Gr.) with three crest (C.), seventh segment conform spiniform in posterior portion (18), ventral side of all segments are smooth and each provided with slit-like stigmata for book lungs. Third and fourth legs have tibia spurs (TSp) with tiny seta (S.) all legs a have Prolateral Pedal Spur (PPS.)(plate13)

Femur weakly granular , tibia with one tibia spurs on the legs III and IV, pedal spurs spiny, tarsomere I laterally smooth and provided with aone pair of stout pedal spurs, tarsomere II smooth and clothed sparsely on ventral surface with few yellowish bristles (19).

**Metasoma**

First segment wide and shorter , dorsal carinae of first segments to the fourth segments is granulated,, fourth and fifth segments granulated (plate14 ), sixth segment composed of sting organ, vesicle and aculeus , sub-aculeus nodule, absent vesicle not wider, aculeus- strongly curved and short (plate15).

**Examined Samples**

(new species)

1sample (Female) Holotype: 1 female, the serial no. of this new species is 58 and it is preservation in American Museum of Natural History in New York. Paratype: No samples found in Iraq Museum of Natural History for this genus and species. Scientific name: *Compsobuthus iraqensis*, sp.nov

**Diagnosis** : *Compsobuthus iraqensis*, sp.nov

Pedipalps and chela is long and slender with some black and brown pigments between femar and patella (plate16) the sixth segment of metasoma is very long and less width, Coloration generally yellowish to pale yellow with only fourth and fifth metasoma slightly dark reddish-brown; median eyes surrounded by black pigment, (plate 17,18 ).

Chelicerae and Legs yellowish ,Vesicle and aculeus of sting organ yellowish with some reddish in the end of aculeus, total length is 36 mm (Table 1).

**Color:**

yellowish with black pigment in pedipalpe , Chelicerae yellowish, with dark reddish teeth Vesicle yellowish;aculeus black

**Prosoma:**

carapace weakly pigment and have carinae.

**Mesosoma:** dorsal side of mesosoma segment have strong carina but the ventral side is smooth ( plate17,18).

**Metasoma:**

the fifth segments have rough granular (Gr.) form carinae (C.) like series lies in the dorsal side ,first segment have eight carinae (plate19), second and third segments have seven carinae (plate20). then carinae are less to sixth in the fourth and fifth segment (plate 21), seta are less and randomly spread in all metasoma segments, sting organ smooth with short aculeus ,vesicle is ovale and bigger and have little seta, subaculear tubercle absent (plate22).

**Comparison note**

The new species *Compsobuthus iraqensis* (plate 23 ,24 ) is compared with the closely related species *Compsobuthus persicus* (11) (plate 25,26) it is found in Iran and Iraq,total length is (35mm),pedipalpe is slender and very long , manus is oval pectinal teeth in the female have 21-27 teeth and the other characters as noted in the description are:

1-Movable fingers of pedipalpe have ten row or more teeth (T.) all of them are inside except one in dorsal side in the species *C. persicus* (11), compared with species *C. iraqensis*,sp.nov are eleven row of teeth all of them inside (6).

2- The dorsal side of metasoma segment have different number of carinae (C.) the first segment have eight carinae, second and third segments have seven carinae ,and sixes carinae in the fourth and fifth segments, vesicule of sting organ is big and oval shape and have little seta (S.) and small granular, aculeus very small compare with the species *C. persicus* (11) have eight carinae in the first three segments ,and three to ten carinae in the fourth and fifth segments ,vesicule is modality size and cylindrical shape, aculeus is bigger (6). The species of this family are poisonous but the species *Compsobuthus iraqensis* is little poisonous and it is more active in the persons sensitive to such compound and might lead to death (15) . The Diagnostic Characteristic to the Genus *Compsobuthus* Vachon, 1949 is with different length range between 26-40 mm ,colore is yellow or brown ,the crest in the carapace is small granular arrange as linear series ,carapace have carina lateral central and carina central posterior and both is linked as

linear, target of mesosoma segment have three carina ,ventral carina to the fifth segment have little different size of granular or smooth (16).

#### Acknowledgments

Im grateful to Dr.Lorenzo Prendini (Division of Invertebrate Zoology,in American Museum of Natural History) for Confirming my classification

**Table1. The Measurement of Female *Compsobuthus iraqensis*, sp. nov in (mm)**

Part of body	Length(mm)	Width(mm)
<b>Carapace</b>	<b>4.45</b>	<b>3.40</b>
<b>Anterior</b>	–	<b>2.65</b>
<b>Posterior</b>	–	<b>3.93</b>
<b>Mesosoma segments</b>	<b>8.76</b>	–
<b>Metasoma segments and telson</b>	<b>23.22</b>	–
<b>segment 1</b>	<b>3.31</b>	<b>2.26</b>
<b>segment2</b>	<b>3.60</b>	<b>2.09</b>
<b>segment3</b>	<b>3.83</b>	<b>2.01</b>
<b>segment4</b>	<b>4.08</b>	<b>1.92</b>
<b>segment5</b>	<b>4.23</b>	<b>1.88</b>
<b>Telson</b>	<b>4.17</b>	
<b>Vesicle</b>	<b>2.77</b>	–
<b>Aculeus</b>	<b>1.40</b>	–
<b>Pedpalpe</b>		
<b>Femur</b>	<b>3.10</b>	<b>1.11</b>
<b>Patella</b>	<b>4.34</b>	<b>1.53</b>
<b>Chela</b>	<b>12.47</b>	<b>1.07</b>
<b>Finger movable</b>	<b>4.97</b>	–
<b>Total body</b>	<b>36.43</b>	–
<b>Pectin teeth</b>		
<b>Right number</b>		<b>27</b>
<b>Lift number</b>		<b>26</b>

