Characterization of Calcium Oxalate Biominerals in Some (Non-Cactaceae) Succulent Plant Species

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The water-accumulating leaves of crassulacean acid metabolism plants belonging to five different families were investigated for the presence of biominerals by infrared spectroscopic and microscopic analyses. Spectroscopic results revealed that the mineral present in succulent species of Agavaceae, Aizoaceae, and Asphodelaceae was calcium oxalate monohydrate (whewellite, $CaC_2O_4 \cdot H_2O$). Crystals were predominantly found as raphides or solitary crystals of various morphologies. However, representative Crassulaceae members and a succulent species of Asteraceae did not show the presence of biominerals. Overall, these results suggest no correlation between calcium oxalate generation and crassulacean acid metabolism in succulent plants.

Key words: Succulent Plants, Biominerals, Whewellite, Crassulacean Acid Metabolism