Kinds of Arthropods Affect Local sheep in the Eastern Region of Saudi Arabia

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ABSTRACT Farm animals have a high economic importance in our country and also all over the world. These animals can be infected by external parasites causing severe damage, which resulted in losses of animal production. The present study different parasites attacking our local farm animals (sheep) in the Eastern region of Kingdom of Saudi Arabia. The result of study is the following parasites

•**Lice**: **Mallophaga** : *Bovicola (Damalinia) ovis.* (Schrank, 1781)

• **Myiasis**: *Oesterus ovis*, which spread in Dammam and Al-Khobar, and *Cochliomyia hominivorax* (Coquerel,1858) (screw-worm) Al-Ahssa farms.

• **Ticks**: Few numbers of only one species *Rhipicephalus (Rhipicephalus) turanicus* (Latreille, 1806) were collected.

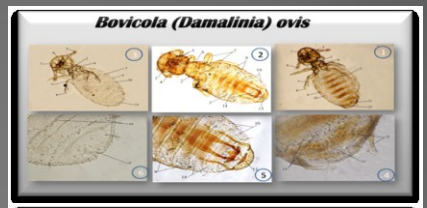
Key words: *Bovicola (Damalinia) ovis, Oesterus ovis, Rhipicephalus (Rhipicephalus) turanicus, Cochliomyia hominivorax*,sheep, Saudi Arabia .

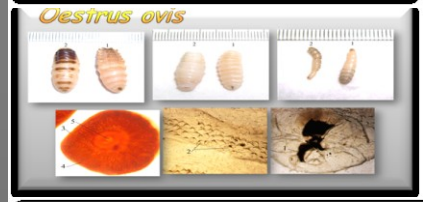
INTRODUCTION

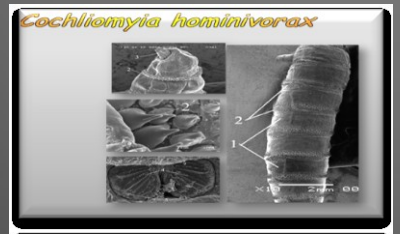
Lice are one of the most common ectoparasites of domestic cattle. The chewing louse, *Bovicola ovis*, is the most prevalent and clinically important species (**Milnes *et al.* 2003**). Herd prevalences of 75-90% have been widely reported **(Colebrook and Wall, 2004)**. The sheep nasal bot, *Oestrus ovis* (Diptera: Oestridae), is a common ectoparasite in domestic sheep. It has a worldwide distribution, with geographic expansion following the domestic sheep and goat historic movements (**Colwell, 2001**). It can infect llamas and wild sheep. It was reported by one of the early studies documenting presence of myiasis in sheep of Saudi Arabia. Myiasis by this dipterous fly was reported in the Central, Western and Eastern regions of the country (**Azazy El-Metenawy, 2004; Al-Saqabi, 2005**). Myiasis due to this fly was reported also in Iraq and Kuwait (**Grogory, *et. al.*, 2004; Al-Behbehani, 2006.**The blowfly, *Chrysomya* (Diptera: Calliphoridae), is considered one of the most dangerous dipteral vectors of pathogens. The screwworm species *Chrysoma bezziana* was recorded in the central region of Saudi Arabia (Abo-shahada, 2005). One of the early studies on ticks in Saudi Arabia was done by (**Banaja *et. al.*1980; Omar *et. al.*, 1988**. in Western and southern zones of Makkah and Madinah (Mendes-de-Almeida *et. al.*, 2007; Al-Khalifa, *et. al.*, 2007b). The authors documented the presence of 21 species of ticks in endogenous and imported cattle, sheep and goats. *Rhipicephalus turanicus* (Acari: Ixodidae) This study aims at using scanning electron microscopy to identify the different species of the arthropod ectoparasites of sheep in the Eastern Province of Saudi Arabia.

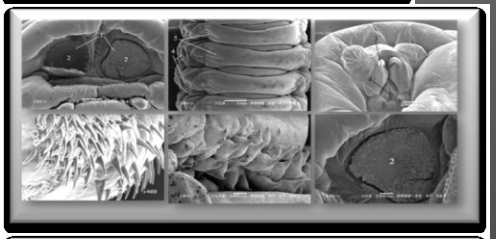
In conclusion, the present study succeeded to properly identify and confirm the presence of four species of arthropod parasites in sheep in Saudi Arabia. These species are the sheep biting lice *B. ovis*, the sheep nasal bot *O. ovis*, the New World screwworm fly *C. hominivorax* and the tick *R. turanicus*.