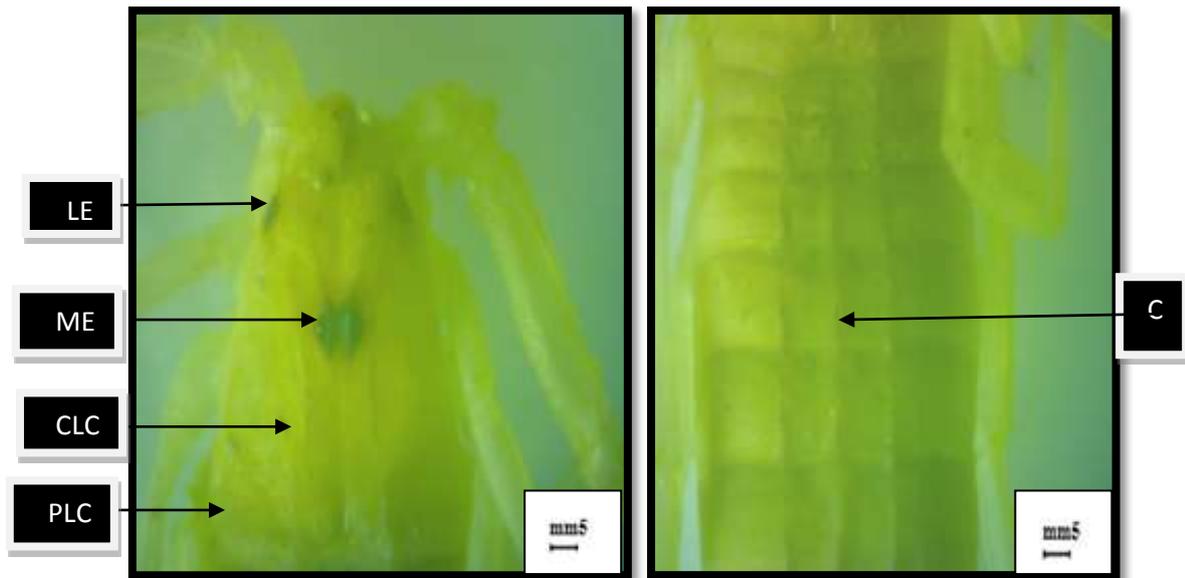


Plate1.Dorsal side of carapace(200x)

Plate2.Dorsal side of seventh segments of mesasoma (200x)

*Compsobuthus iraqensis* sp.nov

\*C = Carina ·LE= Lateral Eye ME= Median Eye ·PLC=Posterior Lateral Carina ·CLC =Central Lateral Carina

