

# Attachment of Laboulbeniales fungi on their ant hosts: ultrastructural study

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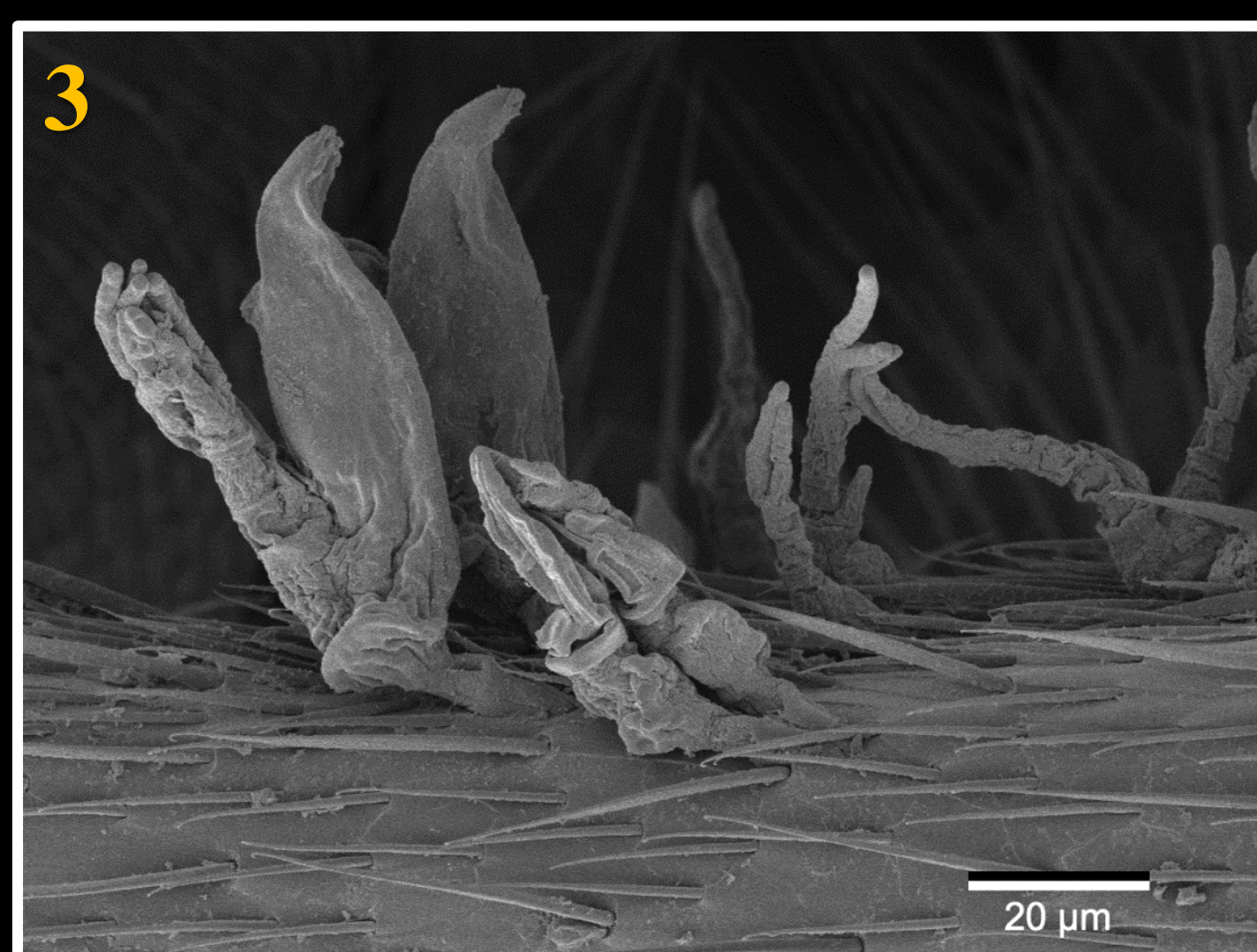
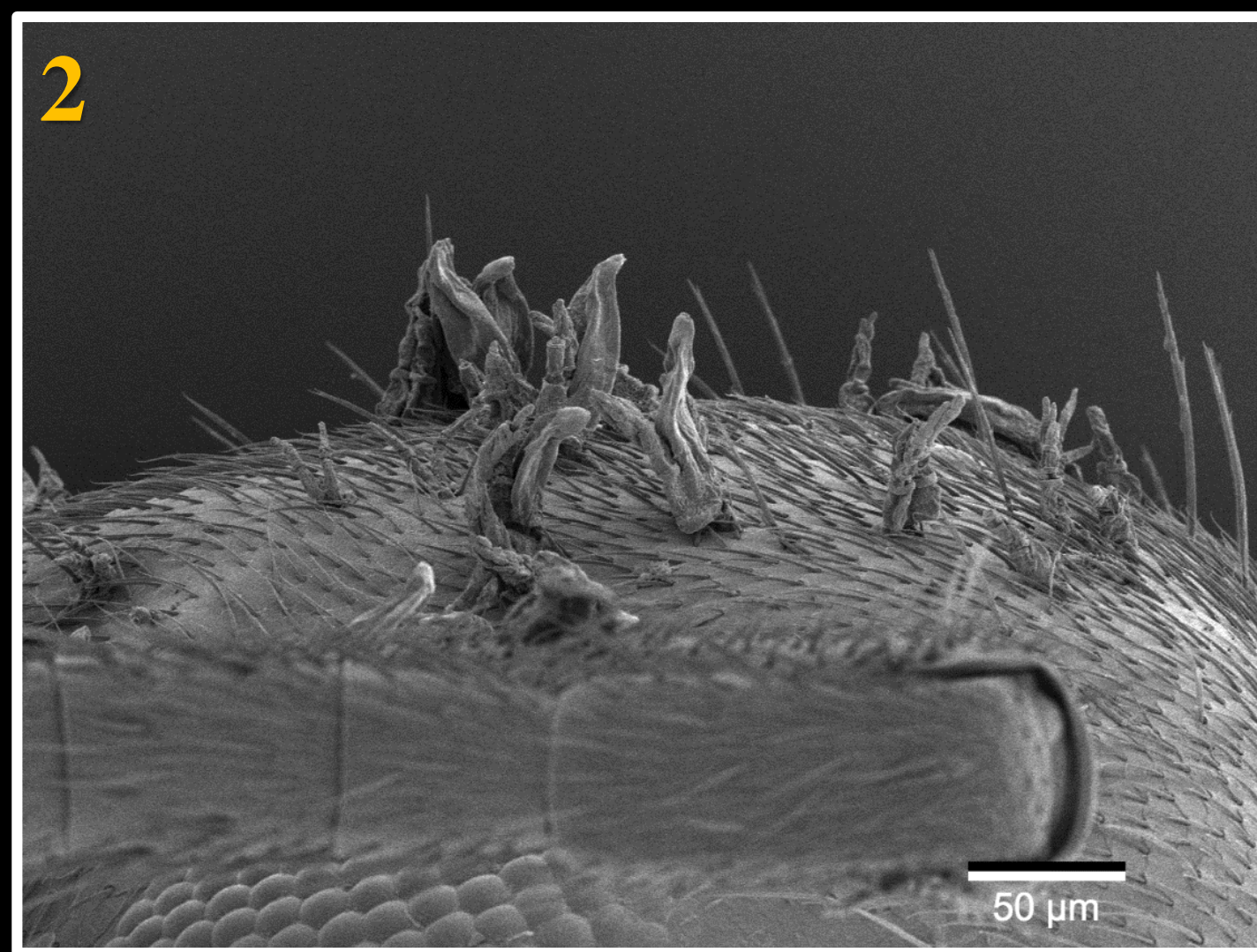
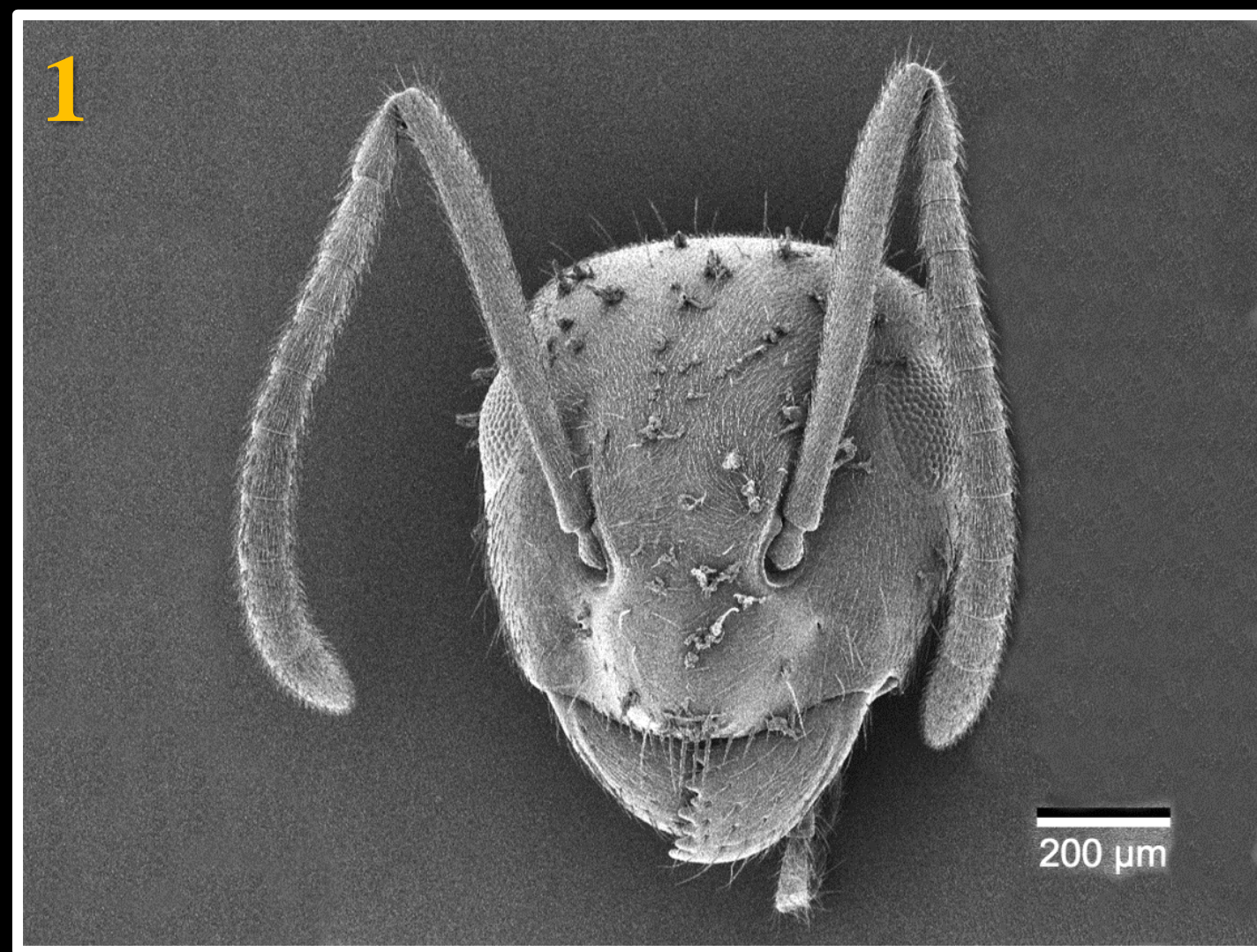
## Introduction and Aim

Laboulbeniales (Ascomycetes) are ectoparasitic