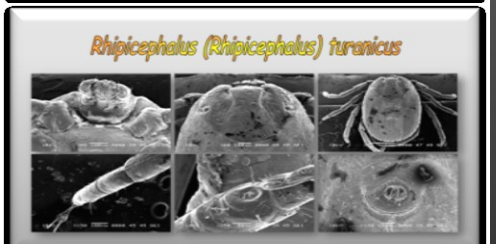
RESULTS











MATERIALS AND METHODS

During the year 2007, different species of the arthropod ectoparasites of the domestic sheep (*Ovis aries*) were collected from farms and slaughterhouses in the Eastern Province of Saudi Arabia. The collected specimens were stored in 70% alcohol. The samples were processed for examination by light microscopy and scanning electron microscopy according the method described by Pritchard & Kruse in 1982 **Keirans *et.al.* 1976.** After species identification by the aid of the appropriate textbooks (**Zumpt, 1965; Pergram *et al* 1989; Pegram, *et. al.* 1987**; **Mcdaniel ,1979; Krantz, 1978; Borror *et. al.*, 1989**), samples were sent to Dr. John Deeming (National Museum of Wales, Cardiff, Wales, UK) to confirmed our identification.

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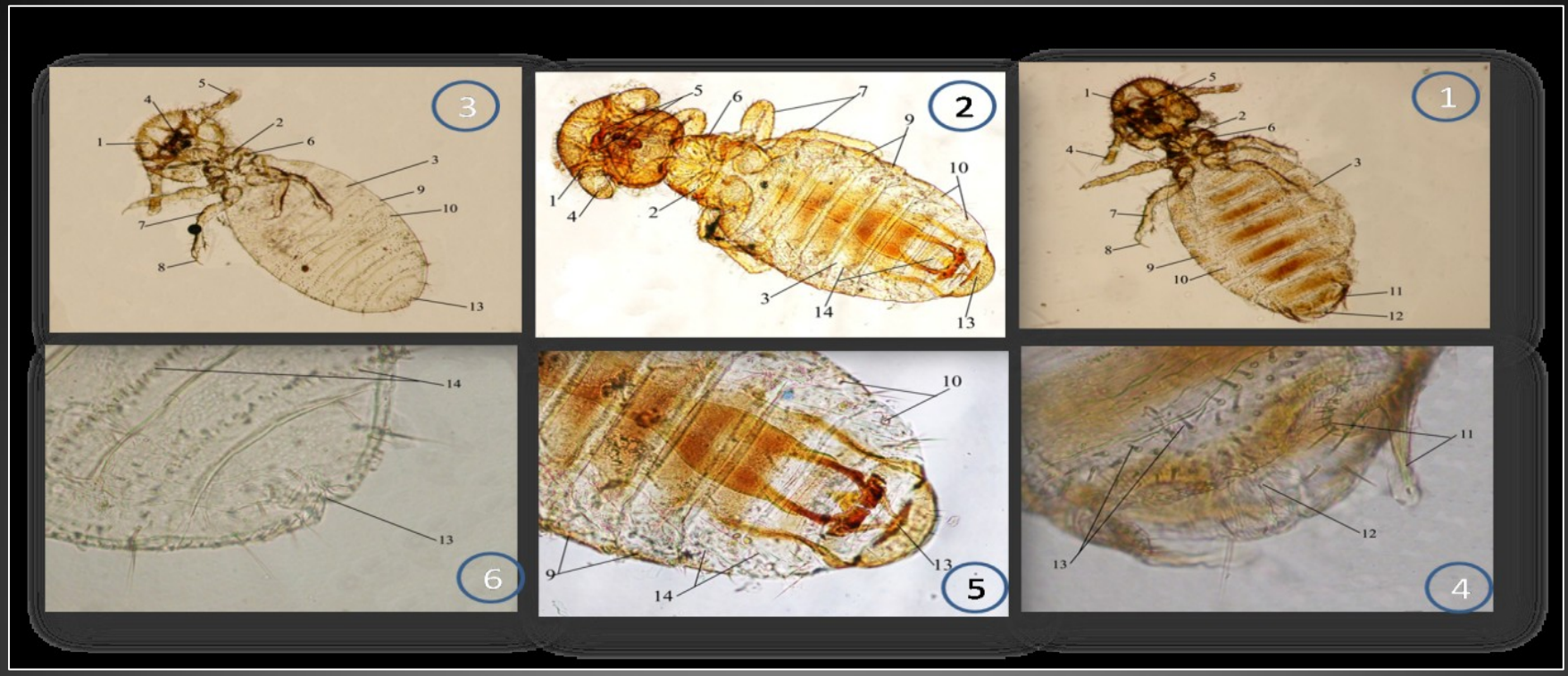

