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Damage to Strawberries Caused by Simulated Transport

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Abstract : The quality and condition of perishable products delivered to the market and their subsequent selling prices are directly affected by the care taken during harvesting and handling. Mechanical injury, in fact, occurs at all stages, from pre-harvest operations through post-harvest handling, packing and transport to the market. The main implications of this damage are the reduction of the product's quality and economical losses related to the shelf life diminution. For most perishable products, the shelf life is relatively short and it is typically dictated by microbial growth related to the application of dynamic and static loads during transportation. This paper presents the correlation between vibration levels and microbiological growth on strawberries and woodland strawberries and detects the presence of volatile organic compounds (VOC) in order to develop an intelligent logistic unit capable of monitoring VOCs using a specific sensor system. Fresh fruits were exposed to vibrations by means of a vibrating table in a temperature-controlled environment. Microbiological analyses were conducted on samples, taken at different positions along the column of the crates. The values obtained were compared with control samples not exposed to vibrations and the results show that different positions along the column influence the development of bacteria, yeasts and filamentous fungi.

Keywords : microbiological analysis, shelf life, transport damage, volatile organic compounds
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