

Abstract Submitted
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Venus Flytrap as a Sensor of Plasma-Produced RONS¹ ALEXANDER VOLKOV, Oakwood University, KUNNING XU, VLADIMIR KOLOBOV, University of Alabama in Huntsville — We have observed that the *Dionaea muscipula* Ellis can be activated by cold plasma jets without direct touching of plants by plasma. Remote activation of plants by room-temperature plasma has been achieved by directing plasma jets to a lobe, midrib, or cilia, which induced the trap morphing. The observed effects are attributed to reactive oxygen and nitrogen species (RONS), which are known to be generated by plasma jets injected into atmospheric air. RONS produced by cold plasma appear to be the primary reason of plasma-induced chemotropic activation of sensors and actuators in plants, which induce the trap closing, locking, and constricting in the Venus Flytrap like stimulation of its mechanosensors *in vivo*. We have confirmed that application of H₂O₂ or HNO₃ aqueous solutions to the midrib induces propagation of action potentials and closing the trap similar to plasma effects. Direct measurements of the electrical signaling produced by plasma activation of the plants was hindered by the plant's capturing of the strong electrical signals generated by plasma.

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