Contribution ID: **209** Type: **Talk in simposio**

Unraveling the neuro-ethological components of emotions in honeybees

Monday, September 23, 2024 5:30 PM (10 minutes)

The idea that invertebrates have primitive forms of emotions is growing, partly because of recent evidence of their high-level cognitive skills. However, these skills do not imply the existence of emotional states per se and the characterization of emotions in invertebrates is still at its infancy. Here we used a multicomponent approach, including behavioural, neurophysiological, and cognitive correlates, to obtain insights on the emotion of fear using honey bees as a model (Apis mellifera) following the perception of an immediate or future danger. Following the condition, in which a color-light context defines the occurrence of shock we were able to characterize the behavioural and physiological building blocks of fear. Not only did the bees learn and remember the negative event for up to one hour, but their behaviour was modulated by the intensity of the shock. In addition, bees that learned the association had a different respiratory dynamic than the control bee. The behavioural and physiological pattern we observed strongly suggests that the bees were not simply acting reflexively. Furthermore, we found higher levels of serotonin in the brain samples of conditioned bees compared to the control bees. The involvement of serotonin, a neurotransmitter widely known to be involved in mammalian emotions, highlights the phylogenetic link between invertebrate and vertebrate neurobiology. Investigating the proximate mechanisms of emotion in invertebrates has the potential to bypass the discussion of the appropriateness of semantic labels and advance our understanding of how these mechanisms parallel those found in mammals, including humans.

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No

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Una, nessuna e centomila menti: studiare i processi cognitivi in diverse species

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Yes

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