fungi growing on the cuticle of arthropod hosts. Among social insects only termites and ants are known to harbour some species of Laboulbeniales. Although the existence of Laboulbeniales on ants has been known for more than a century, the interactions with their hosts remained understudied.

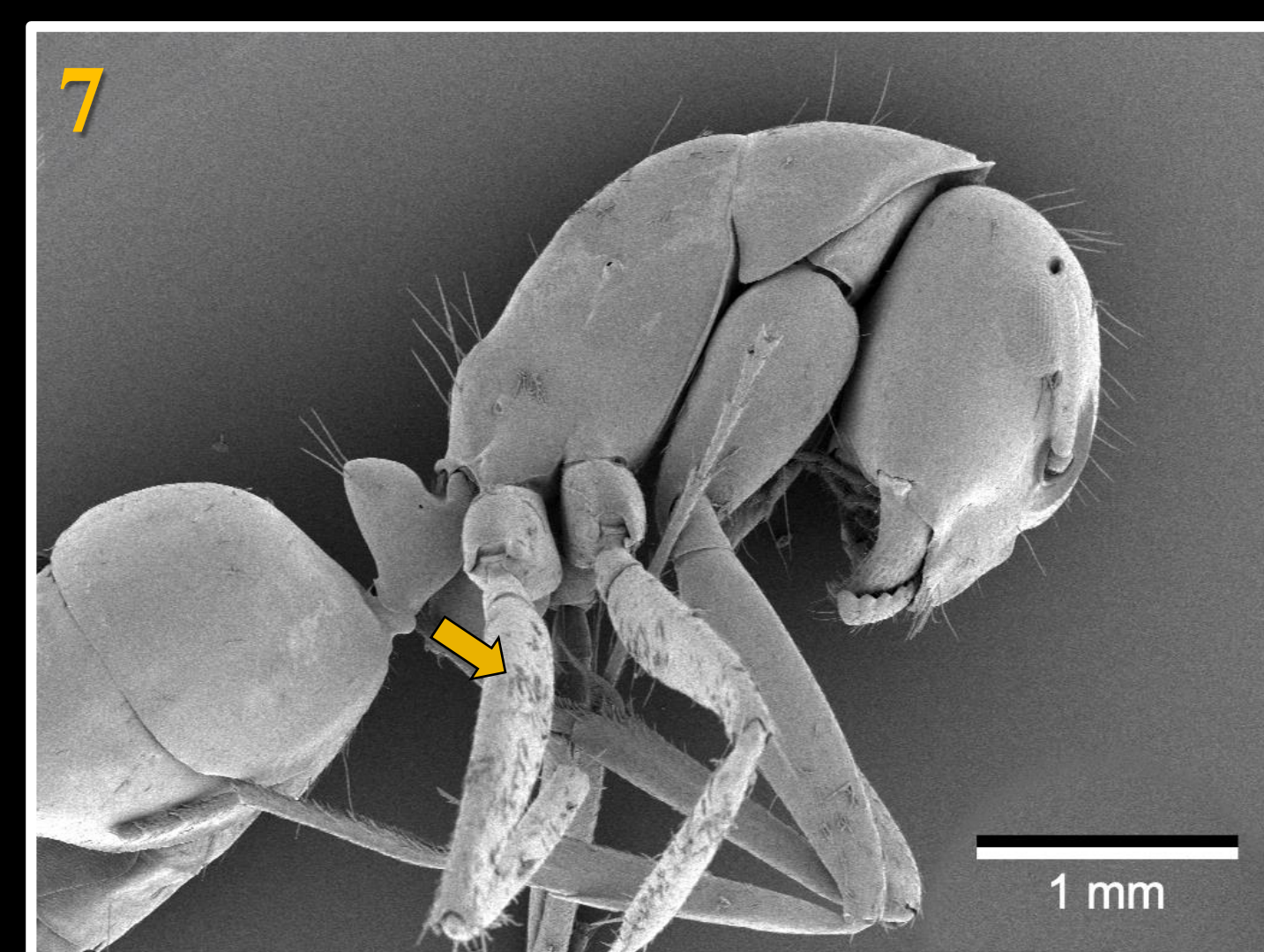