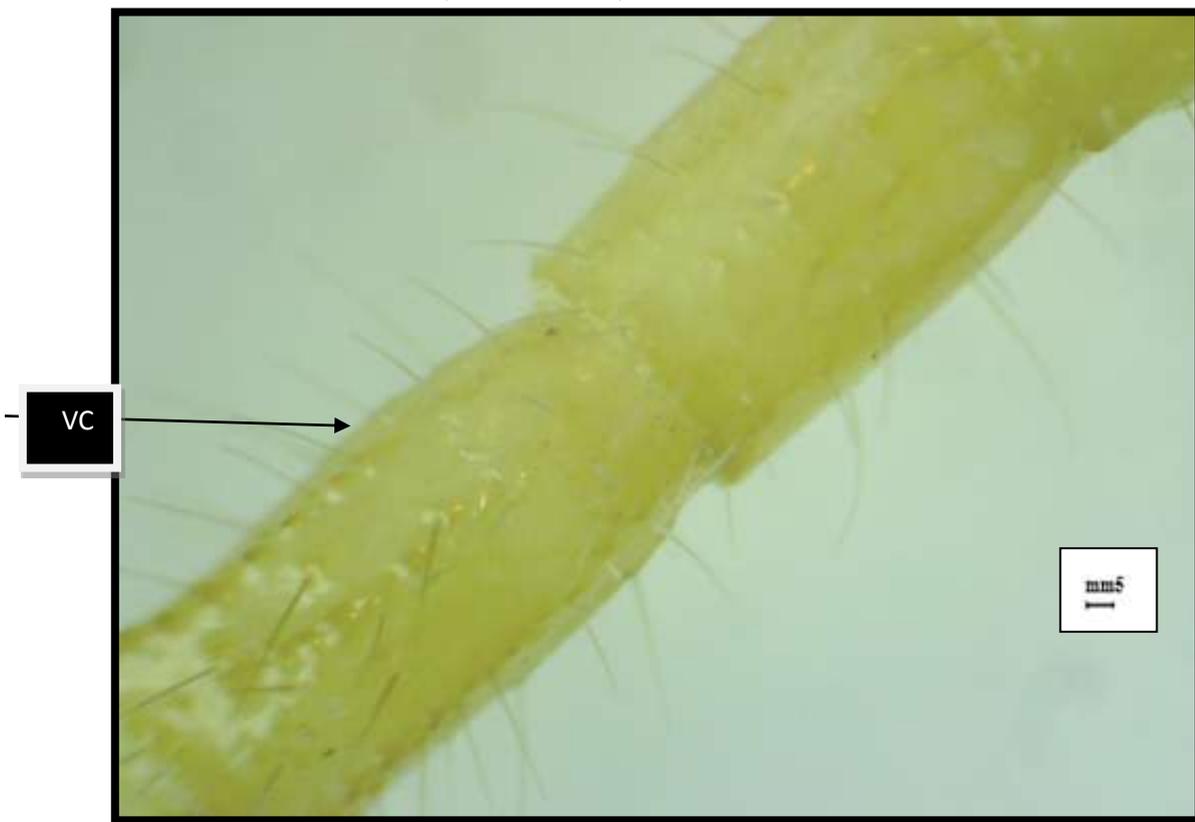


Plate3.Ventral side of fourth and fifth segments of mesasoma(100x)

*Compsobuthus iraqensis*, sp.nov

\* VC=Ventral Carina

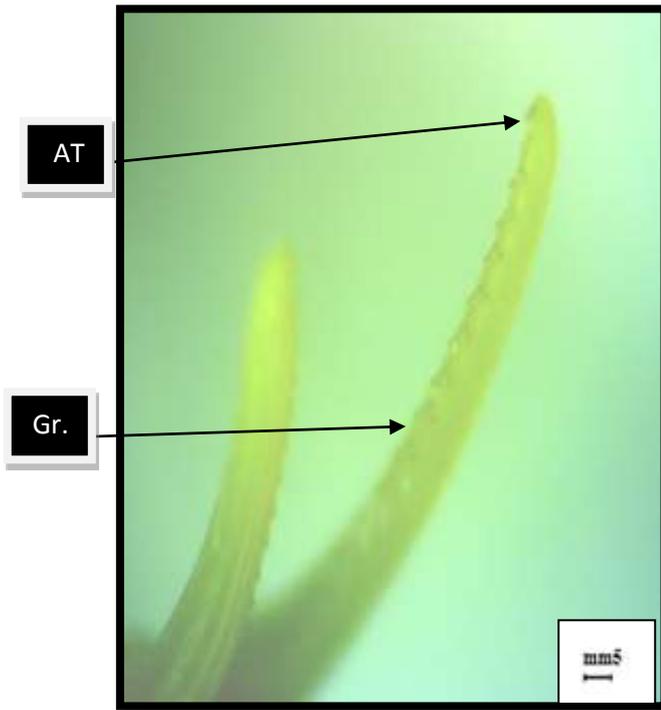


Plate 4.Chella of pedpalpe(200x)

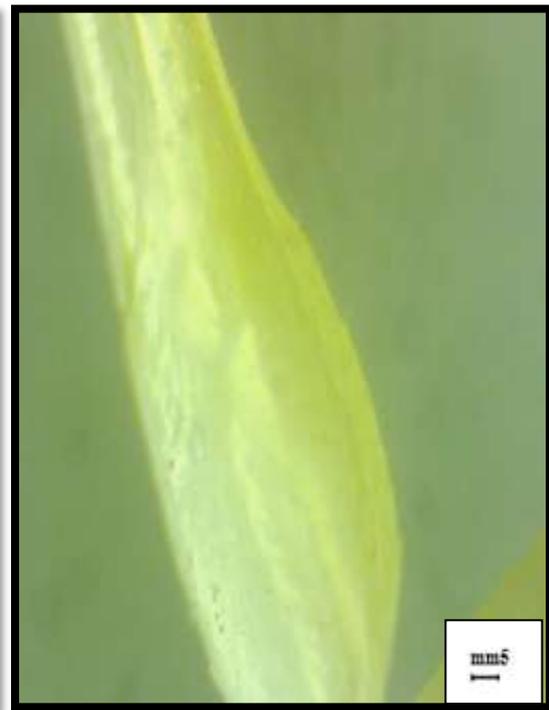


Plate5.Ventral side of manus (200x)

*Compsobuthus iraqensis*, sp.nov .

