

Identification of Fungal Colonies on Ground Control and Flight Veggie Plant Pillows

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The Veggie system focuses on growing fresh produce that can be harvested and consumed by astronauts. The microbial colonies in each Veggie experiment are evaluated to determine the safety level of the produce and then differences between flight and ground samples. The identifications of the microbial species can detail risks or benefits to astronaut and plant health. Each Veggie ground or flight experiment includes six plants grown from seeds that are glued into wicks in Teflon pillows filled with clay arcillite and fertilizer. Fungal colonies were isolated from seed wicks, growth media, and lettuce (cv. 'Outredgeous') roots grown in VEG-01B pillows on ISS and in corresponding ground control pillows grown in controlled growth chambers. The colonies were sorted by morphology and identified using MicroSeq™ 500 16s rDNA Bacterial Identification System and BIOLOG GEN III MicroPlate™. Health risks for each fungal identification were then assessed using literature sources. The goal was to identify all the colonies isolated from flight and ground control VEG-01B plants, roots, and rooting medium and compare the resulting identifications.