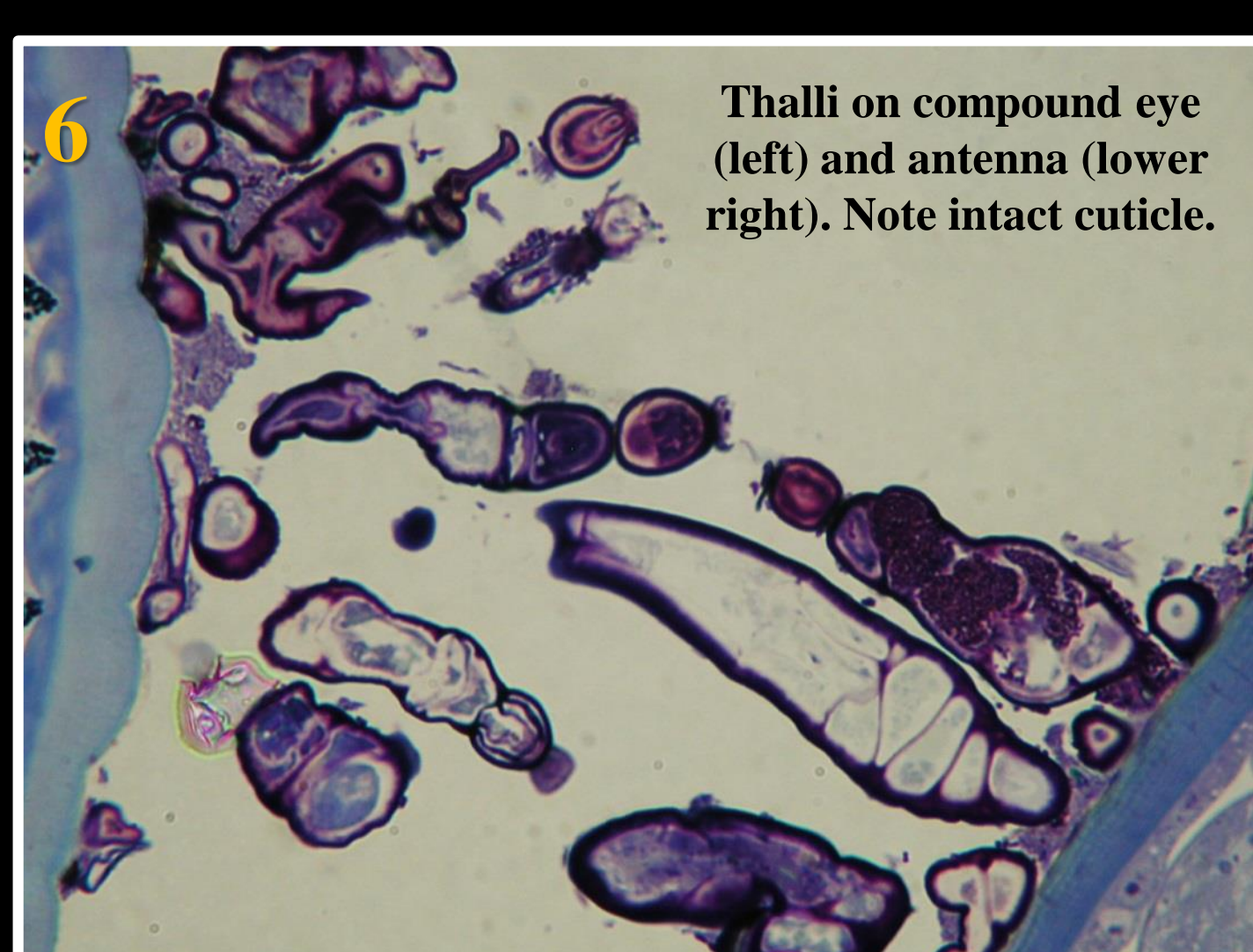
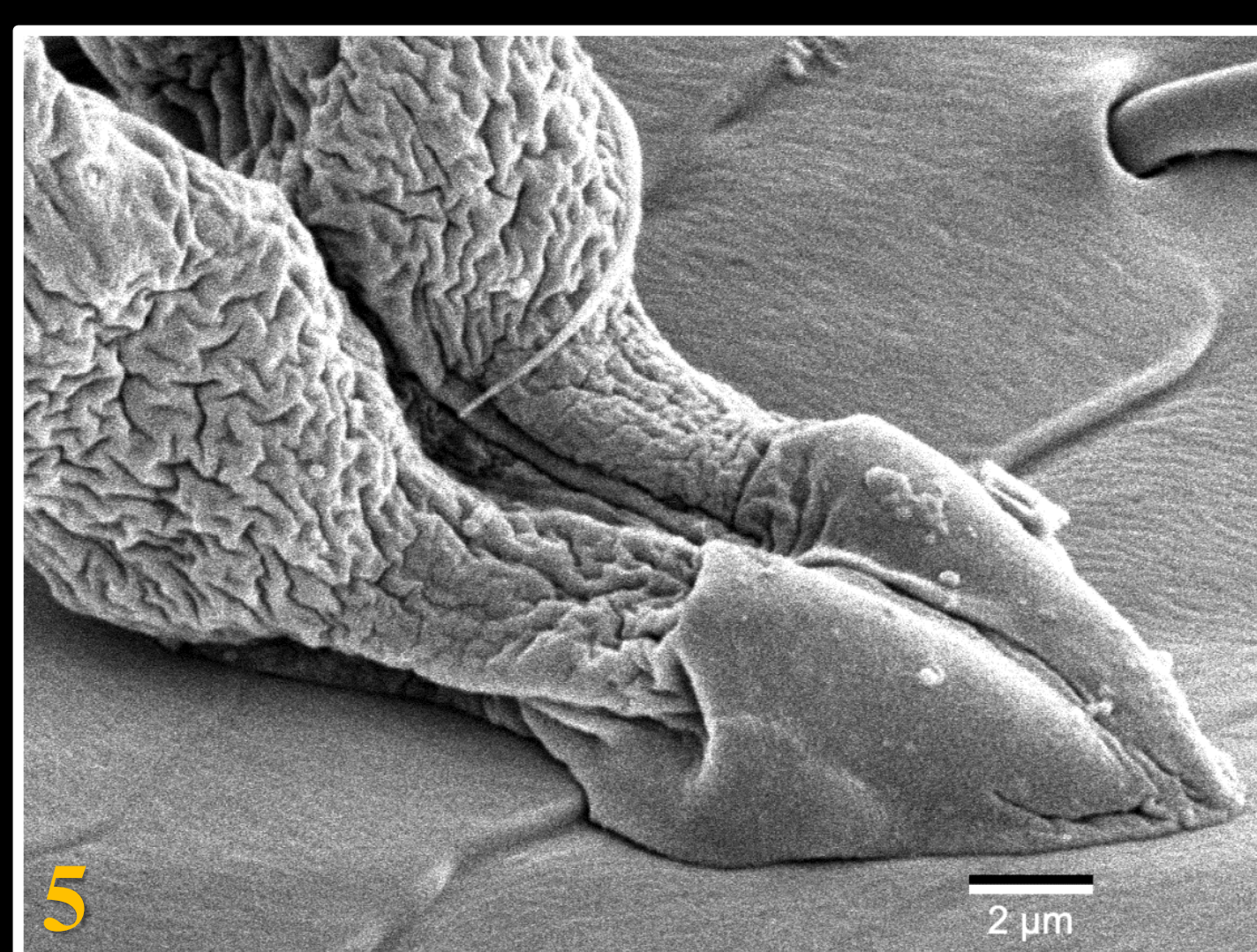
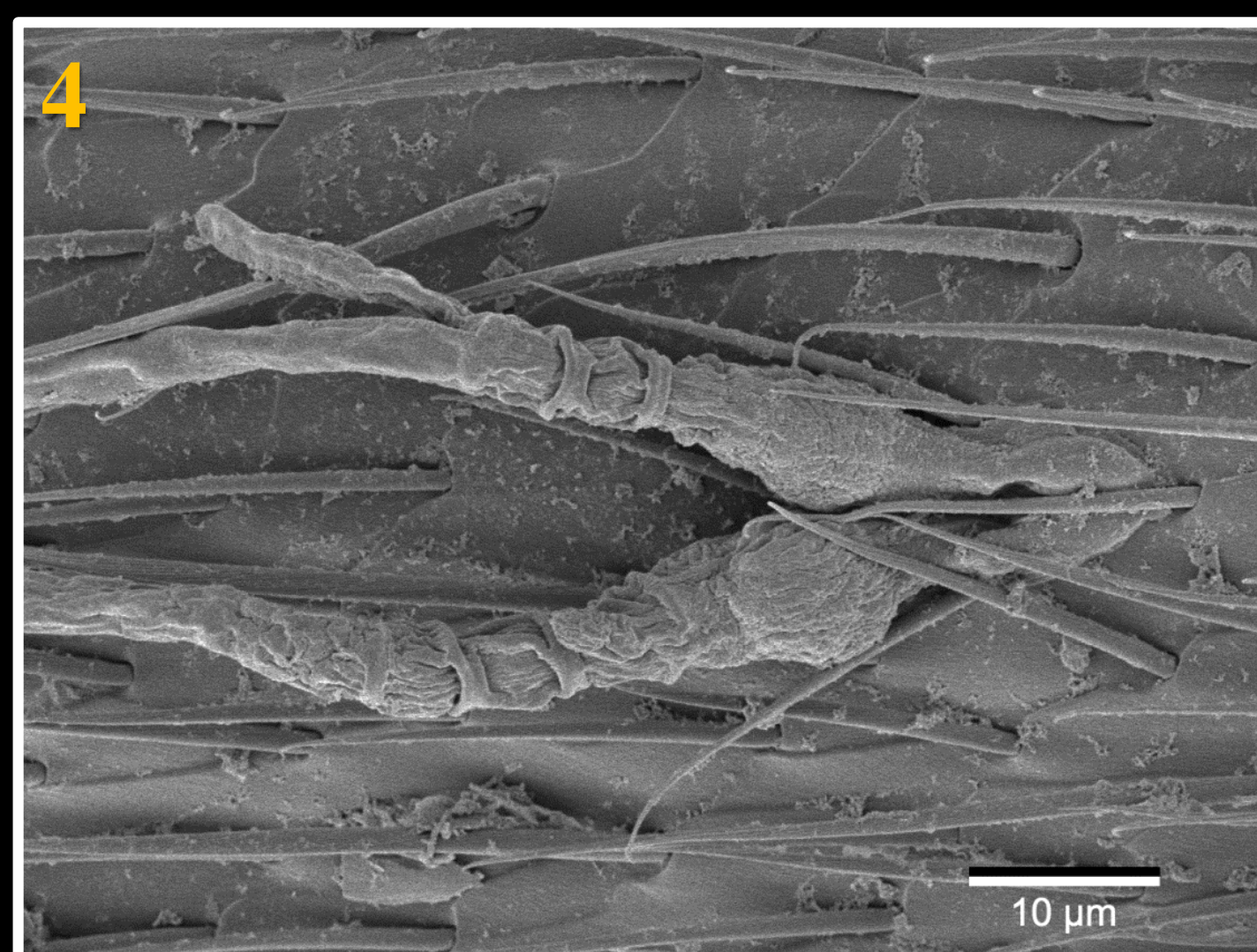
We were especially interested how fungal thalli anchored in the cuticle of their hosts and whether cuticle perforations indicative of nutrient uptake by the fungus from the host were obvious.

