

Abstract Submitted
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Water Transport through Cohesion-Tension in Porous Structures

SRINIVAS KOSARAJU, Northern Arizona University — The predominant theory to explain water transport through plant xylem is the cohesion-tension theory. According to the theory, negative pressure is created due to water evaporation through millions of microscopic capillary pores from tree leaves. The negative pressures are large enough to lift water hundreds of feet against gravity. In an attempt to replicate the process, multiple structures with varying porosity are tested to create negative pressures through water evaporation. The negative pressure created is used to support a water column. The current research is aimed to create artificial leaves using porous structures and be able to transport water in high rise buildings using renewable energy sources such as solar power.

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