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EXTRACTION OF AROMA COMPOUND FROM PANDAN LEAF AND USE OF THE COMPOUND TO ENHANCE RICE FLAVOUR

by

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Abstract

Supercritical carbon dioxide (SC-CO_2) and Soxhlet extraction using hexane as solvent were used to extract 2-acetyl-1-pyrroline (2-AP) from Pandan leaves. The effect of different extraction pre-treatments, such as particle size and drying on the extraction yield and concentration of 2-AP were investigated. The identification and quantification of 2-AP were carried out by gas chromatography-mass spectrometry and gas chromatography-flame ionization detector, respectively. This work aims to provide an understanding of the phenomena that occur during cooking and storage; typically on the changes of 2-AP absorption when cooking rice grains with Pandan leaves. The parameters investigated were cooking method of excess and optimal water conditions.

Even though low in yield, and the 2-AP concentration was obtained from supercritical carbon dioxide extraction, the extracts were pure without any contamination. The grinding and freeze-drying method revealed the best pre-treatments for supercritical extraction. The absorption of 2-AP during the cooking of rice grains did not smoothly increase with time. This unexpected result indicated that the phenomena occurring during cooking are quite complex. This work also quantified the potential of Pandan leaves to enhance the flavour of cooked rice, particularly under excess water conditions. Storage for 15 min at 24.0 ±1.0°C is considered as the optimum time for obtaining cooked rice with a high quality of flavour.