## Methods

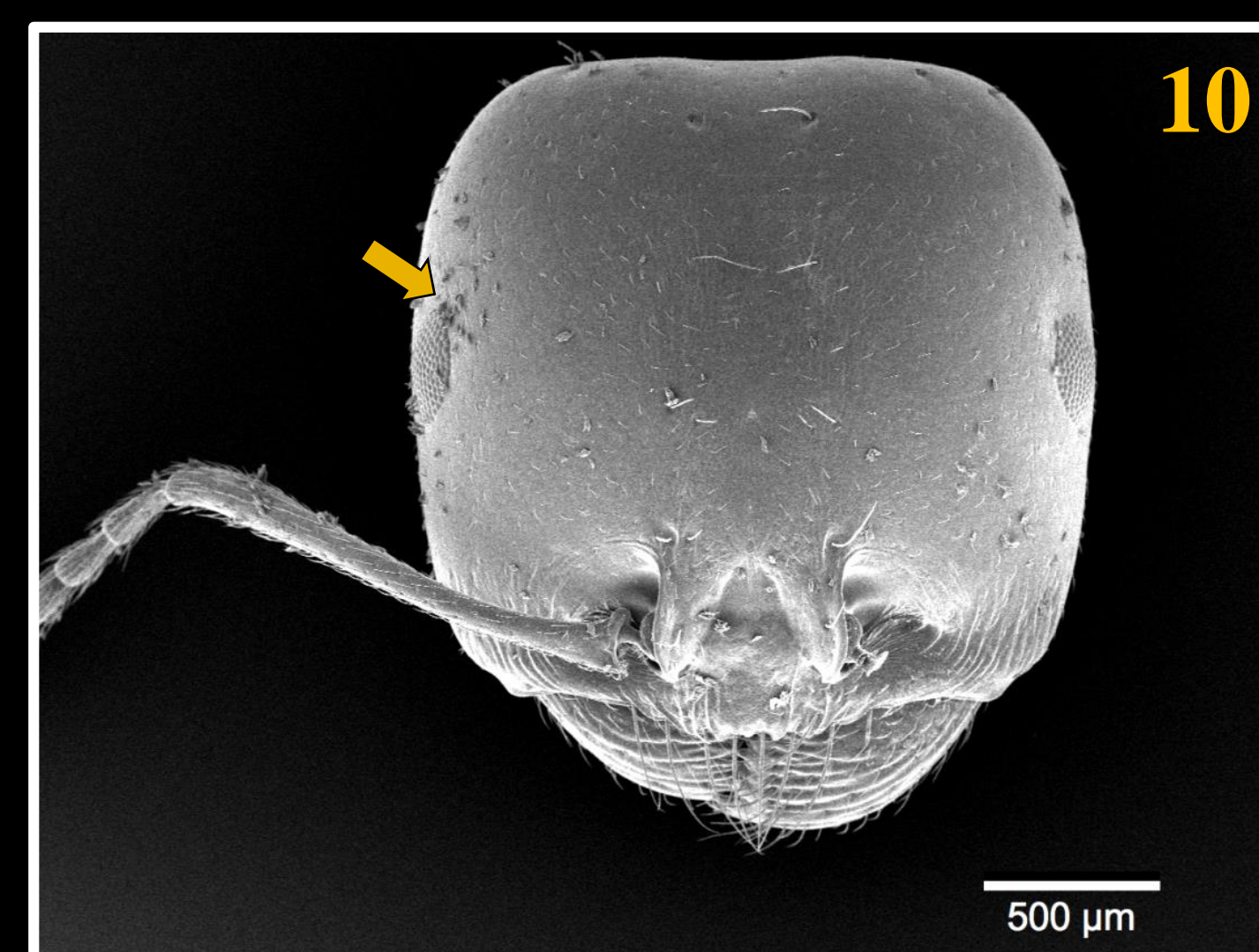
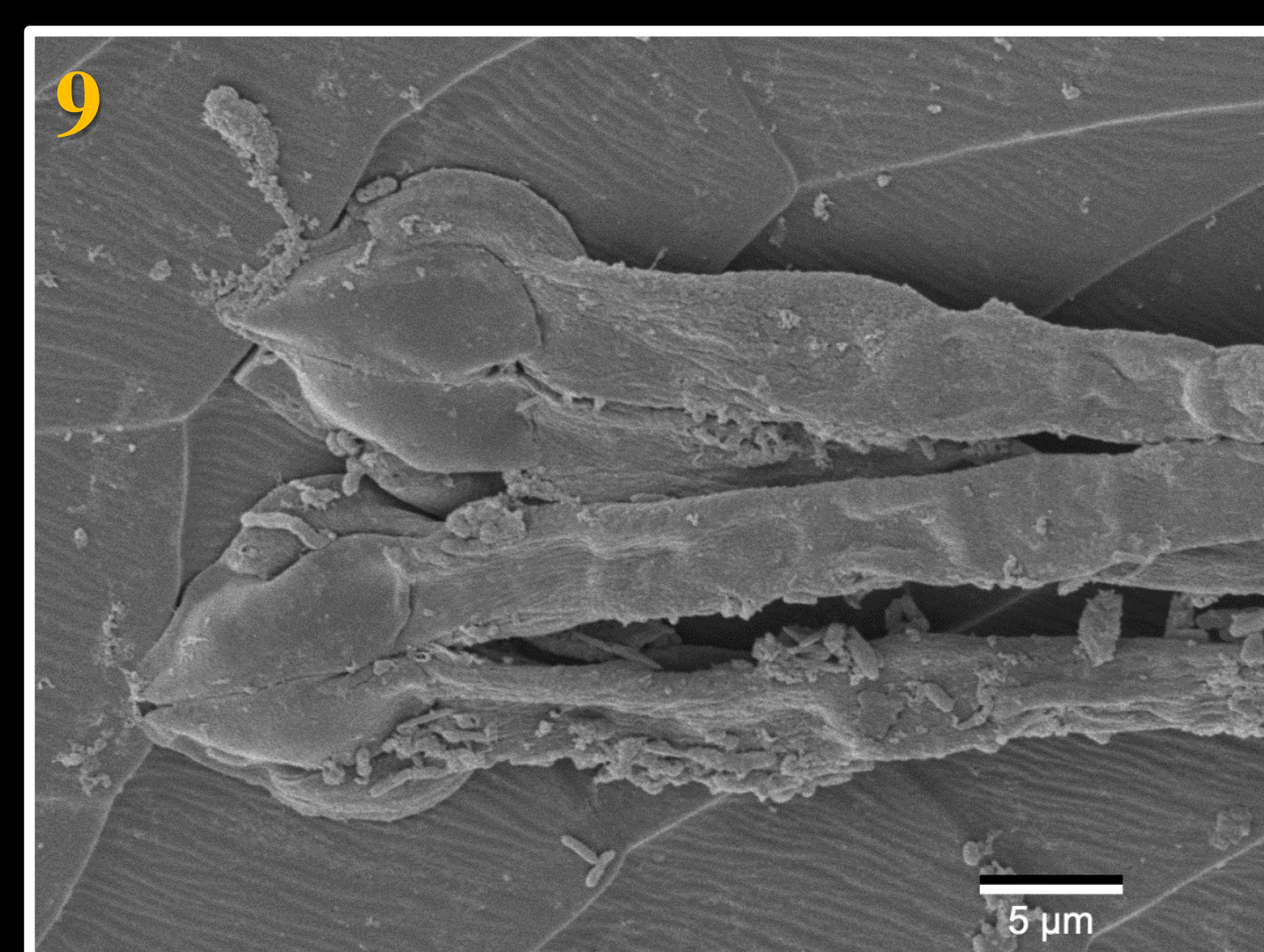
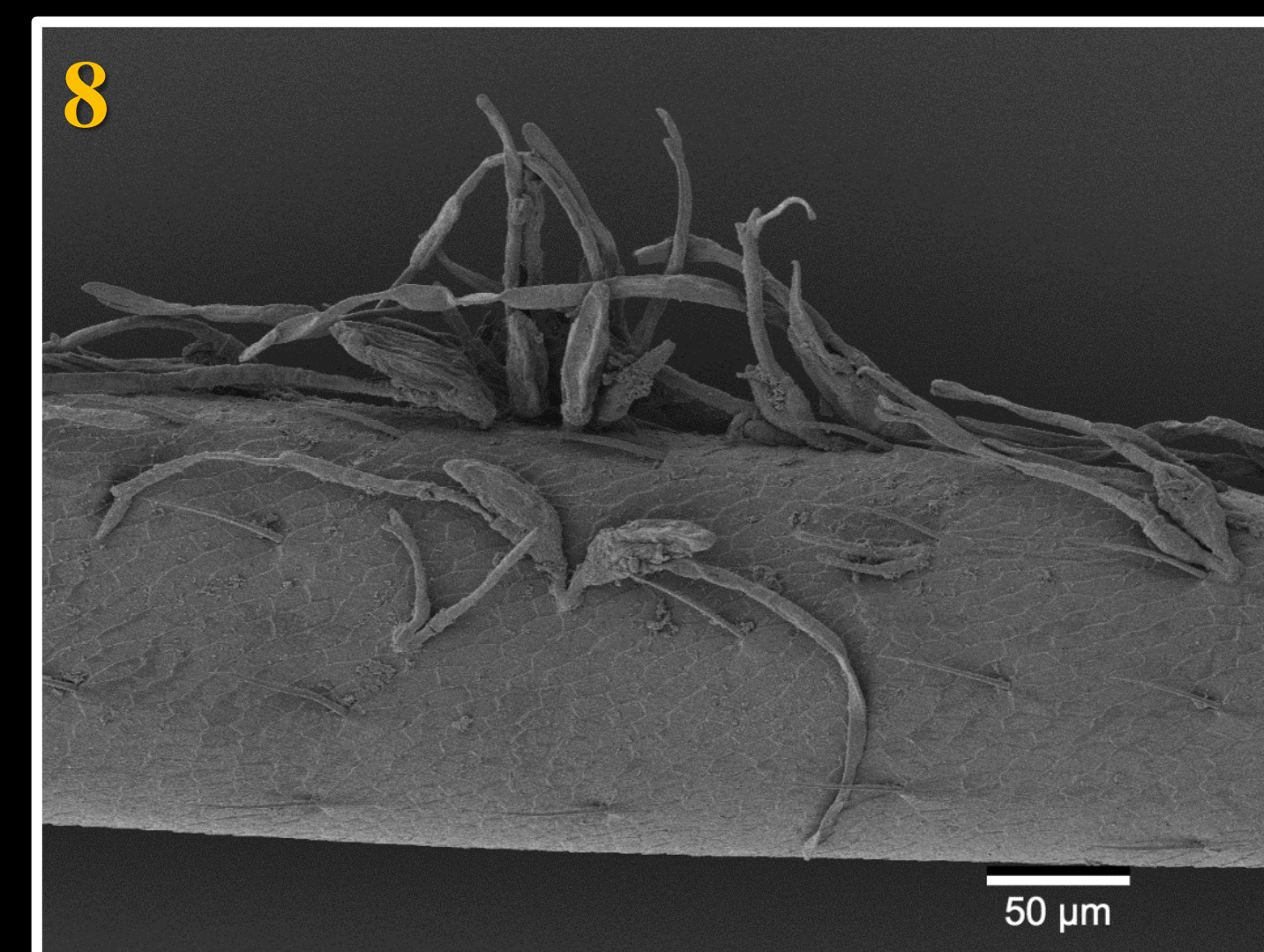
Using Scanning Electron Microscopy (1-5, 7-17) and Light Microscopy (6, 18) we compared four of the only six ant-parasitizing Laboulbeniales species.



