

# IFST 2016

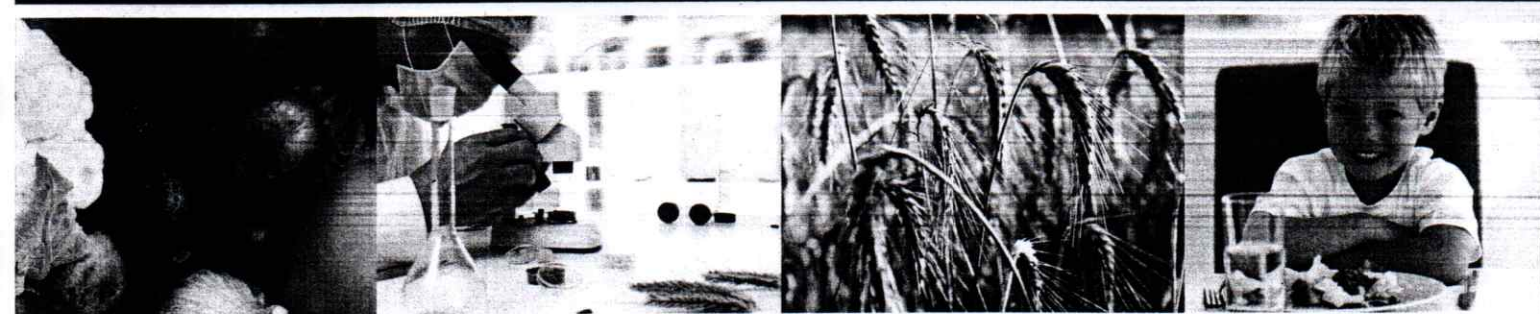
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## Application of Pulsed Electric Fields technology for improving peeling of tomato fruits

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Tomato peeling is one of the most critical phase in the industrial transformation of tomato fruits. It generally consists of either a thermophysical treatment (steam blanching +vacuum cooling), or a chemical treatment (adding of caustic soda), which lead to, respectively, a high-energy consumption or a strong environmental impact. The aim of this study was to assess the potential of pulsed electric field (PEF) technology to facilitate the peeling phase of tomato. The effect of PEF treatments of different field strength ( $E=0.125 - 0.75$  kV/cm) and energy input ( $W_T=0.25 - 0.75$  kJ/kg), used alone or in combination with steam blanching at different temperatures ( $50-70^\circ\text{C}$ ), on the textural properties (hardness, peel strength) of different Tomato variety (Minitor, Cherry, Taylor, Impact and Dress), was investigated. Results showed that, regardless the tomato variety, single PEF treatment applied at  $25^\circ\text{C}$  in the range of values  $0.25-0.5$  kV/cm and  $0.25-0.50$  kJ/kg, significantly affected the textural properties and thus the peelability of tomato fruits. Under these conditions, it was observed a reduction of the peel strengths of, respectively, 47% for Minitor, 55% for Cherry, 69% for Taylor, 62% for Impact, and 41% for Dress variety. No or a slight further improvement was observed when PEF was combined with SB. Consequently, PEF pre-treatment of tomatoes has the potential to facilitate the peeling of the fruits with considerable reduction of the steam consumption.