\* Gr=Granular ‘AT =Apical Teeth

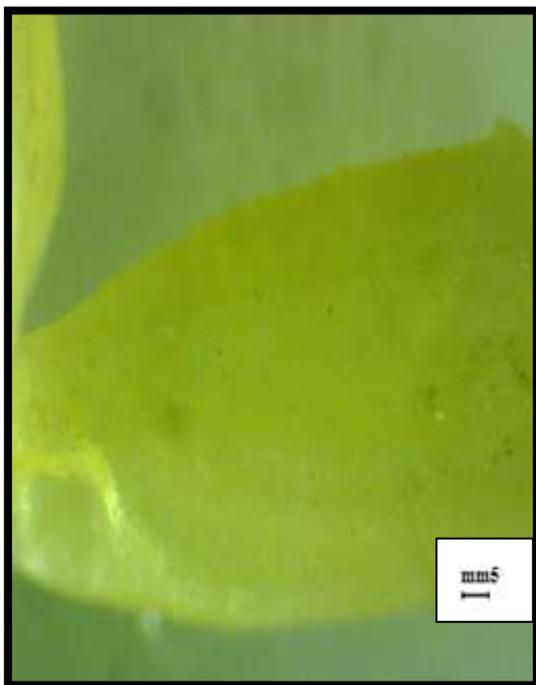


Plate 6.Ventral side of patella(200x)

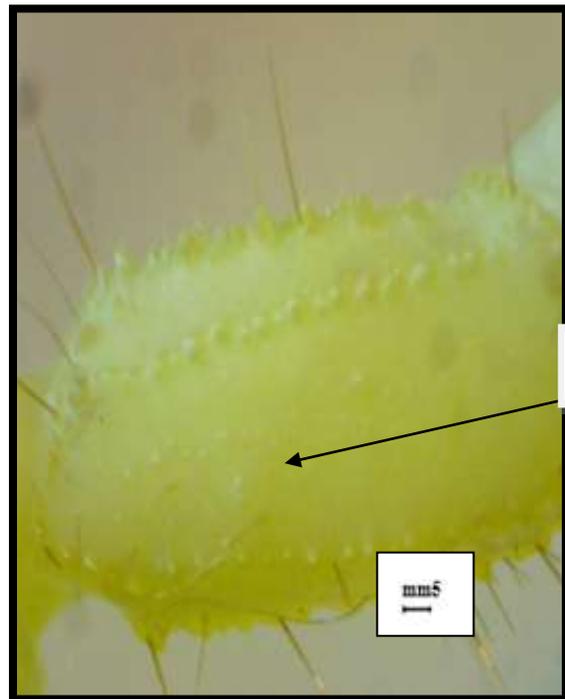


Plate 7.Dorsal side of femur(100x)

*Compsobuthus iraqensis*, sp.nov

\*Trb=Trichobothrial

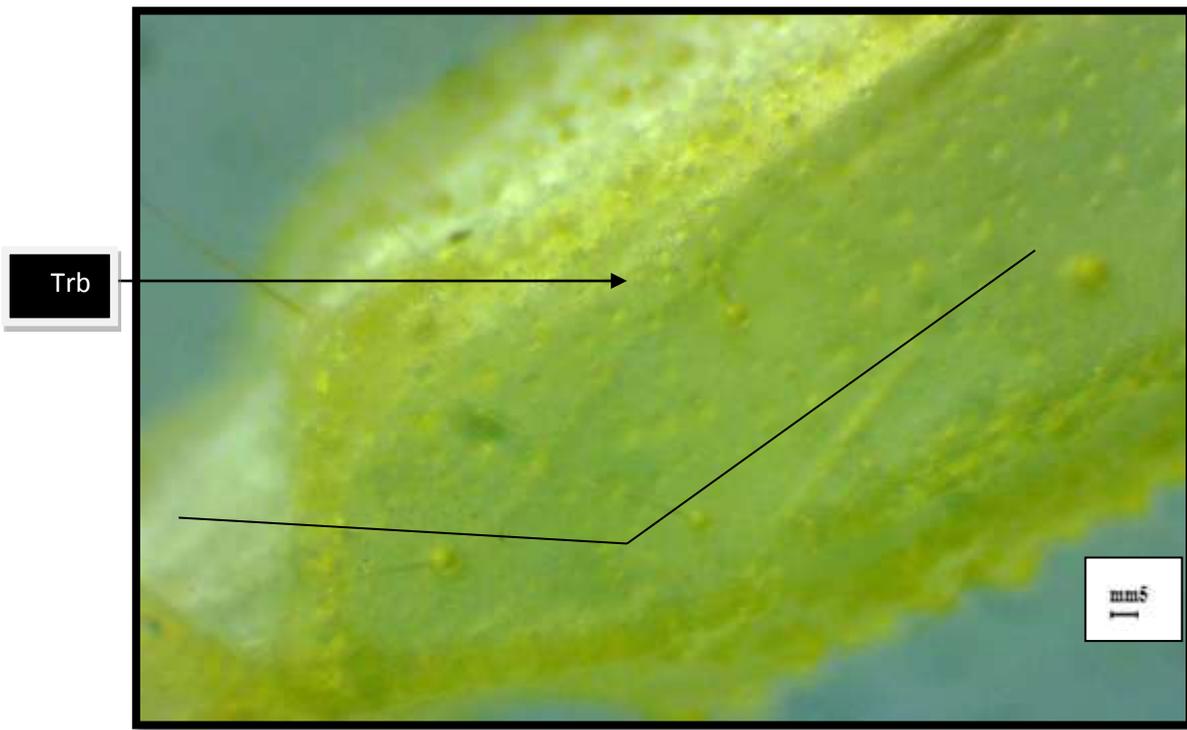


Plate8.Arrange of trichobothrial is inside(200x)  
*Compsobuthus iraqensis, sp.nov*