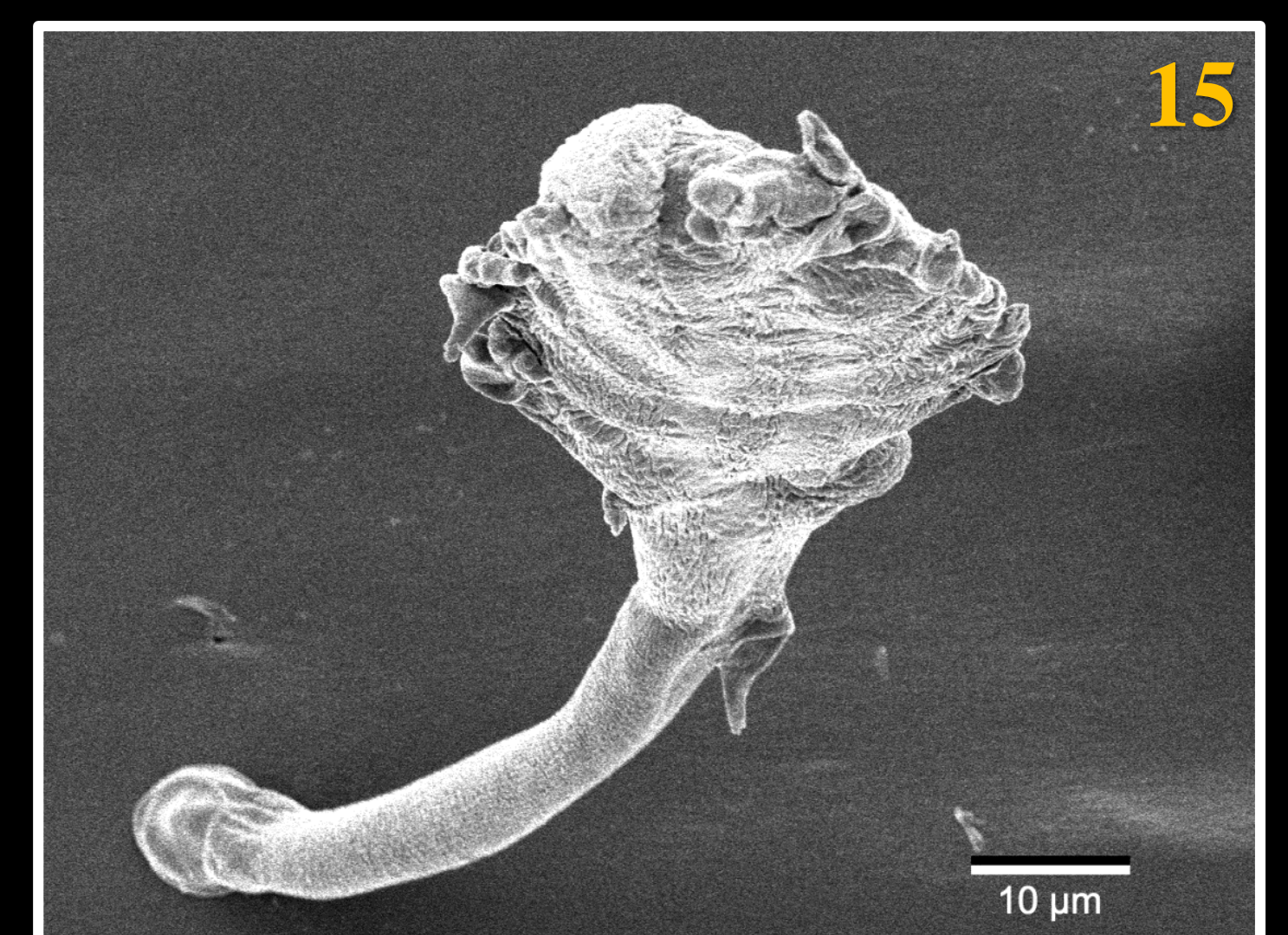
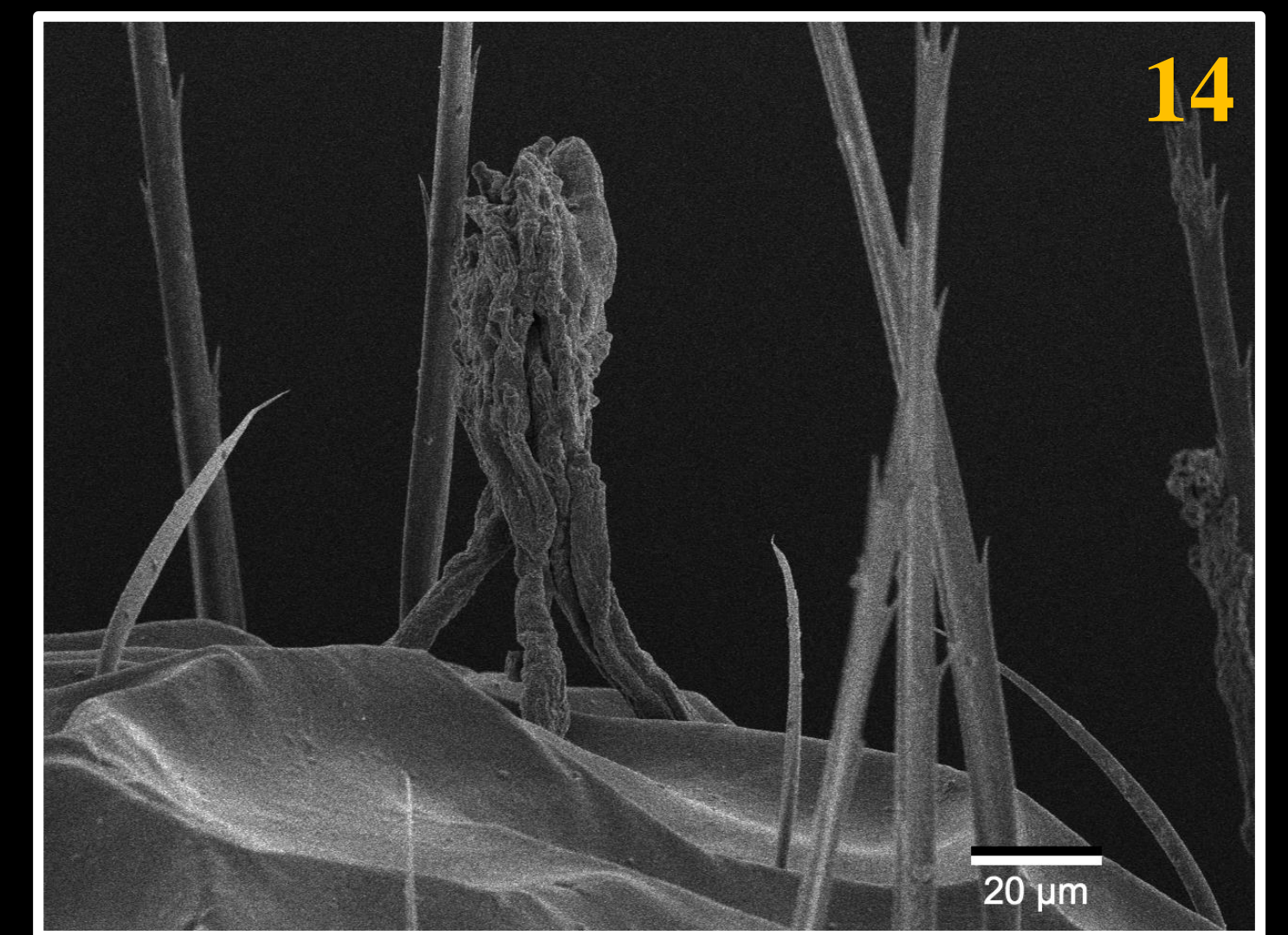
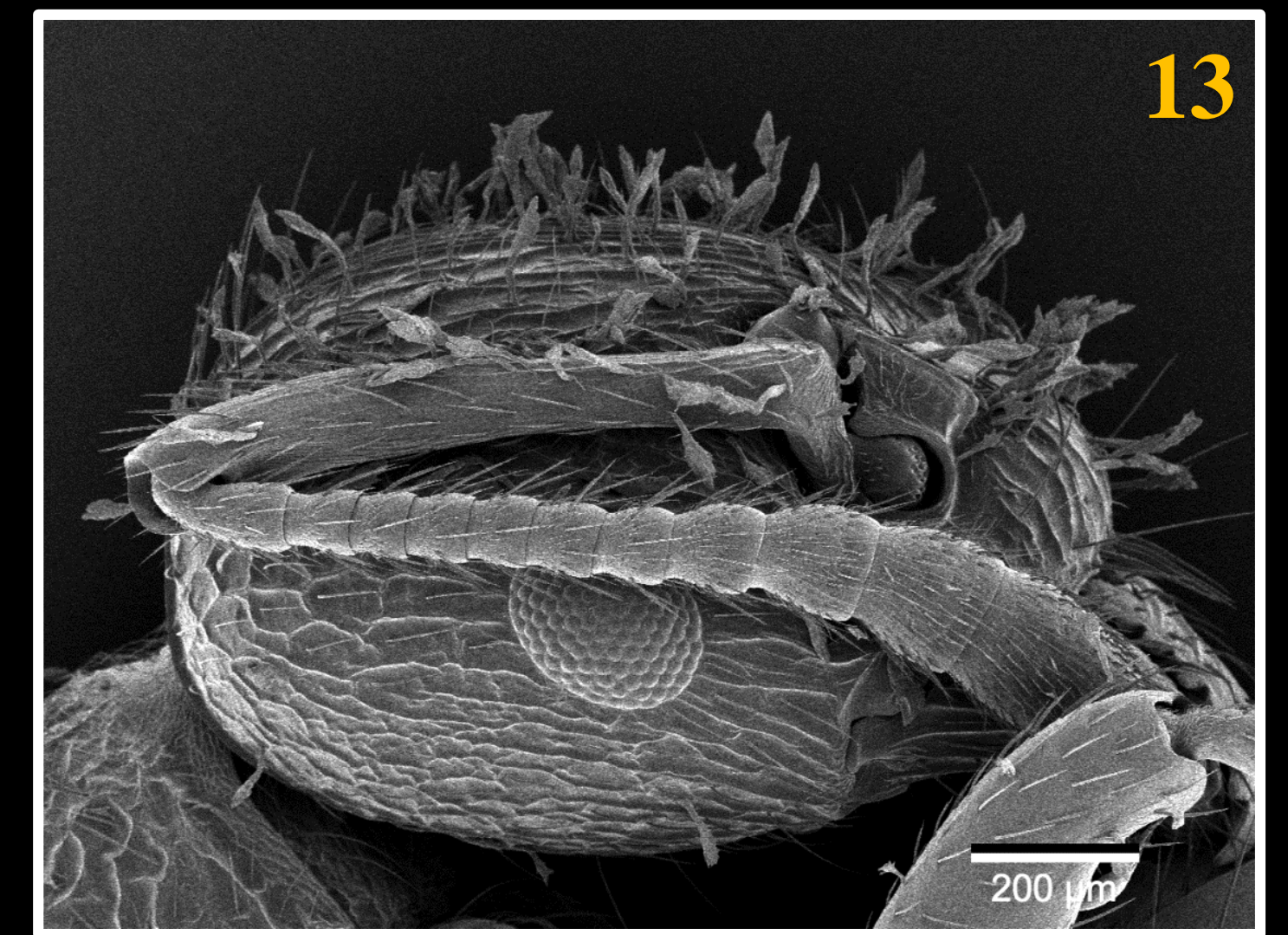
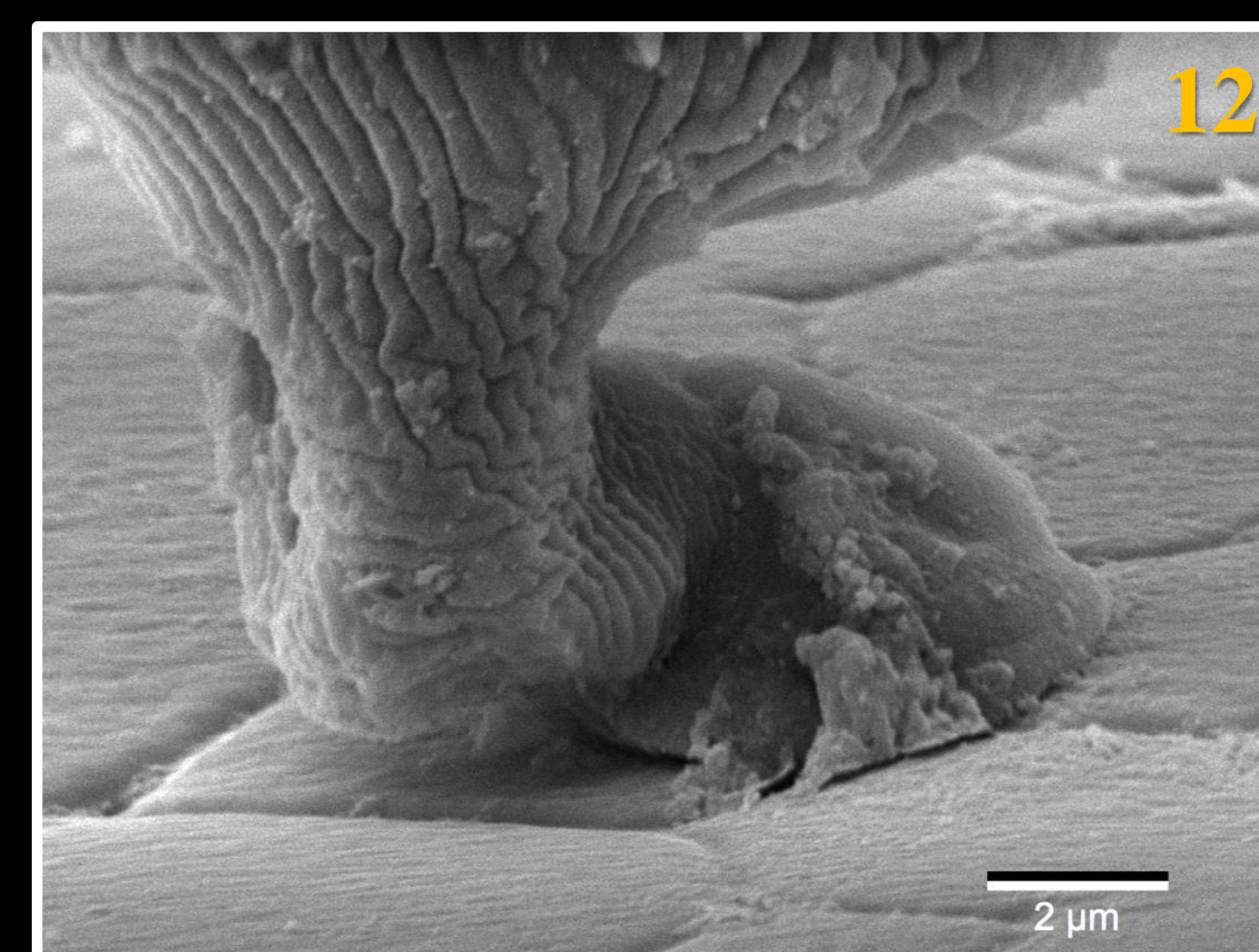
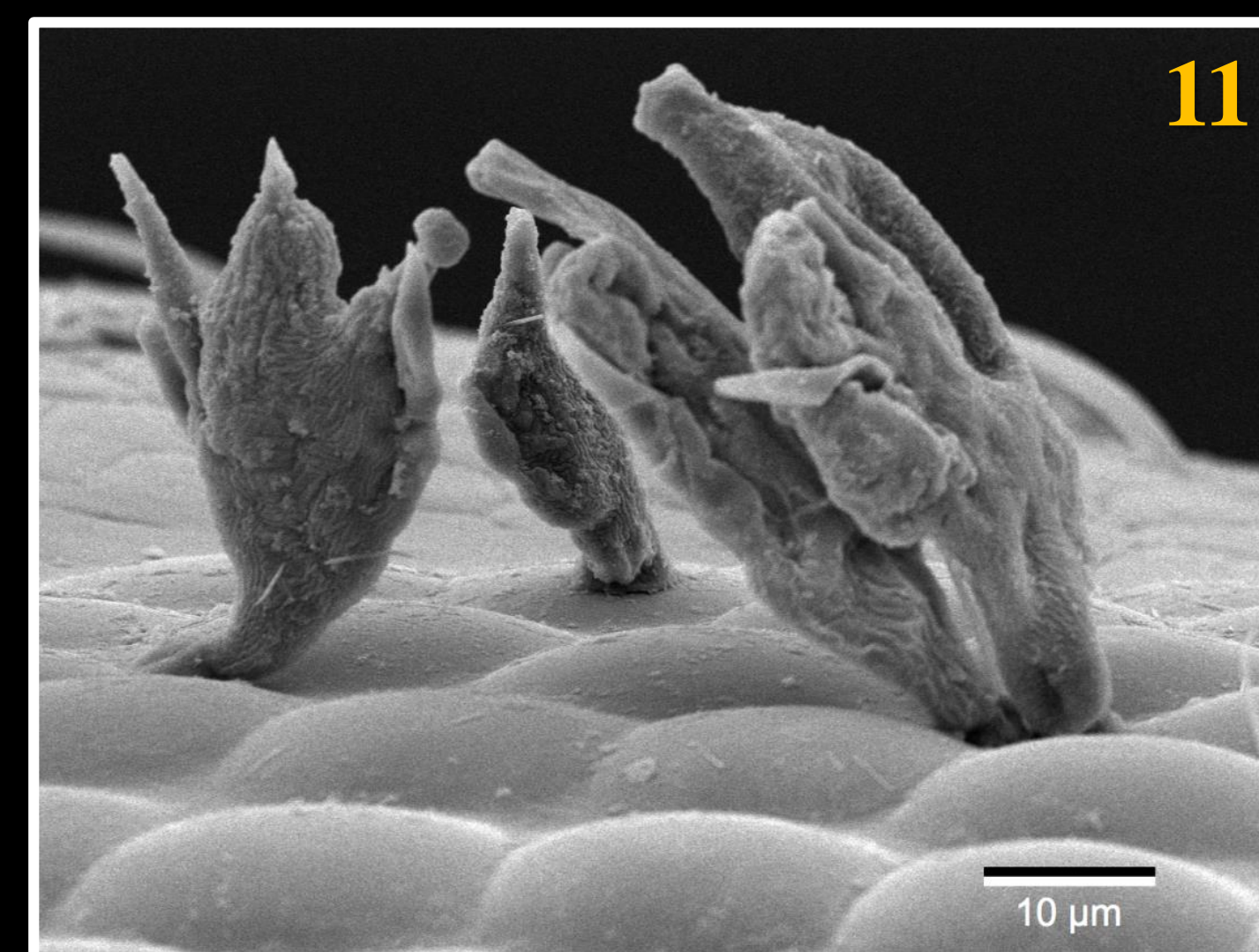
*Laboulbenia formicarum*  
