Novel Anti-Cancer, Anti-Bacterial, and Anti-Inflammatory Properties of the Rare Plants of the Florida Ridges Implicates Urgency of Conservation

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Formed millions of years ago, as islands when Florida was submerged underwater, the Florida Ridges have been undisturbed for the past millennia. The endemic plants living on the ridge have thrived and evolved in harsh environments and protected themselves from disease and infection. The study aims to determine if these rare plants have medicinal qualities. The plants were tested for Anti-Bacterial, Anti-Cancer, and Anti-Inflammatory properties. Ethanol and Water extractions were carried out for the plants. For the Anti-bacterial test, the plant extracts were tested on Escherichia coli and Bacillus subtilis and zones of inhibitions were measured to determine the anti-bacterial quality. For the Anti-Cancer test, PANC-1 cells were exposed to plant extract and ReliaBlue Cell Viability Assay was performed to test cytotoxicity. For the Anti-Inflammatory test, LPS activated Endothelial cells were exposed to plant extracts and ELISA Immunoassay was performed to measure cytokine concentrations. All of the plants had some anti-bacterial quality, and 4, Calamintha ashei, Chionanthus pygmaeus, Ziziphus celata, and Chrysopsis floridana had anti-bacterial qualities with both bacteria. 4 species, Calamintha ashei, Chionanthus pygmaeus, Asimina tetramera, and Chrysopsis floridana also exhibited anti-cancer qualities. 3 species, Calamintha ashei, Chionanthus pygmaeus, and Chrysopsis floridana showed anti-cancer qualities and anti-bacterial qualities with both bacteria. 2 of the species, Calamintha ashei and Nolina brittoniana had anti-inflammatory properties. This data suggests that the rare plants of the Florida Ridges exhibit medicinal properties. This data implicates the urgency to conserve these plants and further study to fully understand their unique and important qualities.

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