Fig (1): *Bovicola (Damalinia) ovis* (schrank, 1781) by light microscope:
1 - Female of lice (10 x).
2 - male of lice (10 x).
3 - Nymph (10 x)
4 – the posterior end of female abdomen (40 x).
5 – the posterior end of male abdomen (10 x)
6 – the posterior end of nymph abdomen (40 x)

1 – head capsule .
2 - antenna.
3 –segment of first antenna.
4 - segment of second antenna.
5 - segment of third antenna.
6 – mouth opening.
7 - jaws.
8 – thoracic .
9 - the first pair of legs.
10 - thoracic respiratory pores .
11 -abdomen respiratory pores .
12 –14- abdomen segments .
13 - abdomen setae .
14 - belly rings

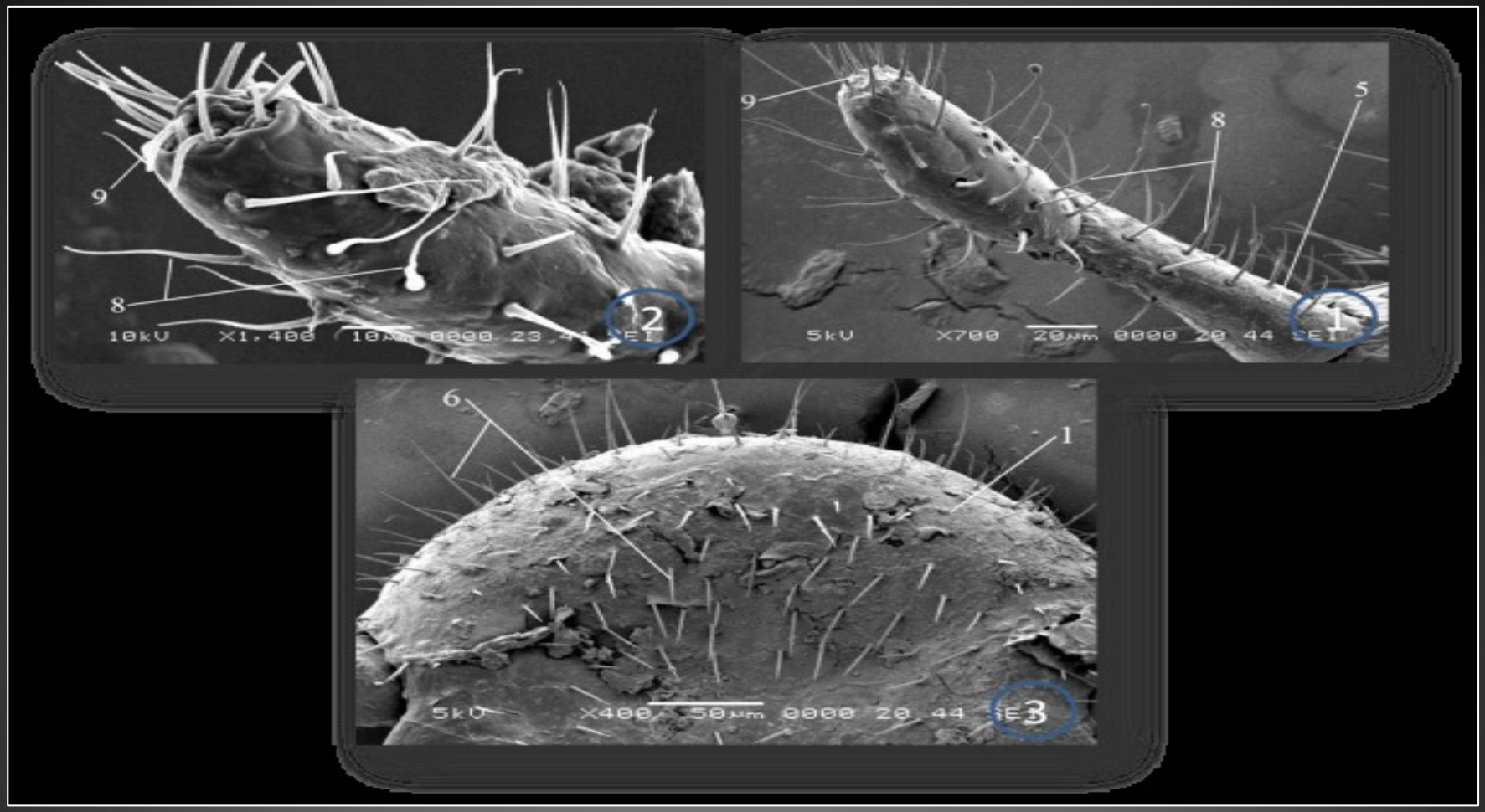

