Go Green: A Better SAP for Plants

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Erratic weather patterns, protracted droughts, and hazardous runoffs threaten the availability of sufficient water for food producers. One solution in combating this issue is using Superabsorbent Polymers (SAPs). SAPs are derived from non-biodegradable petroleum products which results in environmental pollution. This project aimed to create a biodegradable, low-cost, sustainable, water-absorbing SAP from orange and avocado peels. Orange and avocado peels were dried and divided into three parts to create three variants. For the first variant, they were ground into a fine powder. For the second variant, they were baked in the oven at 180? for 20 minutes, and then ground into fine powder. For the third variant, they were baked at 180? for 40 minutes, and then ground into a fine powder. After the organic SAPs were prepared, water absorption, water retention, and effect on germination tests were performed and compared to a synthetic SAP. My hypothesis was supported. The organic SAPs were able to absorb seven times its weight. The organic SAPs also worked as a fertilizer and aided in water retention as seen in the results from the effects on germination tests. The organic SAP was able to compete with the synthetic SAP. It wasn't as absorbent as the synthetic, however, it was biocompatible, biodegradable, and low-cost.

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