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Plant sentience: Bias and promise

Commentary on **Segundo-Ortin & Calvo** on *Plant Sentience*

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Abstract: Whichever side of the debate one chooses, plant sentience is a fertile research area that challenges received views and assumptions, generates novel insights, and suggests new ways that felt states might arise. My commentary discusses methodological and philosophical implications.

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1. Background beliefs and biases. The debate on whether plants are—or can be—sentient highlights how much beliefs about felt states and about which species can have them can be influenced by philosophical, cultural, and non-empirical factors (Gutfreund 2023). Segundo-Ortin & Calvo (2023, 4) point out that "one of the reasons plants have not been considered cognizers," dating back to Aristotelian thought, was that "they were thought to be unable to control their own movement endogenously." This notion has held sway ever since, but may now be refuted by video evidence on poll-climbing by bean shoots (Raja et al. 2020) . Similarly, human infants and non-human animals had been thought incapable of feeling or thinking on the basis of assumptions made before the invention of the technology to observe and measure behavioural and neurobiological correlates of internal psychological life. Only recently have such beliefs begun to be challenged scientifically. Alongside investigating whether plants may have the capacity for sentience, the soundness of the reasons for doubt must also be evaluated. It is important to be aware of how longstanding doubts about both invertebrate sentience and plant sentience may be influenced by vertebrate-based bias. "[I]t is too easy to be influenced by our own case" (Godfrey-Smith 2016, 10) when studying psychological life in non-human species.

2. Caution on both sides. Anthropomorphic bias is an ever-present risk in the study of plant cognition, perhaps even greater than in the study of animal cognition. Advances in technology, research methods, and comparative biology have allowed us to make comparisons between nonhuman and human animal behaviour and cognition on the basis of neuroanatomical and functional similarities (Pessoa, 2023). In plants we have not yet found stable points of similarity for analogies or homologies. It is so far highly speculative either to affirm or to deny sentience or cognition in plants. Guiding principles are needed (Adams and Aizawa 2010). Clarifying terminology (Harnad 2023) is just the beginning. Definitions and criteria are currently based on animal models and may need to be adjusted to fit plants.

3. "Neurobiology"? Segundo-Ortin & Calvo "do not believe that it is useful to debate whether 'neurobiology' is the most appropriate term for organisms that lack neurons and synapses"

(p. 14). However, this issue may merit its investigation in its own right, apart from the question of plant sentience. Asking how animal models may need to be modified for understanding plant function may be the starting point Although there may be similarities between animal neurobiology and plant "neurobiology" at the molecular level, do these structures remain analogous at higher functional levels?

4. Philosophical issues. If it were established that plants are sentient, certain philosophical issues would arise. In addition to the moral and ethical quandaries being pointed out by other commentators (Milburn 2023; Struik 2023), plant sentience would raise questions about the nature of plant experience. For example, "kin recognition" in plants would raise the question of whether individual plants have a sense of self that allows them to distinguish between themselves and others. The ability of plants to direct their root growths, to allocate resources, communicate between conspecifics and non-conspecifics, and influence the behaviour of non-conspecifics—all lead to the question of whether a plant is an agent: Can plants form concepts? Can we attribute knowledge to them? These are only a few of the philosophical questions that would arise if there proved to be convincing evidence of plant sentience.

References

Adams, Frederick & Aizawa, Kenneth (2010). *The Bounds of Cognition*. Malden, MA: Wiley-Blackwell.

Godfrey-Smith, Peter 2016. *Other Minds*. New York: Farrar, Straus and Giroux.

Gutfreund, Yoram (2023) Questions about Sentience Are Not Scientific but Cultural. *Animal Sentience* 33(4).

Harnad, Stevan (2023) Insentient "Cognition"? *Animal Sentience* 33(2).

Milburn, Josh (2023) Plant Sentience and the Case for Ethical Veganism. *Animal Sentience* 33(5).

Pessoa, Luiz (2023) What Can Plant Science Learn from Animal Nervous Systems? *Animal Sentience* 33(6).

Raja, V., Silva, P. L., Holghoomi, R., & Calvo, P. (2020). The dynamics of plant nutation. *Scientific Reports*, *10*(1), Article 1.

Segundo-Ortin, Miguel & Calvo, Paco (2023) Plant Sentience? Between Romanticism and Denial: Science. *Animal Sentience* 33(1).

Struik, Paul C. (2023) Plants Detect and Adapt, but Do Not Feel. *Animal Sentience* 33(3).