Fig (2): head lice (mallophaga) *Bovicola (Damalinia) ovis* (schrank, 1781) using a scanning electron microscope:

1 – antenna

2 – maxillae segments (last segment) show sensory setae

3 - dorsal view of the head shows the distribution of seta's

Fig (3): Morphology of the larva stages of *Oestrus ovis* (Linnaeus, 1758):
A - larva in first instar .
B - larva in second instar
C - larvae in the third instar .
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1 - ventral view.
2 - dorsal view

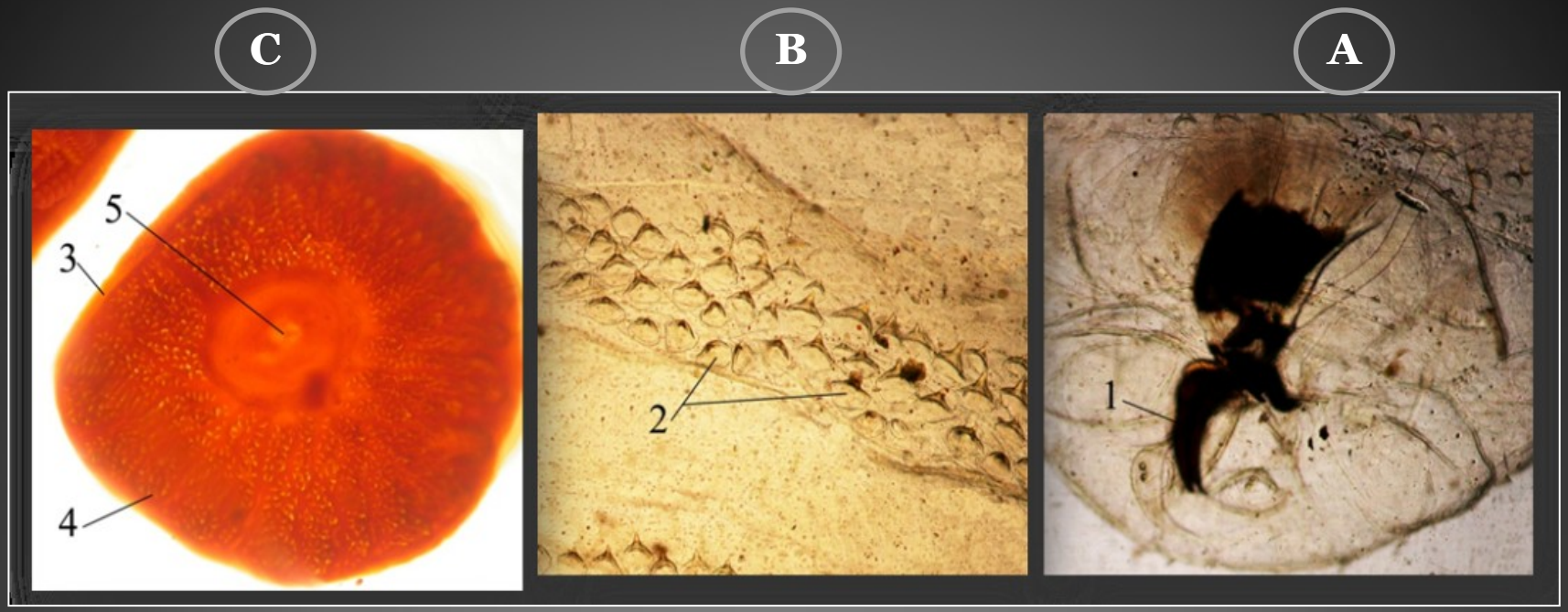

Fig (4): Morphology structure of larva parts *Oestrus ovis* (Linnaeus, 1758) by light microscope in the third instars :

A – anterior part shows hook (4 ×).