\*Trb=Trichobothrial



Plate9.Ventral side of chelicerae(200x)  
*Compsobuthus iraqensis, sp.nov.*

\* Bi= Bicusp, B=Basal , M =Medial ,Sd =Sub distal, Id =Internal distal , Ed =External distal

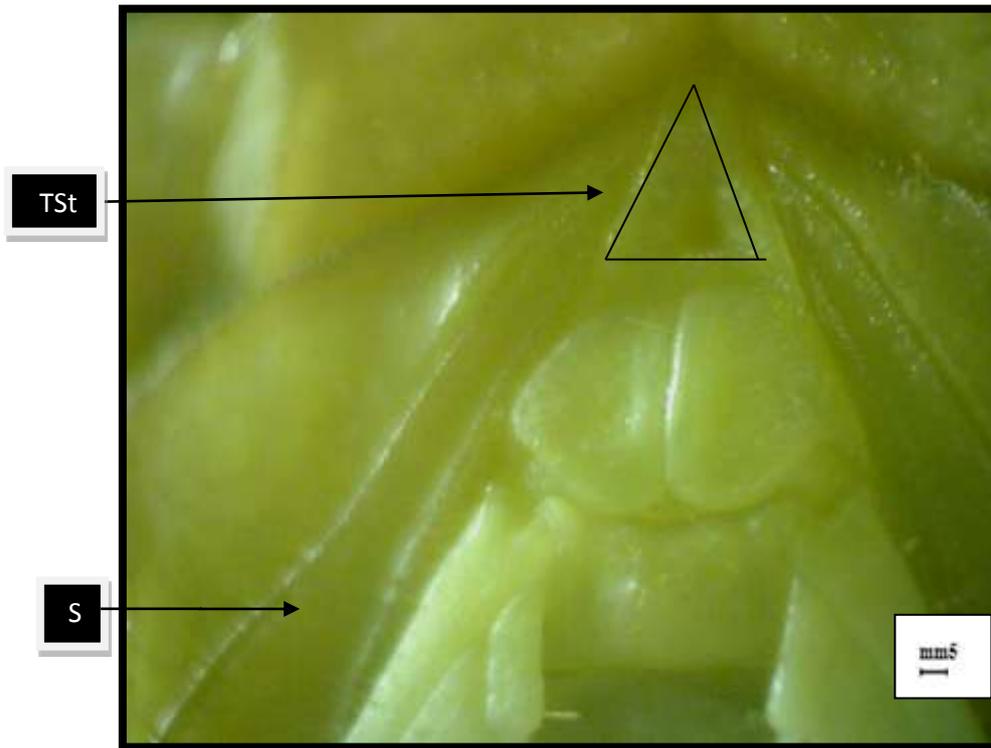


Plate10.Sternum region(200x)  
*Compsobuthus iraqensis* sp.nov

\* S = Seta , TSt =Triangular Sternum

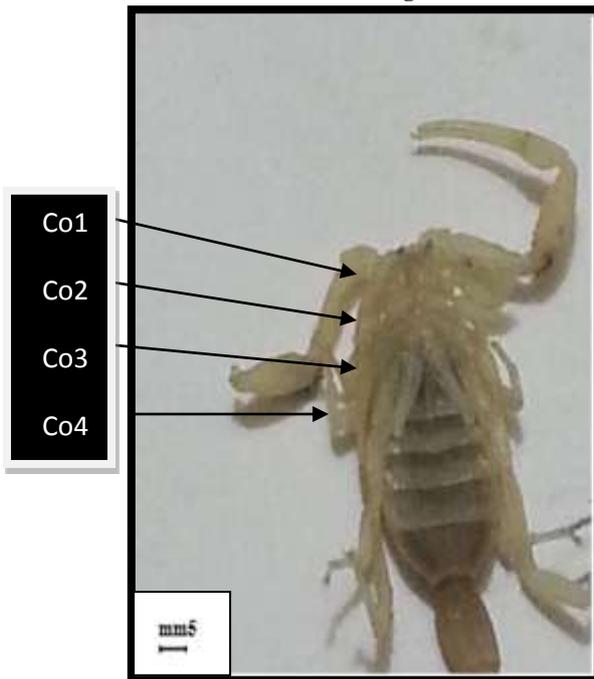


Plate11.Coxosternum regioion

*Compsobuthus iraqensis* sp.nov

\* IF = Inner Fulcra , Co=Coxa of legs

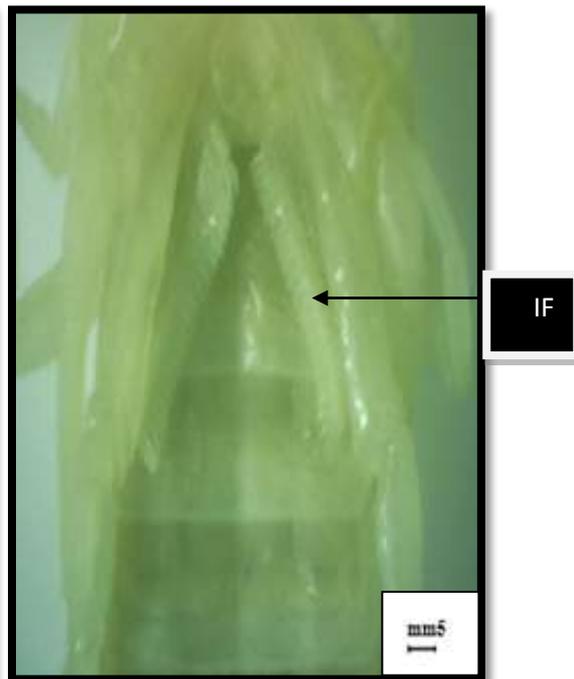


Plate12.Pectin teeth(100x)

