

*Liquid-solid contact electrification on living plant leaves*  
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*Contact electrification has gained interest as mechanism for generating static charges on most material surfaces. It was reported that both solid-solid and liquid-solid contact charges biological surfaces such as leaves. This has been used for energy harvesting. Here, a special focus will be on water droplets hitting the surface of superhydrophobic and hydrophilic leaves of living plants. It will be presented how the in-situ leaf surface structures, droplet composition, and prior ionization of the droplet influence the surface charge generation. We find that the hierarchical micro-nano structures responsible for self-cleaning, known as the Lotus effect, also create a specific electrification pattern. Each water droplet causes a characteristic potential difference in the plant tissue depending on the structure and composition of the epicuticular wax layer as well as the droplet. These findings give insight on how contact electrification occurs in nature and it suggests the potential for deriving new bio-based materials for sensing and energy harvesting in artificial and plant-hybrid material.*