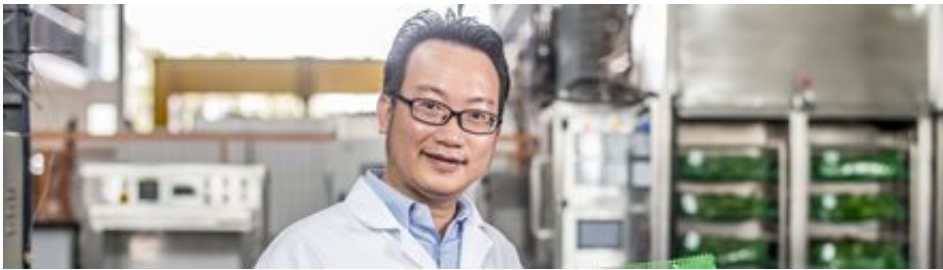


New techniques to improve the shelf life of our food could help minimize harvest loss

May 10 2018, by Jane Icke



Credit: University of Nottingham

A new technique to dry cocoa beans, fruits, herbs and edible birds nests is helping to improve quality and increase the shelf life of our food.

Retaining the [quality](#) of [food](#) from field to fork is a challenge for the food industry but researchers from the University of Nottingham Malaysia have developed new ways to preserve products without compromising on look and taste.

The research team discovered that drying lemon myrtle at the lower temperature of 20°C enabled the colour and bioactive ingredient 'cital' to be retained significantly more than when using conventional drying methods at temperatures of 60°C.

Since 2006, the research team has applied this technique to process various bio-origin products, which includes [cocoa beans](#), fruits (eg. ciku,

chempedak, salak—these are tropical underutilised fruits- apple, pear, mango, papaya), herbs (eg. misai kucing, belalai gajah—these are local herbs- and Roselle, ganoderma lucidium), as well as edible bird nests – a delicacy in East Asia (China, Hong Kong, Taiwan and the Chinese community in South East Asia).

They found that low temperature drying is an effective way to retain bioactive ingredients and key nutrients in the processed products.

Key to selection process

Professor of Chemical and Process Engineering, Dr. Chung-Lim Law is leading the study and explains why this discovery is significant: "How a food looks is a key part of the selection process in the food industry as it gives a strong indication to the quality of the product and how it will taste.

"Furthermore, the retention of bioactive ingredient defines the quality of the product so selection of appropriate processing techniques is key in producing good quality products.

"Apart from retaining bioactive ingredients, the technology can also retain product colour by eliminating or minimising undesirable chemical reaction due to harsh processing conditions such as high temperature. The low temperature drying technique we have tested could help to minimize harvest loss giving a more effective process for drying which retains colour and quality while extending its [shelf life](#), allowing crops post harvest to be maximized."

Low temperature technology

The technique uses a heat pump system and heat transfer module to

generate a [low temperature](#), low humidity environment for dehydrating bio-origin products. An environment of 20°C and 20% humidity is optimum for removing moisture from bio-origin products like food and herbs that contains active ingredients and nutrients that are sensitive to high temperature. This technology is especially important to tropical countries such as Malaysia where the humidity is high throughout the year.

After carrying the moisture away from the products the air is recycled within the system and a condenser is used to extract the moisture from the air. This is a closed system operation which also eliminates product contamination during the processing.

Dr. Law continues: "This research will be very important for companies who wish to improve their production processes and product quality, especially with products that are sensitive to high [temperature](#)."

"Using this technique they can produce high quality food products that retain high amounts of nutrients and active ingredients, this will also be valuable for those who wish to tap into the healthcare market. We have already had interest from commercial companies and I think as this research develops further there will be many more opportunities for collaboration and commercialisation in the future."

Provided by University of Nottingham

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