A simple and rapid method based on proton transfer reaction mass spectrometry to determine rancidity of crispy pork rinds

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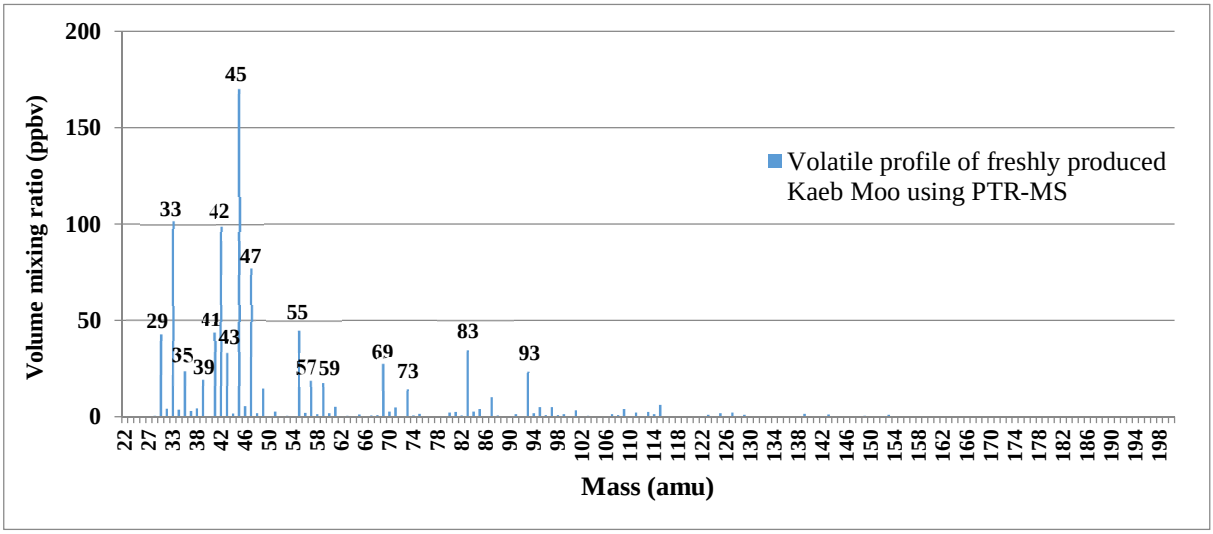
Proton transfer reaction mass spectrometry (PTR-MS) is a rapid and sensitive technique that can detect volatile organic compounds (VOCs) in samples without any extraction procedure. Crispy pork rind or '*Kaeb Moo*' is one of the most famous foods in Thailand. Depending on the raw skin quality, storage conditions and frying oil quality a number of degradative reactions may occur, resulting overall in the development of rancidity. From a practical standpoint, it is of great importance for the manufacturers to develop simple, rapid and non-destructive methods for the early detection of rancidity. In this work, a simple and rapid method based on PTR-MS was developed in order to determine VOCs evolved from *Kaeb Moo* samples during different processing, storage condition or directly on the sale. The estimate of rancidity was based on the detection of dominant mass ions present the headspace of the *Keab Moo* samples, such as m/z 41, m/z 43, m/z 45, m/z 47, m/z 55, m/z 57, m/z 59, m/z 69, m/z 73 and m/z 83. These fragments were all related to the extent of the oxidative products generated from the oil used for frying. Also, their intensity varied according to the pork skin storage (0, 2, 4 and 7 days) and frying oil quality (new and used oil). This work demonstrates the potential utility of PTR-MS for the monitoring of the quality of Crispy pork rind samples during different production steps. Thanks to its high sensitivity and reproducibility, PTR-MS can be considered a useful tool for quality control or even for the final characterization of the product directly on the sale.



Keywords: Crispy pork rind; PTR-MS; Volatile organic compounds