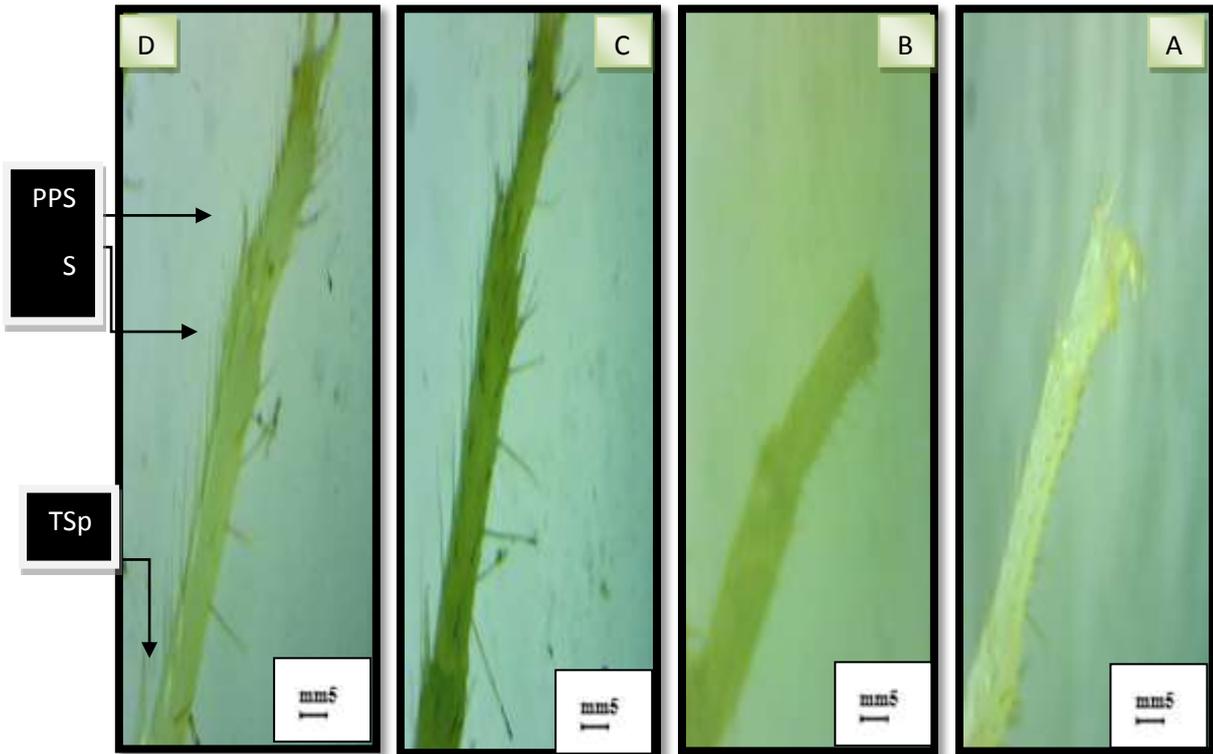


Plate13.Legs (A)first ,(B)seconed ,(C)third ,(D)fourth(100x)

