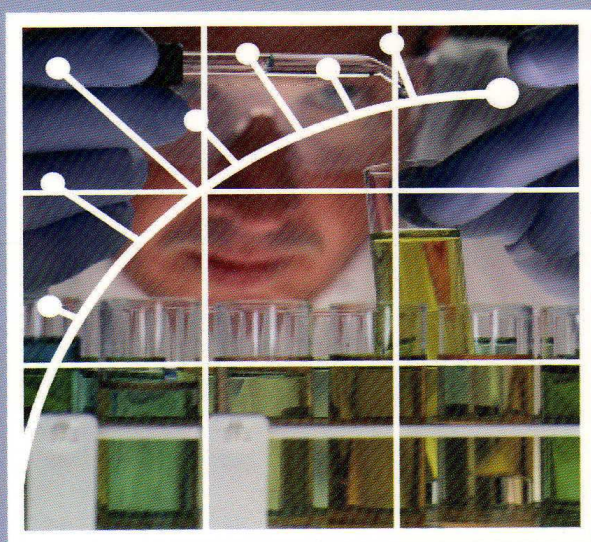


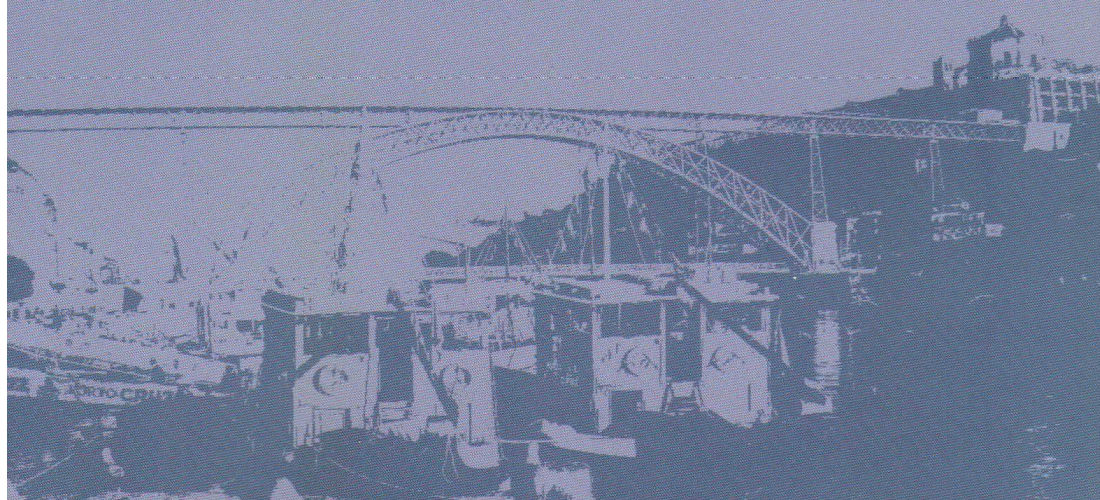
# ISEKI\_Food 2008

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## Colour and texture evaluation of whole tomatoes (*Lycopersicon esculentum* L.) at different ripening stages

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Tomatoes (*Lycopersicon esculentum* L.) are a popular and nutritious fruit that is most commonly consumed as salad, juice, soup or ketchup.

From the producers and consumers point of view, colour and texture are the most important tomatoes quality attributes. Colour is the parameter that has a first impact on consumer's preference. However the final decisive factor to purchase tomatoes is firmness. Consumers usually use finger to test tomato firmness at the time of selection. These two quality parameters are highly correlated.

The objectives of this work were to define the best colour CIE Lab parameter, and texture conditions to performed a Texture Profile Analysis (TPA) test, that distinguish tomatoes at different stages of ripening.

External fruit CIE Lab colour coordinates were evaluated with a tristimulus colorimeter Minolta and hue angle ( $^{\circ}h$ ), total colour index (TCI), colour difference with true red (DE) and total colour difference (TCD) were determined. TPA test were performed in a TA.HDi Texture Analyzer, using a 50 N load at a constant distance of penetration (7.5 mm). The quality attributes measured were hardness, chewiness, adhesiveness and cohesiveness. The evaluated variable conditions were cylinder probe diameter (2 and 5 mm) and deformation rate (1 and 3 mm.s<sup>-1</sup>).

Data were subjected to variance analyses using Statistica program version 7.0 and significant differences between samples were detected using Scheffé test (significant at  $p < 0.05$ ). The correlation between colour parameters and texture measurements was also evaluated.

The colour parameters ( $a^*$ ,  $^{\circ}h$  and TCI) and texture conditions (cylinder diameter probe - 2 mm; deformation rate - 3 mm.s<sup>-1</sup>) revealed to be able to discriminate tomatoes samples. Higher correlation was found between  $a^*$  and  $C^*$  ( $r = 0.94$ ,  $p < 0.05$ ), while  $^{\circ}h$  was inversely correlated with  $a^*$  ( $r = -0.90$ ,  $p < 0.05$ ).

The results of this study can be readily applied at industrial level to separate different ripening stages of tomatoes, based on an easy non invasive colour evaluation.

**KEYWORDS:** colour parameters, texture profile analysis, tomato, quality.

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