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自然中心の視座から香りを探る

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Exploring Fragrance from a Nature-Centered Perspective

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Abstract

The environment is saturated with dynamic physical and chemical information. Living organisms have evolved sensory systems to detect and process these ever-changing cues. However, due to differences in sensory modalities and capabilities, each species perceives only a limited subset of this information. Moreover, the significance of a particular signal can vary widely among species. In this sense, the environment as experienced by each organism—their *Umwelt*—is inherently partial and subjective. A human-centered view of nature risks overlooking this diversity. We often assume that “what is invisible holds no value,” but in fact, the unseen realms of nature may harbor the greatest insights. Shifting our perspective from an anthropocentric framework to one grounded in nature itself opens up a broader understanding of the world. By studying the unique ways non-human organisms interact with their environments, we can begin to uncover hidden layers of information that remain inaccessible to human senses and technology. One of the most compelling unsolved problems in science is related to “scent”—specifically, odor discrimination and source localization. Many organisms, especially insects, excel in this domain: they can detect specific odorants amid complex background odors and track their sources over kilometers. Despite advances in artificial sensors and algorithms, no technology yet matches the sensitivity, selectivity, and efficiency of insect olfaction. This paper proposes that expanding our perspective beyond human-centered approaches provides a novel framework for addressing such challenges. By integrating biological insights from diverse organisms, we may unlock new pathways for understanding, sensing, and navigating the invisible chemical dimensions of our environment.

Key words: bio-intelligence, odor sensor, insect, nature-centered.