



## Assessment of volatile and non-volatile compounds in durian wines fermented with four commercial non-*Saccharomyces* yeasts

By Mr. Lu Yuyun

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### Abstract

Durian (*Durio zibethinus* Murr.) is one of the well-known tropical fruits in Southeast Asia owing to its peculiar odor. The objective of this study was to investigate transformation of chemical constituents and fermentation performance by *Metschnikowia pulcherrima* Flavia, *Torulaspora delbrueckii* Biodiva, *Pichia kluyveri* FrootZen and *Kluyveromyces thermotolerans* Concerto in durian wine. The results showed that sucrose was not utilized by *M. pulcherrima* and *P. kluyveri*, resulting in little formation of ethanol (0.3 - 0.5 % v/v), while about 7 % ethanol was produced by the other two yeasts. Volatiles such as esters and sulfur-containing compounds were synthesized or catabolized and distinctive differences existed among yeasts. Larger amounts of higher alcohols and ethyl esters were detected in wines fermented by *T. delbrueckii* and *K. thermotolerans*, whereas *M. pulcherrima* and *P. kluyveri* produced more acetate esters such as ethyl acetate (1034.43 and 131.05 mg L<sup>-1</sup> respectively) and isoamyl acetate (0.56 and 27.68 mg L<sup>-1</sup> respectively). Most endogenous sulfur volatiles such as disulfides declined to trace levels. Sulfur volatiles in wines fermented by *T. delbrueckii* accounted for 0.20 % relative peak area (RPA), followed by *K. thermotolerans* (0.23 % RPA), *P. kluyveri* (1.43 % RPA) and *M. pulcherrima* (4.16 % RPA). The findings showed that a more complex flavor could result from fermentation with different non-*Saccharomyces* yeasts and the typical durian odor would still remain.

**Host:** Dr Yang Hongshun  
**Date:** 19<sup>th</sup> October 2015, Monday  
**Time:** 12 pm – 1pm  
**Venue:** Seminar Room S14-06-20

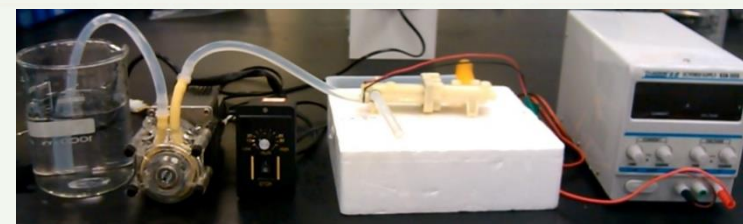


## Development of small-scale sanitising unit for sanitising organic produce

By Ms. Zhang Jufang

### Abstract

A prototype of small scale electrolysis system based on sodium chloride solution was proposed and practiced. Effects of flow rate, NaCl concentration and electrolysed current density on pH, oxidation–reduction potential (ORP) and free available chlorine (FAC) of electrolysed water (EW) were investigated. A mathematical modeling was proposed for describing the input-output and optimising the FAC production of this electrolysis system. Partial of catholyte solution was reintroduced to electrolysis for modifying the output electrolysis water to be closer to pH neutral. The sanitising effect of the EW generated from this system was tested and compared with commercial unit. Results indicated increasing water flow rate, decreasing the electrolysed current density and NaCl concentration decreased FAC concentration and ORP, and increased the pH of the EW. EW generated by this portable unit showed strong bactericidal activity. A concentration of 40 mg/L can achieve more than 5 log/CFU log reduction and 4 mg/L can achieve more than 2 log CFU/ml reduction for *Escherichia coli* ATCC 25922, *E. coli* O157:H7 C7927 and *Listeria monocytogenes* BAA-839. The sanitising effect was equivalent to the commercial unit. The results suggest that the developed prototype unit is promising as a sanitising unit for controlling foodborne pathogens.



### About the speaker

Ms. Zhang Jufang joined National University of Singapore as a PhD student in spring of 2014, focusing on development of sanitising units for organic fresh produce. She holds a master and bachelor's degree in Environmental Engineering.