B- spines (4 ×).

C – spiracles (4 ×).

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1 - hook.

2 - spines.

3- spiracle .

4- nodes .

5- pores .

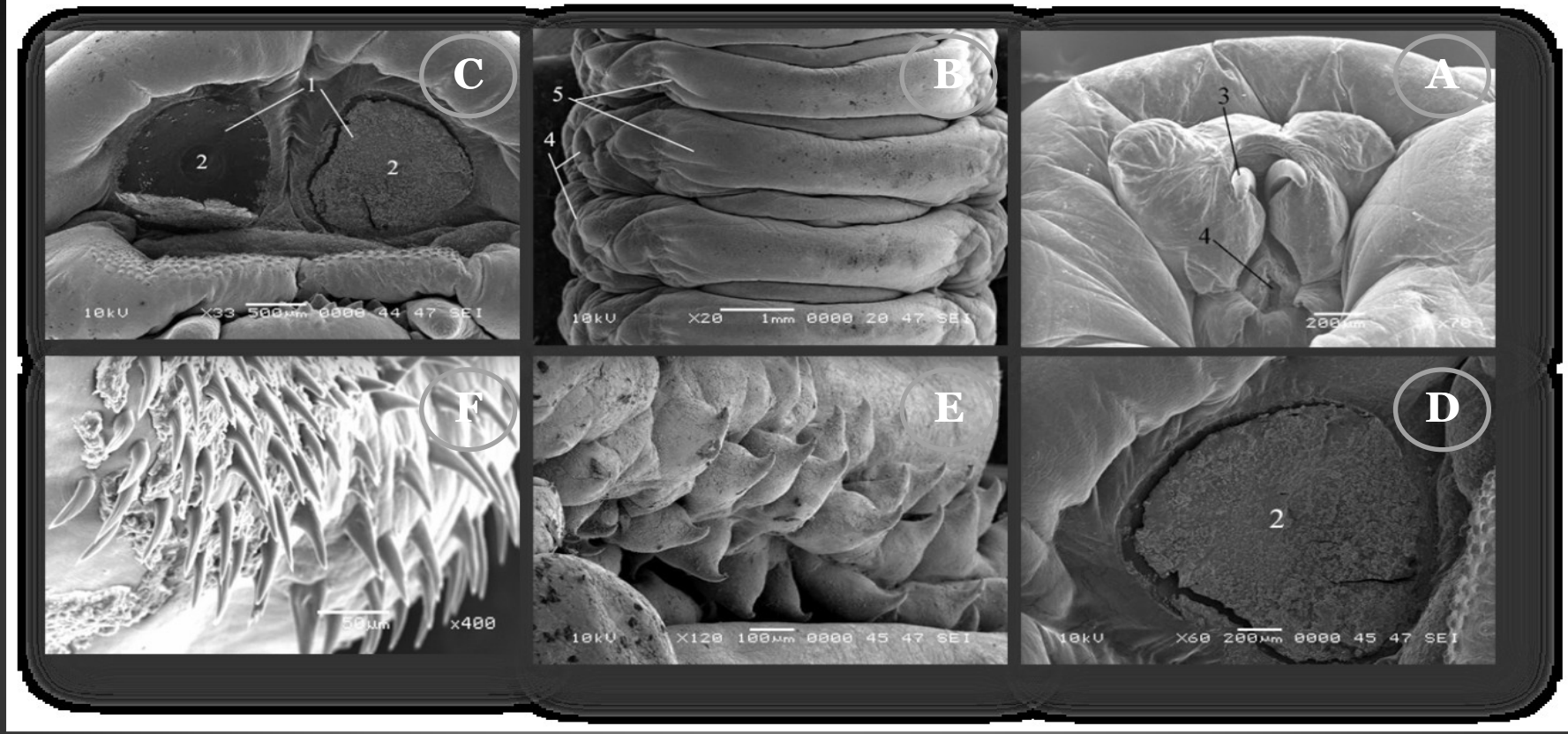

Fig (5) Anterior part of *Oestrus ovis* (Linnaeus, 1758) in the larval stage by scanning electron microscope:

A - Ventral view of the first segments appears hook

B - Dorsal view shows the segments with out spines

C- D- spiracles in large

F- E – spines in the third instar

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1 – posterior spiracles .

