IAF MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)
Interactive Presentations - IAF MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (IP)

Author: Prof.Dr. Paulo Rodrigues
Luiz de Queiroz College of Agriculture University of Sao Paulo, Brazil

COMPACT GERMPLASM BANK (CGB): A TOOL TO ASSIST IN MICROGRAVITY STUDIES OF IN VITRO PLANTS IN SPACE AND ON EARTH.

Abstract

The Compact Germplasm Bank (CGB) is constructed to address the complex challenges of maintaining genetic diversity and preserving plant species for future space missions. The CGB, a patented innovation (Patent: CC-PI-2023-0071), serves as a compact and versatile tool for storing and transporting plant germplasm in vitro. Crafted from lightweight aluminum, the CGB offers a compact yet highly versatile platform capable of sustaining various types of in vitro explants over prolonged durations. Its construction material not only ensures durability but also facilitates ease of transportation, a critical factor for space missions where weight and space constraints are considerations. The CGB operates with reduced energy consumption on a 12V power source or battery, offering flexibility and portability for space missions to preserve germplasm or study microgravity effects on in vitro explants. On Earth, the CGB can help with research on microgravity using Clinostat 3-D. In summary, the Compact Germplasm Bank stands as to innovation in space agriculture, providing researchers and space agencies with a solution for the preservation and in vitro study of plant species essential for sustaining life beyond Earth's atmosphere.