

ESSENTIAL OILS AGAINST *Alternaria* sp ISOLATED FROM DRAGON FRUIT (*Hylocereus undatus*)

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Abstract

Post-harvest fruit losses reflect negatively on the economy and marketing. The losses are related to several factors, of which there are the diseases caused by microorganisms which may be present in pre and post-harvest and could affect appearance and reduce quality of fruit. The most of post-harvest diseases are caused by fungi and bacteria. Important genera of post-harvest pathogens include *Penicillium*, *Aspergillus*, *Geotrichum*, *Botrytis*, *Fusarium*, *Alternaria* *Colletotrichum*. The dragon fruit cultivation (*Hylocereus undatus*) shows susceptibility to various diseases caused by microorganisms, requiring greater control over the supply chain. The objective of this study was to identify the microorganism responsible for the fruit post-harvest rot and test essential oils in controlling of microorganism *in vitro*. The fruits were received at microbiology laboratory, selected, washed and sanitized with 1% sodium hypochlorite, stored under refrigeration during 25 to 30 days until the onset of post-harvest rot. Fungal identification was done according macro and micromorphologic characteristics. Susceptibility tests with essential oils were performed by disc-diffusion method and MIC (Minimal Inhibitory Concentration) values were obtained with broth microdilution technique. Five commercial essential oils were tested, including lemon grass, cloves, fennel, citronella and thyme. The microorganism responsible for post-harvest rot was characterized as *Alternaria alternata*. Essential oils from lemongrass, clove, fennel, thyme and citronella inhibited the growth of hyphae at concentrations of 50%, 25%, 100%, 50% and 100%, respectively. MIC values were 1000, 500, 4000, and 4000 >4000 ug/ml, respectively. The characterization contributed to the identification of deteriorating fungus and control tests indicated the essential oil of clove as the best result in inhibiting the pathogen.

Keywords: *Alternaria*; essential oils; quality.