*Compsobuthus iraqensis* , sp.nov

\* TSp=Tibia Spure· S= Seta · PPS=Prolateral Pedal Spure

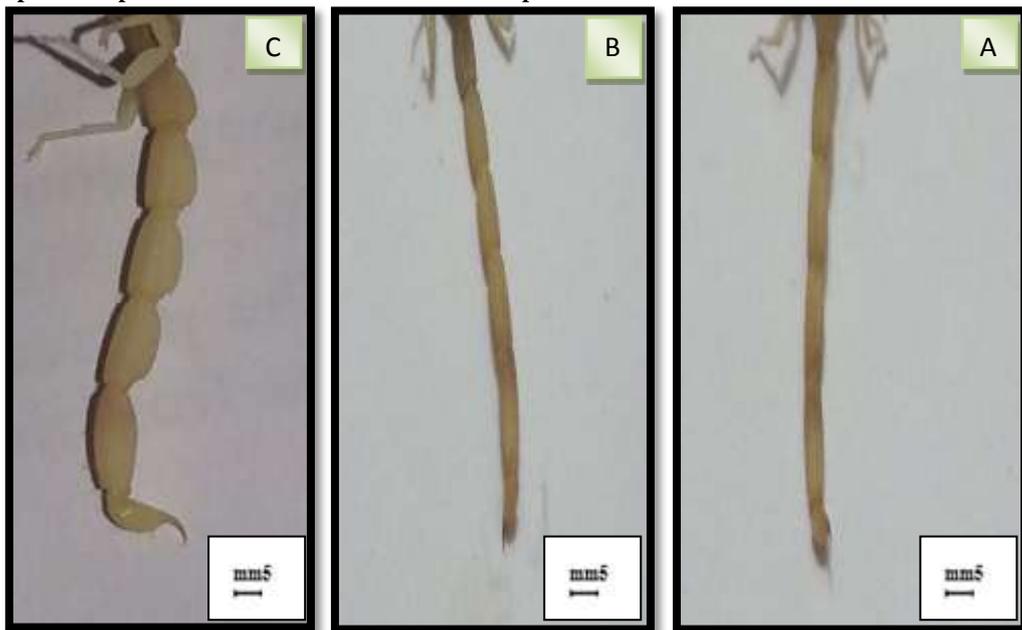


Plate14.Tail (A)dorsal ,(B)ventral ,(C)lateral

*Compsobuthus iraqensis*,sp.nov

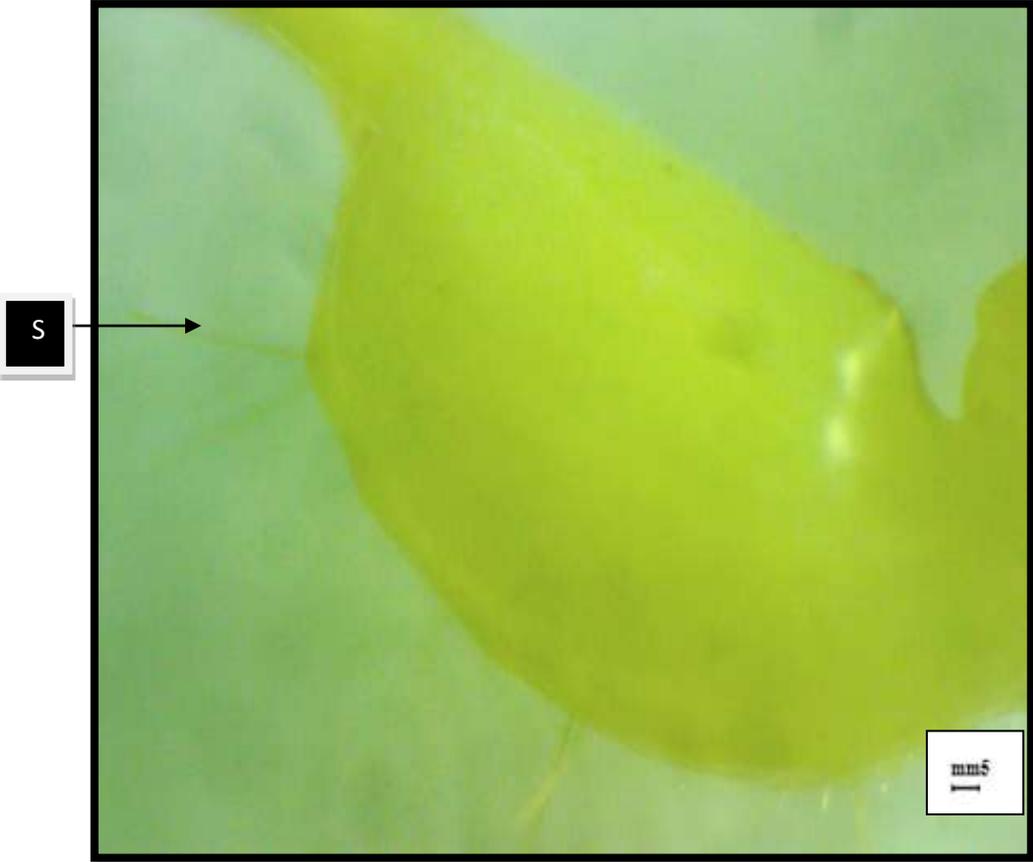


Plate15.Lateral side of sting organ (200x)  
*Compsobuthus iraqensis*, sp.nov

\* S = Seta



Plate16.Ventral side of pedpalpe  
*Compsobuthus iraqensis* , sp.nov



Plate17. Dorsal side of the female body      Plate 18.Ventral side of the female body  
(Total body length 36.43mm)  
*Compsobuthus iraqensis*, sp.nov.

