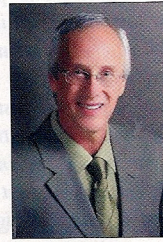


## “Ouch!” said the tomato to the mushroom

No, we’re not making this up. Researchers have discovered an amazing world of communication: Plants can deliberately choose to “talk” with each other—within the same species, with different plant species, and even with animals and microorganisms. Fungi, for example, can lie, cheat, retaliate, and withhold oxygen from a selfish mate. When a neighbor gets eaten by an herbivore, some plants, like the sagebrush, can defend themselves by “crying out for help” and attracting carnivorous enemies. They can forage for food, form personal relationships with microorganisms, and modify their behavior to assure greater survival in the environment. Darwin would be thrilled!

Plants can make “rational” decisions in response to threats in order to maximize seed production. They even exhibit the capacity for self-recognition by communicating through their roots with other species. In the animal kingdom, this ability has been assigned only to humans, primates, whales, dolphins, and elephants. These astonishing discoveries have led to a new field of research called *plant neurobiology*, which documents various forms of cooperation, competitiveness, and signaling. So how do they communicate? According to growing consensus of biologists and biophysicists, plants use the same types of hormonal and chemical molecules and hormones used by animals and organisms. Plants even exhibit *biochemical plasticity* that closely mirrors the neuroplasticity found in animal and human brains.

What do scientists call this language of plants? *Biosemiotics*. It’s a system that appears to be equivalent to the human genetic code. Thus, plants may actually exhibit a form of intelligence similar to animals. Although they don’t have a nervous system per se, they do have signaling receptors and pathways. These documented behaviors and communication strategies are the same ones we use to identify parameters of human consciousness. So be careful what you say when walking in nature—the trees are listening!



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