

عنوان مقاله:

Study of Temperature Differences between Unscathed and Defective Areas of Fruits Using Infrared Radiation Measurement

محل انتشار:

نهمین همایش ملی امنیت غذایی ایده ها و پژوهش ها در مهندسی بازیافت و کاهش ضایعات کشاورزی (سال: 1402)

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خلاصه مقاله:

Temperature measurement is an important phenomenon in all of industries and agriculture and strongly influenced by biophysical and mechanical of agricultural products properties. Unscathed and defective fruits such as apple and orange have considerable difference in temperature due to distinct respiration. The aim of this study is feasibility of use of infrared radiation measurement which arises from temperature changes of unscathed and defective areas of fruits. In this research, one apple variety, "Red Delicious" and one orange variety "Thompson Navel" were selected so the samples had difference in skin surface. The experiments were carried out in two basic steps, finding the appropriate emission coefficient which indicates temperature differences properly and temperature differences measurement. At the beginning of the experiment the best emission coefficient for showing the temperature differences between intact and defective areas of both fruits was found 0.28. Afterwards, temperature differences of both types of fruits were measured more than 2°C for 84% of the samples. This nondestructive and low cost method could be used in sorting and grading of agricultural products

کلمات کلیدی:

Infrared radiation, Emission coefficient, Temperature measurement, Defective

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