2 - central nodes (suture).

3 – hooks .

4 - mouth.

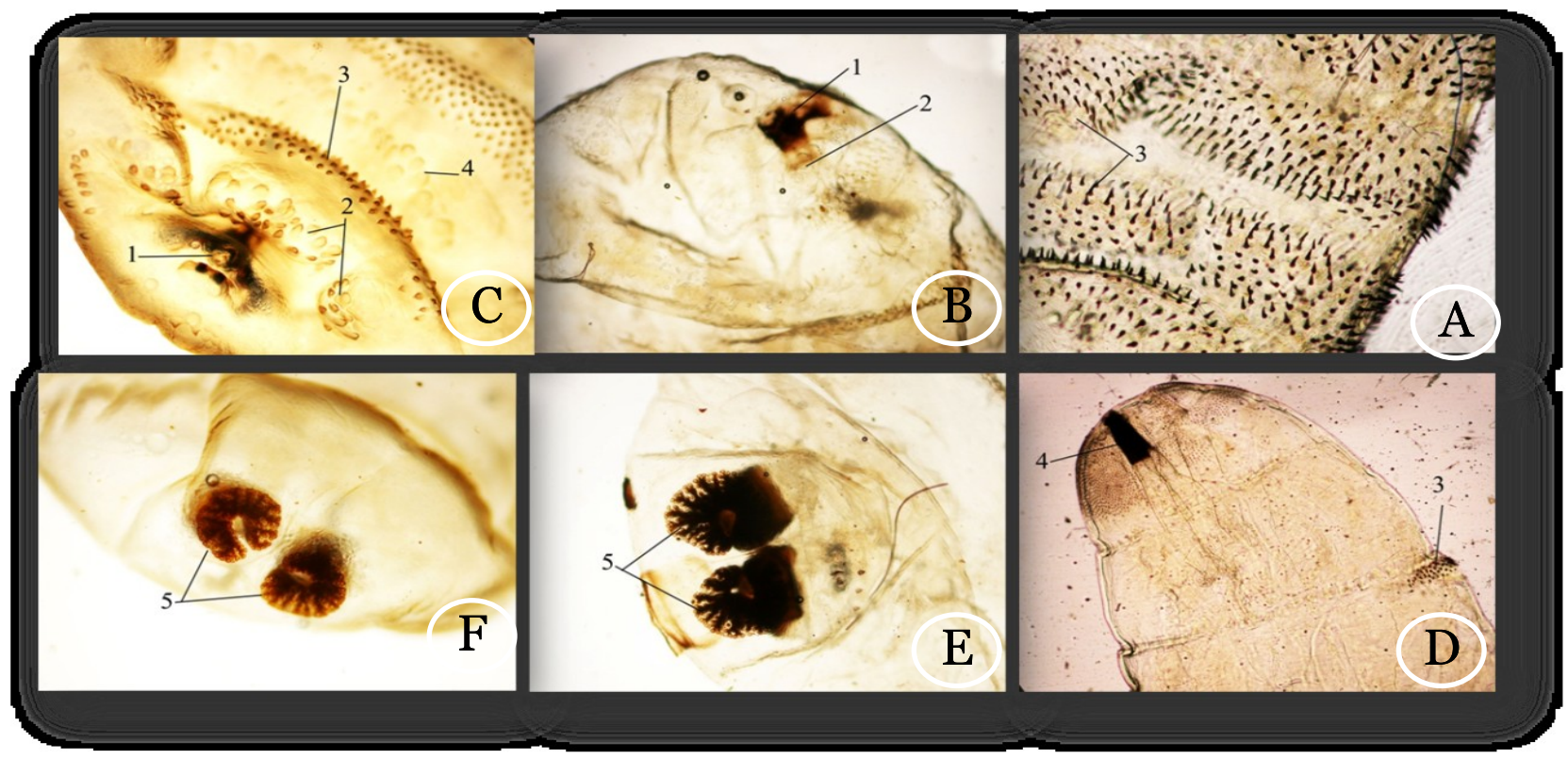

Fig (6) Morphology structure of *Przhevalskiana silenus* in the first instar by light microscope:
A - ventral view shows the spines arranged in rows (4 x).
B –C lateral view shows the anterior part of the hook (4 x).
D –E lateral view shows the spiracle tube (4 x).

