

Dielectric based sensing system for banana ripeness assessment

ABSTRACT

Banana is an extremely perishable fruit thus post-harvest quality process changes quickly. Conventional banana ripeness assessment include sorting and grading based on human visual evaluation, ethylene hormone treatment, firmness check by penetrometer and soluble solid content measurement using refractometer are not effective to give uniform and quick result. Dielectric spectroscopy has been applied in agricultural materials as it offers relatively inexpensive assessment, nondestructive, fast and easy to operate system. In ripeness assessment, the magnitude phase of impedance value will increase with ripening stages over certain frequency. This study showed that impedance measurement was able to differentiate the unripe, ripe and overripe banana over the frequency of 20.1kHz to 30.1kHz. Soluble solid content (SSC) of banana was determined by developed model at the frequency of 21.1kHz.

Keyword: Banana ripeness; Dielectric; Impedance; Soluble solid content