

# Food safety and Hygiene

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## Application of the HRMA technique for detecting 9 forbidden animals in halal food products for halal food safety in Thailand

**Anat Denyinghot, Monrueedee Khemtham, Vanida Nopponpun and Winai Dahlan**

The Halal Science Center, Chulalongkorn University, Thailand

In general, food safety is a scientific discipline that aims to detect and prevent the contamination of food with hazards such as physical, chemical and biological substances but for Muslim consumers, surveillance of contamination of prohibited substances under Islamic law, especially forbidden animals is a must as one of the other hazards which directly affect not only to the physical health but also to the spiritual health of the consumers. Importantly, high resolution melting analysis (HRMA) is a highly molecular technique for the detection of specific types of organisms and quickly, based on the melting temperature ( $T_m$ ) of the DNA that is specific to the organisms. Hence, this research aims to use a HRMA technique as a tool for

halal food safety to detection of contamination of nine forbidden animals in halal foods, namely, pigs, dogs, rats, cats, monkeys, frogs, snakes, crocodiles and donkeys from food samples. The results showed that the HRMA technique was applied to detect the contamination of 300 commercial products of Thailand. It was found that two samples were contaminated with pigs' DNA in the examined products and no DNA of other forbidden animals was detected in any commercial products. Therefore, the HRMA could be used as a high-potential technique for detecting the forbidden animals contaminated in foods and representing the halal food safety for Muslim consumers.

e: [arnat.hsc@gmail.com](mailto:arnat.hsc@gmail.com)*Notes:*