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1 - hook.
2 - nodules in the first segments .
3 – spines.
4 – spiracle tube.
5 – spiracle

Fig (7): Parts of larva *Cochliomyia hominivorax* (Coquerel, 1858) in the third instar by scanning electron microscope:
A – lateral view of the larva show segments of the body and spines covered (10 ×).
B – lateral view show the lateral of anterior part of hooks and collar spines in the first segment (60 ×).
C - an enlarged image of the body spines (700 ×).
D - surface view show the structure of spiracles (170 ×).
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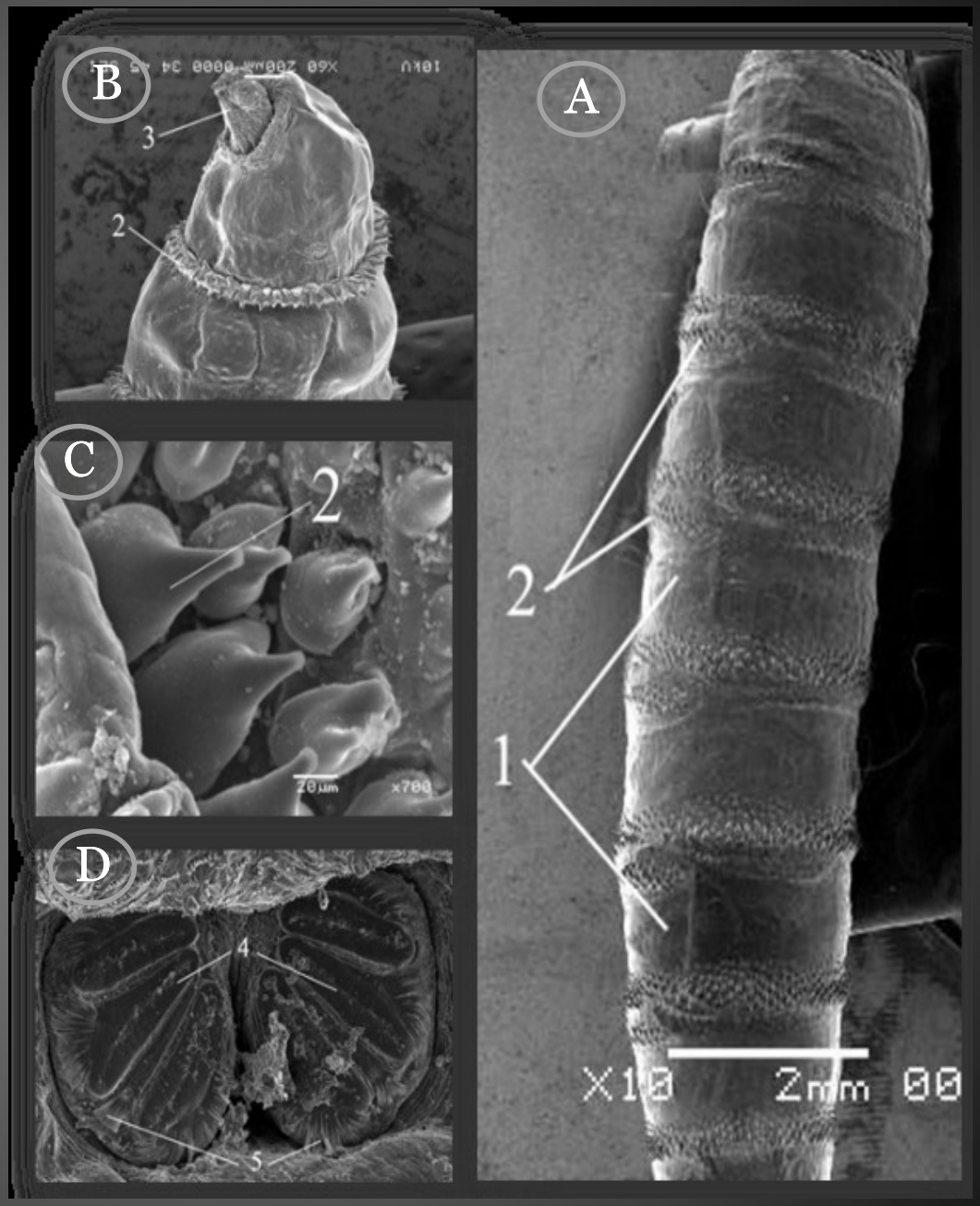
1 – segments of the body .
2 – spines .
3 -oral hooks .
4 - posterior spiracles .
5 - cilia appendages.



