

Title Development of a method and a system for extracting the seeds (arils) from pomegranate fruits
- from concept to commercial utilization

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Abstract

The pomegranate is a fruit, which possesses some unique characteristics with a potential of a wide and diverse utilization, ranging from fresh to processed products, including pharmaceutical and nutraceutical products. However, in spite of its many advantages, it is currently a relative minor crop with limited marketability. The major obstacle to the realization of the full potential of this unique fruit is the difficulties involved in retrieving the internal edible seeds (arils). A novel method and a system were developed, which enable opening the fruit without cutting, extracting the arils with minimum damage, separating the arils from extraneous materials and delivering clean arils to a packaging machine. A Beta-site machine has been constructed and has undergone extensive testing. The results obtained so far indicate that it is possible to extract 1.5 to 2 tons of arils a day in a one-lane machine operated by 1-2 persons with an extraction efficacy of 95% and <5% mechanical damage. The comprehensive fruit handling system consists of conveying the fruits (delivered from the orchard) to the processing machine; moving the fruit through various stations to perform the operations of opening the fruit; exposing the opened fruit to the extracting mechanism; retrieving the extracted material and finally, separating the arils from extraneous material and delivering the clean and sorted arils to the packaging machine. The machine is currently being produced commercially by a local manufacturer.