

##C426962 : MAJOR FOOD TECHNOLOGY

KEY WORD: LIME/ FREEZE DRYING/ FREEZE-DRIED LIME JUICE POWDER

SUNTAREE VARA-UBOL : FREEZE DRYING OF LIME JUICE. THESIS ADVISOR :  
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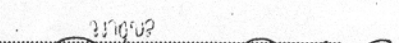
The purpose of this study was to investigate the effects of maltodextrin contents as drying aid and freezing methods (slow freezing in freezing room and fast freezing in air-blast freezer) in freeze drying of lime juice on the qualities of freeze-dried lime juice powder. The effects of tricalcium phosphate (TCP) as anticaking agent and in-package desiccant (IPD) on the quality changes of product packed in laminated sachet (PET-PE-Al-PE) during storage at room temperature were also studied.

The results showed that moisture content and water absorption of freeze-dried lime juice powder decreased with the increasing of maltodextrin content. Moisture content of product frozen at rapid rate was lower than that of product frozen by slow freezing method. However, the influence of freezing method on moisture content of product could be reduced by the increasing of maltodextrin content. In addition, the increasing of maltodextrin content and using slow freezing method could improve the retention of citral and d-limonene, volatile compounds responsible for flavor quality of lime juice, during drying process which corresponded to the results of organoleptic test. Maltodextrin content at 30% (by wt. of lime juice) with slow freezing method was found to be the most suitable condition in this study. After storage of 2 months in laminated sachet, it was found that vitamin C content and titratable acidity (as % citric acid) of freeze-dried product were nearly constant. Moisture content, water activity ( $a_w$ ), caking and browning index of product increased as storage time increased. However, panelists still accepted the product satisfactorily. The use of either 0.5% or 1.0% by wt. TCP and IPD (silica gel 10% by wt.) could retard the increasing of moisture content,  $a_w$ , caking and browning index of product during storage significantly ( $p \leq 0.05$ )

ภาควิชา.....เทคโนโลยีทางอาหาร.....

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