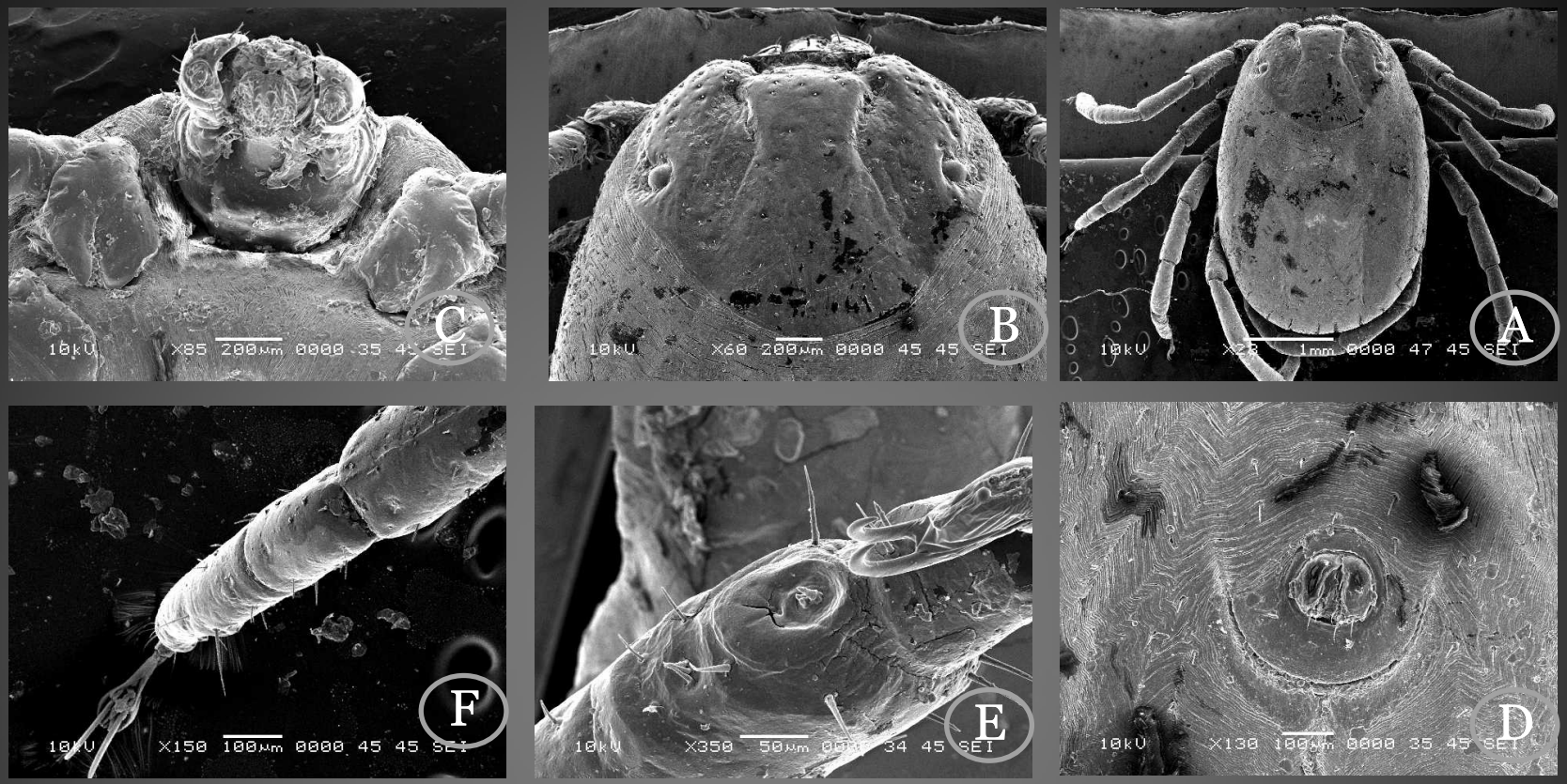


Fig (8) : Morphology structure of tick *Rhipicephalus* (*Rhipicephalus*) *turanicus*) (Latreille, 1806):

A - dorsal view shows the male body .

B- dorsal view of the front of the body, show the capitulum.

C - ventral view of the speaker form genital opening.

D - surface view of the legs appears the claw,

E - a superficial view of the first legs appears the Haller`s organ.