



# RIVERLINK

Linking Horticultural Centres  
in Sunraysia - Riverland

## Media release

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*For immediate release*

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### **Fresh food focus for CSIRO Merbein research**

#### **The proof is in the eating**

Today's consumers want the convenience of prepared and packaged foods with the flavour and nutritional value of fresh foods, but without additives and preservatives. Imagine buying orange juice from the supermarket that actually tastes like freshly squeezed juice, or a delicious packaged avocado guacamole with the flavour and colour of a freshly prepared dip. These are two examples of 'preserved fresh' foods and the CSIRO's Food Futures Flagship is working to expand this for other foods.

#### **Advances in food preservation**

The Flagship's Innovative Processing theme is investigating a suite of sophisticated processing technologies, including High Pressure Processing (HPP), for preserving fruits and vegetables. HPP will extend the shelf life and safety of fresh food while retaining its flavour, texture and nutrition. These technologies have the potential to revolutionise food preservation and will give Australian produce a strong advantage in export markets.

This Food Futures Flagship project is a multi-divisional collaboration involving CSIRO Plant Industry at Merbein, Victoria, Food Science Australia (the joint venture of CSIRO and the Victorian Government) at North Ryde, NSW and Werribee, Victoria and CSIRO Human Nutrition in Adelaide, South Australia.

## **What is HPP?**

HPP is a method of food preservation that has attracted much interest in the last couple of decades for its ability to inactivate microorganisms while maintaining the fresh qualities of many food products.

HPP involves subjecting food to intense pressures of 150-700 MPa. To put this high pressure into perspective, the pressure at the deepest point in the oceans is around 110 MPa.

HPP offers several key advantages over existing methods of preserving food. It causes fatal damage to the outer cell membrane of the microbes. The pressure causes only minimal damage to the products because the water contained in the food is relatively incompressible. The microbes are killed leaving a safe product that is free of additives and retains its taste for an extended period of time.

The pressure is applied quickly, and the process is essentially non-thermal, and unlike heat does not disrupt chemical bonds in the food. In this way the nutrient and flavour compounds of the food are left intact, resulting in a product that often has a superior taste, nutritional value and quality compared to thermally processed counterparts. No preservatives or additives are required and HPP products are therefore considered to be more “natural”. Not all foods are suitable for HPP and identifying suitable products and processing conditions is an important and ongoing part of this project.

The project has two overall aims. Firstly, using two model fruit and vegetable commodities, the research team aims to identify the characteristics of each commodity that confer an advantage or disadvantage in terms of suitability for HPP. Part of this approach involves being able to test a range of genotypes of each commodity grown under the same environmental conditions and management inputs. Secondly, the team aims to assess the effects of HPP on the levels and bioavailability of health promoting compounds, particularly anti-oxidants. This involves identifying any other pre- and post-harvest influences on the level of these compounds before any processing of any nature takes place. This objective is to ensure that the fruit and vegetable-based HPP products can justifiably claim that they are “good for you”.

The project’s planned outcome is the Australian food industry supplying high quality, “minimally processed” fruit and vegetable products that are healthy and microbiologically safe, and have a fresh appearance and an extended shelf life.