Parrot tongues are specialized tactile organs

Poster

Sistemas/circuitos - systems/circuits

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Parrots use their bill and tongue extensively in dexterous behaviors, including seed dehusking, food handling, tool use, preening, and vocal articulation. However, the sensory anatomy of their rostrum remains poorly documented.

Here, we examined the somatosensory innervation of the tongue in three parrot species spanning distinct tongue-tip morphologies and feeding habits: the budgerigar (*Melopsittacus undulatus*), the monk parakeet (*Myiopsitta monachus*), and the rainbow lorikeet (*Trichoglossus moluccanus*). Budgerigars and monk parakeets possess tongues with bulbous tips, which they use for seed handling and oral manipulation, whereas the lorikeet has a brush-tipped tongue specialized for nectar feeding. Despite these marked differences in morphology and feeding mode, all three species exhibit numerous dermal papillae at the tongue tip, which harbor touch mechanoreceptors, including Grandry and Herbst corpuscles. In the lorikeet, these lie at the base of the filiform papillae that make up the brush-like lingual tip. In the budgerigar, neural tracing showed that lingual afferents terminate mainly in a large dorsomedial subdivision of the principal trigeminal nucleus (PrV). This specialized lingual PrV subdivision, as well as the total PrV volume scale with brain size across several

psittaciform species. Together, our findings suggest that a highly tactile tongue is a widespread feature across Psittaciformes.

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