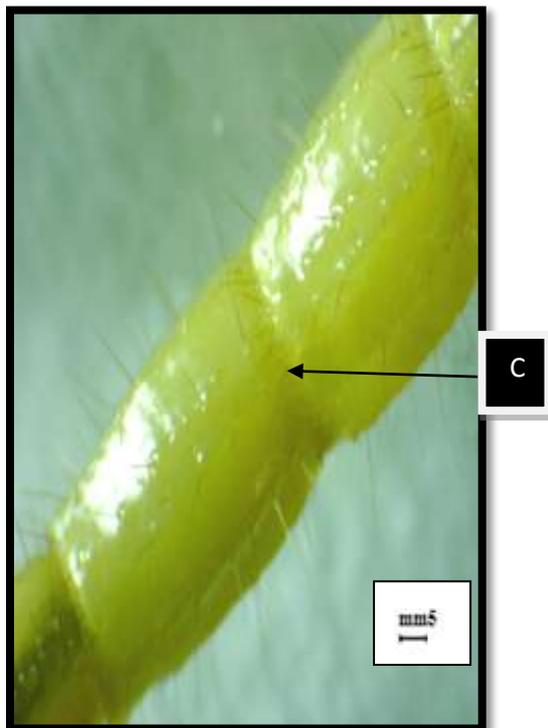
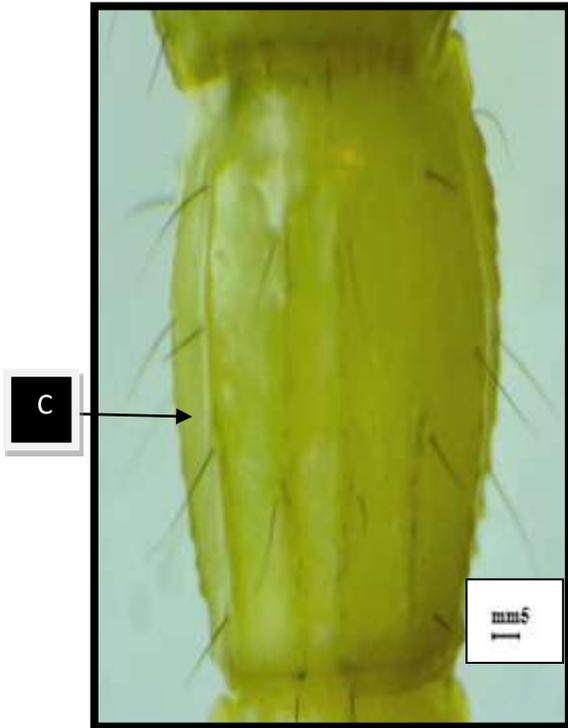


Plate19.Dorsal side of the first segments of metasoma(200x)      Plate20.Ventral side of the second and third segments of metasoma(100 )  
*Compsobuthus iraqensis*, sp.nov

\* C= Carina

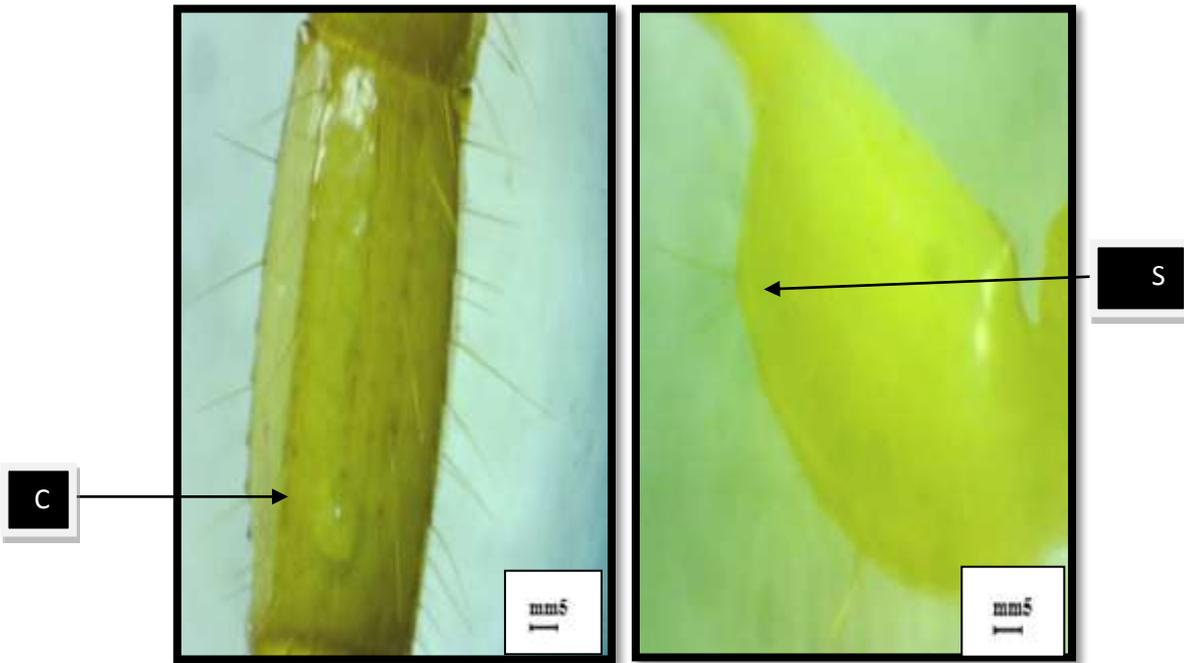


Plate21.Ventral side of fifth segment of metasoma(200x) Plate22.Lateral side of sting organ (200x)  
*Compsobuthus iraqensis*, sp.nov

\* S= Seta=C=Carina=C



Plate23. Dorsal side of the body



Plate24.Ventral side of the body

*Compsobuthus iraqensis*, sp.nov



Plate25. Dorsal side of the body



Plate26. Ventral side of the body

*Compsobuthus persicus*, (11)

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