

## **Postgraduate positions in Postharvest Technology and Value-addition**

The NRF/DST SARChI Chair in Postharvest Technology Research group functions as part of the Faculty of AgriSciences at Stellenbosch University. The core research areas fall under the domains of Postharvest Technology, Agricultural and Biosystems Engineering, with consistent generation of peer-reviewed publications and intellectual property.

The lab consists of a team of young, dynamic and enthusiastic researchers. Our main research aim is to contribute towards addressing the Postharvest Loss problem which adds to Food Insecurity in South Africa. We have narrowed the focus to the following research areas: Development of cold-chain technologies, non-destructive quality measurement and control, as well as mapping and reducing postharvest losses along the food chain.

Another part of our research also deals with value-addition of pomegranates, a novel product in the South African market that has grown tremendously popular over the last eight years.

Our unique multidisciplinary approach offers research and development opportunities for postdoctoral fellows, with postgraduate MSc and PhD training at the Faculty of Engineering and the Faculty of AgriSciences. Upon registration, the postgraduate students agree to comply with the relevant departmental procedures and processes.

The SARChI Postharvest Laboratory (<http://www.sun.ac.za/english/faculty/agri/postharvest-technology>) is looking for highly motivated postgraduate candidates who are team-players, have a critical mind-set, are willing to learn, and can work accurately and independently to deliver our mission. We welcome applications of candidates with **Natural Sciences** and **Engineering** backgrounds.

### **PhD position: Characterisation, optimisation and product development of pomegranate kernel and kernel oil (3 years)**

As part of the major on-going project on value-addition of pomegranate, the overall aim of this study is to minimise pomegranate fruit wastage by investigating some important quality attributes, chemical constituents and functional properties of pomegranate kernel and kernel oil and finding a novel way of developing a shelf-stable, easily accessible and affordable pomegranate kernel oil product.

### **2X MSc positions: Postharvest chemical treatments and packaging of pomegranate fruit to reduce losses and maintain quality (2 years)**

There is a need to investigate the effect of various postharvest treatments and packaging liners on responses of whole pomegranate fruit during storage to develop or engineer appropriate packaging and storage solutions. Your task is to assess the efficacy and optimise postharvest chemical treatments to control postharvest decay of pomegranate fruit cultivars. You will also assess the impact of liners on the cooling characteristics and physiological quality of pomegranate fruit (treated and untreated) during cold storage.

### **MSc position: Investigation of sugar metabolism and accumulation in plums as related to maturity, cultivar difference and postharvest handling systems (2 years)**

The organoleptic properties of plums, as fruit in general, largely depend on the accumulated sugars. Concentrations and the ratios of different sugars affect the fruit taste. Extensive studies on sugar metabolism and accumulation in plum fruit cultivars are therefore needed to improve our understanding of the selection of fruit varieties that will meet consumers' expectations, especially for cultivars containing a high amount of sorbitol. As plum fruits can ripen after harvest, it is also of interest to study the changes that occur in sugar composition during postharvest handling and storage regimes, and determine how these changes impact sensory properties of selected cultivars grown in South African.

### **MSc position: Application of postharvest edible coatings to alleviate shrivel in plums and nectarines (2 years)**

Plums and nectarines are the most important stone fruits in South Africa, but the commercial success of the fruits has been limited due to their short shelf-life because of excessive moisture loss. Moisture loss manifests through shrivelling, wooliness and mass loss, causing a significant decrease in fruit size and quality of fruit to arrive in the export market. Consequently, this enforces repacking of fruit upon arrival and have a detrimental effect on the income generated for plums and nectarines in South Africa. For these reasons, appropriate postharvest technologies combined with cold storage and packaging are needed. It is essential to find treatments to slow down fruit physiological processes and, hence, shrivelling in the quest to prolong the shelf-life of South African plums and nectarines. The aim of the study is to reduce moisture loss by applying edible coatings to plums and nectarines without compromising on fruit quality and sensory attributes.

### **How to Apply:**

Applications are welcome from local and international students. Applicants should indicate their interest and submit a curriculum vitae to [olaniyi@sun.ac.za](mailto:olaniyi@sun.ac.za) before **30th September 2017**. Students must meet the admission requirements of Stellenbosch University. **Bursaries will be made available to eligible students throughout the duration of their degree.**

For more information please contact:

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