

A PRELIMINARY STUDY ON FUNGAL SPOILAGE PREVENTION OF SOLAR COLLECTOR DRIED *Moringa oleifera* LEAVES USING HUMIDITY CONTROL

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Moringa oleifera, commonly known as “Murunga” in Sri Lanka, is a valuable multi-purpose tree that grows in arid tropical climates. This tree is easily accessible at very low cost to rural populations as a rich source of nutrition and medicine. Its leaves contain proteins, essential amino acids, vitamins A and C, minerals and carbohydrates. The leaves are consumed directly with food, or as dried powder ingredient for making herbal tea. The medical properties of the leaves include anti-inflammatory, anti-fibrosis, anti-microbial, antioxidant, anti-hyperglycaemic, anti-tumour and cancer preventative properties. When direct solar drying is used, the process takes up to four days. Solar collectors can achieve this within a single day. Furthermore solar collectors prevent damage to the produce by ultraviolet radiation and contamination from dust and atmospheric pathogens. However, due to the high moisture content of *Moringa* leaves, persistent overcast conditions can lead to fungal spoilage of the collector dried batch due to symbiotic *Fusarium* and *Aspergillus* type fungi. In this study, humidity control is used to prevent such fungal spoilage. The currently implemented bang-bang controller is capable of maintaining the collector humidity 5% above the ambient humidity to minimize the possibility of fungal growth.

