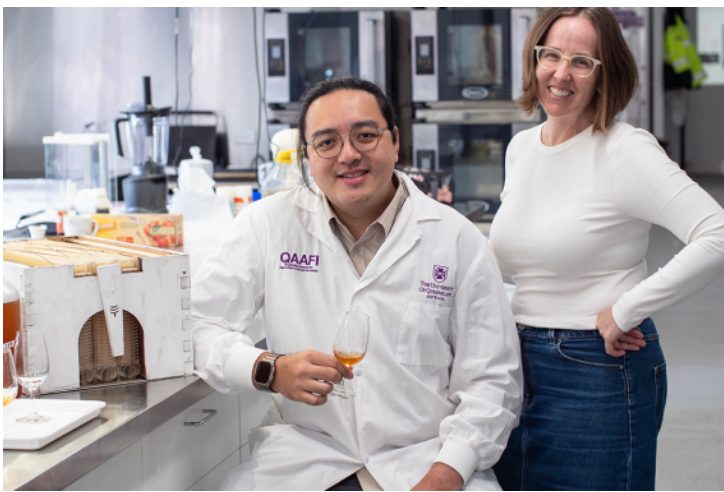


UQ Study Explores How Harvesting Methods Influence Honey Flavour and Quality

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Researchers find gentler extraction techniques may help preserve the distinctive botanical characteristics of premium Australian honey



Researchers at The University of Queensland (UQ) are investigating how honey harvesting and storage methods influence the flavour, aroma and overall quality of honey, with findings suggesting that gentler extraction techniques could help preserve the distinctive characteristics of premium Australian varieties.

The research, led by Queensland Alliance for Agriculture and Food Innovation (QAAFI) PhD candidate James Yu Jun Lian, is examining whether harvesting practices affect the freshness and sensory attributes of honey, while laying the groundwork for industry standards to define honey freshness.

"This is the first detailed look at how gentle extraction may preserve Australia's unique botanical flavours," said Lian. "It opens the door to defining what freshness means in honey, which is something the industry has never formally measured."

The study compared honey collected from three locations across South East Queensland and Northern New South Wales using two extraction methods the conventional Langstroth hive and the Australian-developed Flow Hive, before commercial processing.

According to the researchers, traditional extraction methods used with Langstroth hives expose honey to heat, oxygen and mechanical agitation during spinning and processing. These factors can alter the honey's natural sensory profile.

Lian noted that heating and spinning may reduce the distinctive botanical notes that give Australian honey its unique flavour profile, potentially diminishing its premium value. In contrast, the Flow Hive enables honey to be extracted naturally with minimal disturbance to the hive, eliminating the need for additional heat and reducing agitation.

The researchers found that honey extracted using the Flow Hive exhibited a lighter colour and lower concentrations of hydroxymethylfurfural (HMF), a recognised indicator of heat exposure in honey. Lower HMF levels, together with lighter colour, suggest reduced chemical degradation during extraction.

The team also evaluated the impact of heating and ageing on honey, observing that processed samples developed more caramelised and medicinal flavour notes, indicating that heat and oxygen exposure can negatively affect aroma and taste.

Sensory scientist Professor Heather Smyth said the research aims to establish objective measures of honey freshness, similar to quality metrics already used in industries such as wine and coffee.

"Honey lacks well-developed freshness metrics found in industries like wine and coffee, and this work is helping establish those foundations," Smyth said. "We're examining colour, texture, physical properties, sugar composition and flavour, while analysing odour compounds that can indicate whether honey has been damaged during processing."

The research team plans to monitor how honey changes after harvest to identify when quality begins to decline and determine how different extraction methods influence flavour, aroma and texture over time.

The findings could support the development of premium positioning for Australia's boutique honeys by highlighting their unique sensory profiles derived from native floral sources, while creating new opportunities for high-value culinary and gastronomic applications.