on *Lasius neglectus*



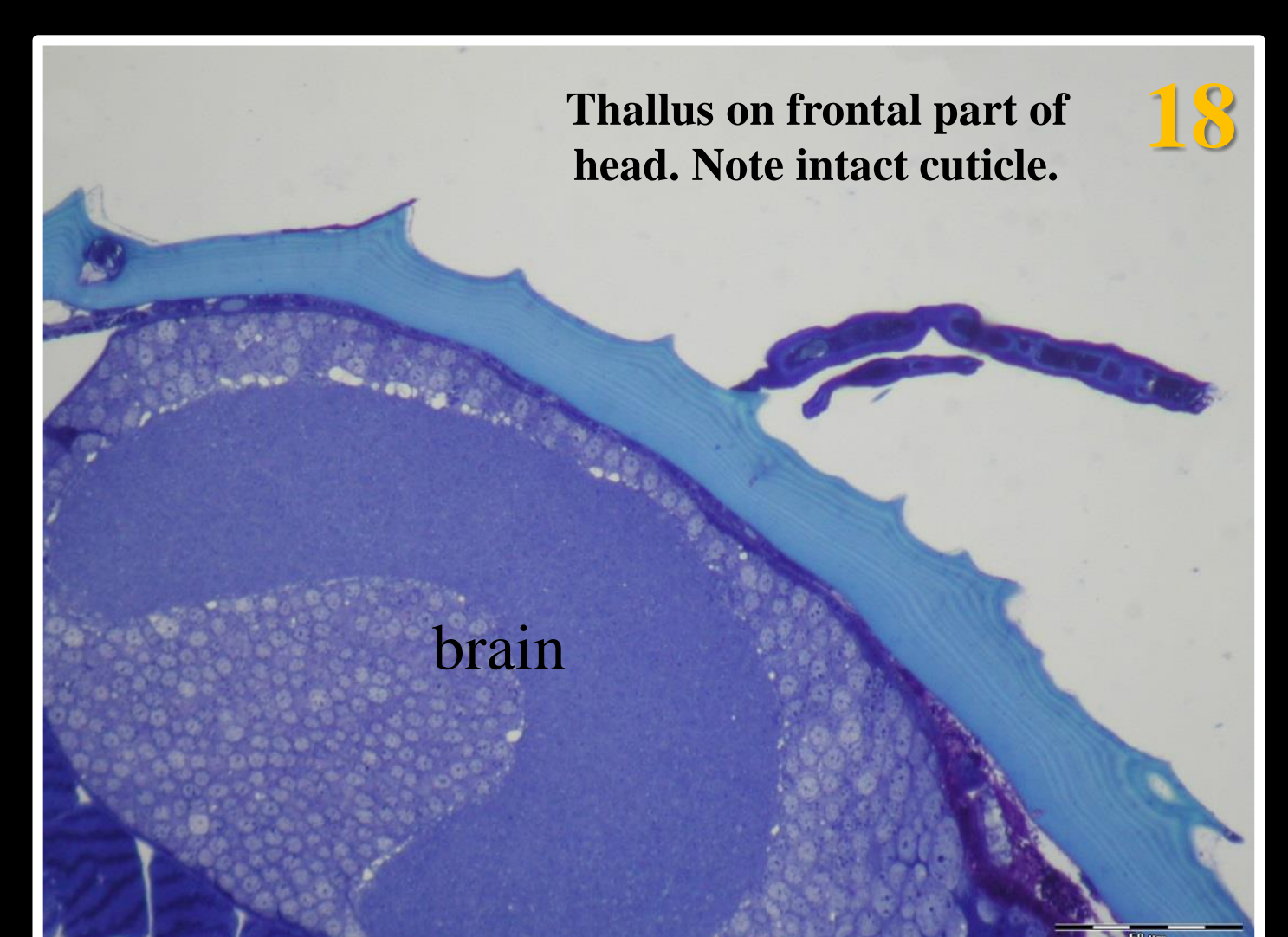
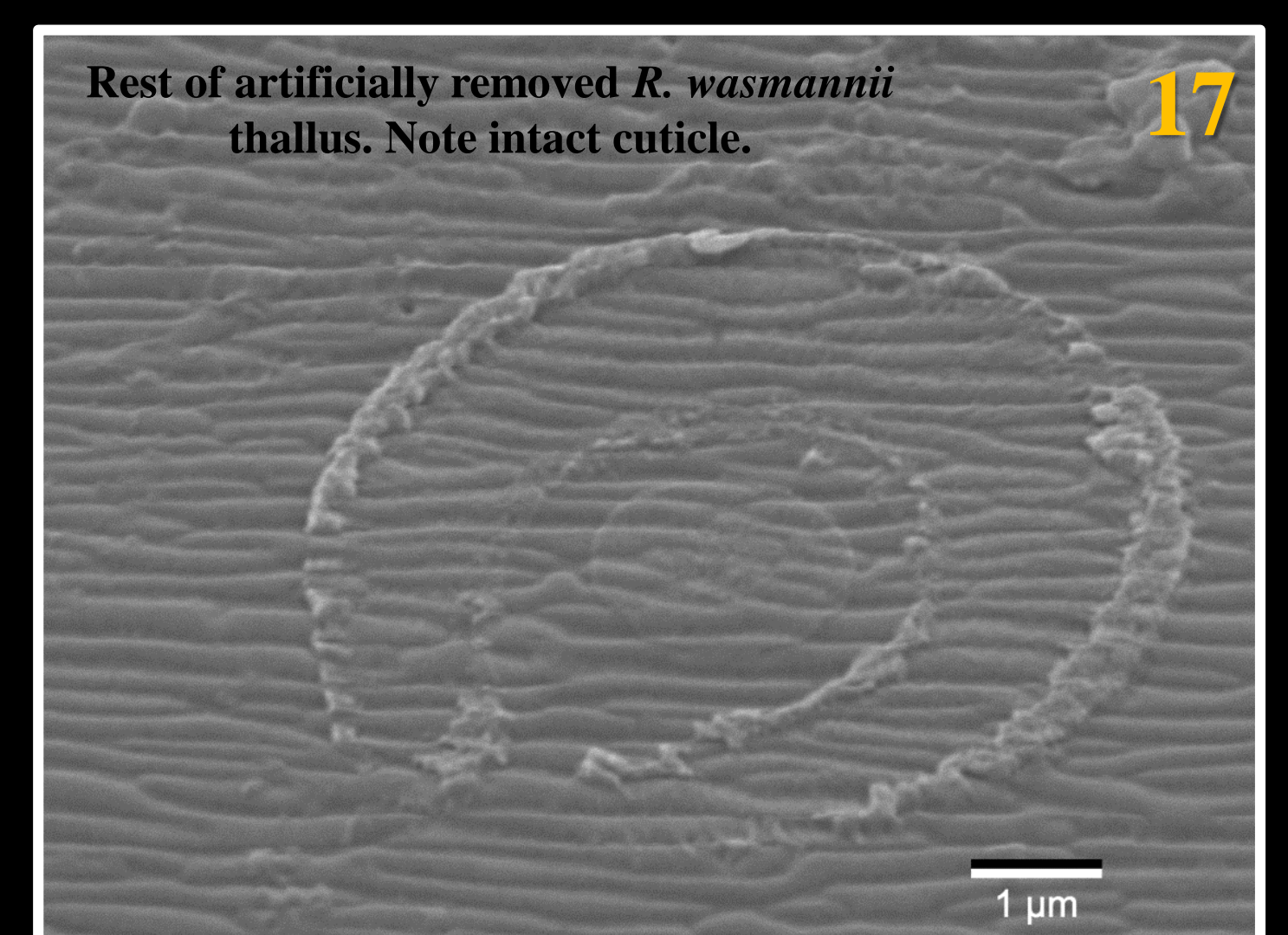
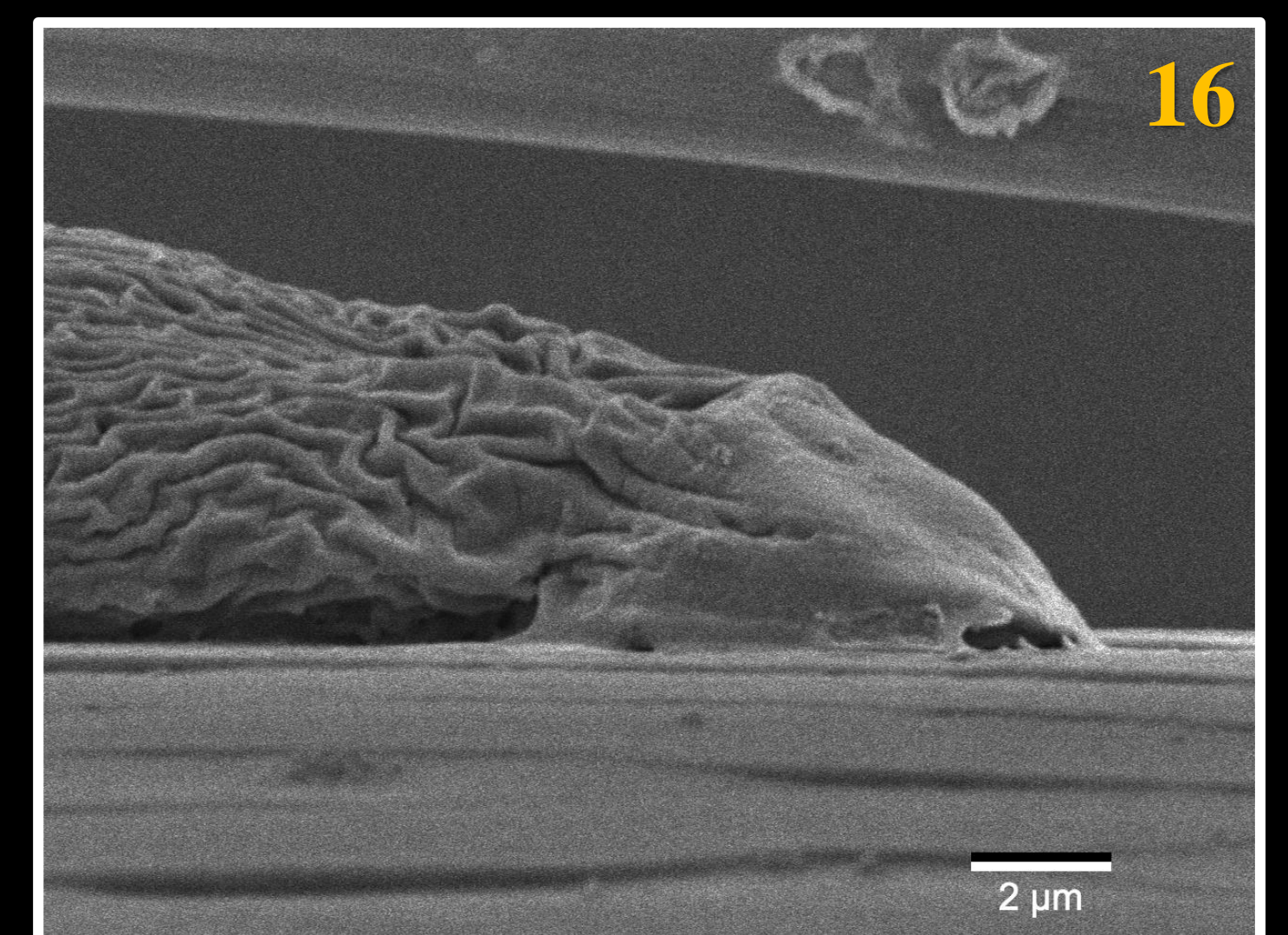
*Laboulbenia camponoti*  
on *Camponotus sylvaticus*



*Rickia* n.sp.  
on *Messor wasmannii*



*Rickia wasmannii*  
on *Myrmica scabrinodis*



## Results and Discussion

Generally Laboulbeniales are considered parasitic as it is assumed that they draw nutrients from their hosts. In our study, however, we did not find any indication that fungi associated with ant hosts actually penetrating the cuticle (see especially: 6, 17-18). This finding challenges the parasitic status of Laboulbeniales associated with ant hosts and raises the question how and what nutrients can be gained by Laboulbeniales living on social insect hosts.