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THESIS

STUDIES ON DEVELOPMENT OF MAFAI JEEN [*Clausena lansium* (Lour.) Skeels] PRODUCTS

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Mafai Jeen is a minor member of the Rutaceae and common name called wampee, grown mostly in Nan Province. Dried Mafai Jeen is a well known preserved product. The objectives of this research are to study aroma compound and the effect of drying method on the qualities of Mafai Jeen, study the intensity of astringent taste and also to develop new Mafai Jeen products.

Analysis of the aroma compounds from Mafai Jeen fruit using gas chromatography-mass spectrometry (GC-MS) obtained the four most abundant aroma compounds, sabinene, α -pinene, α -phellandrene, and myrcene. The drying time of Mafai Jeen to reach 14 % (wb) moisture content was 17, 32, 42, and 50 h by hot air drying at 60 °C, sun drying, hot air drying at 45 °C, and vacuum drying at 45 °C, respectively. The total changes in product color, ΔE , were observed to be 21.49, 13.72, 12.75, and 6.61 by hot air drying at 60 °C, hot air drying at 45 °C, sun drying, and vacuum drying at 45 °C, respectively.

The intensity of astringent taste was experimented in Mafai Jeen fruits using time-intensity method. Twelve samples of dried Mafai Jeen, varying in the rate of sucrose from 0, 10, 20 to 30 g/100 g of fruits and varying in the rate of ascorbic acid from 0, 1 to 2 g/100g of fruits were prepared. Solution of tannic acid 1 g/l both in water at 7 and 25 °C were tasted same astringent. The interaction between astringency and sweetness was investigated. Maximum intensity, time to maximum and total duration for astringency decreased significantly with increasing sucrose concentration. Raising ascorbic acid increased astringent intensity and duration significantly.

The develop Mafai Jeen fruit product for target consumer, which are aware of their health. A focus group discussion indicated healthy natural Mafai Jeen candy product was required. The product should contain natural color or no artificial flavors, the least sucrose content smooth mouth feel, and moderately sour taste. Three thickening agents; maltodextrin, pectin, and CMC were studied. Descriptive sensory evaluations of the three Mafai Jeen fruit candy revealed that they were different among one another. Glossy, chewiness, cohesiveness, and toothpack were discriminating attributes. Consumer test and purchase intent were done with 135 consumers using 9-point hedonic scale. Different thickening agents added to the Mafai Jeen fruit candy caused a significant difference in the consumer responses. 1.5% pectin and 1.0% CMC added in Mafai Jeen fruit candy were well accepted which overall liking scores 6.3 and 5.9 (like slightly), and 2.0% maltodextrin was least accepted which score 4.6 (Neither like nor dislike). Consumer purchase intent of Mafai Jeen fruit candy was positively influenced after the consumers known that promoted health benefits. Processing steps to produce Mafai Jeen candy involved blending Mafai Jeen for 6 min, heating 58.5% of Mafai Jeen puree over gas stove at 95 °C for 20 min, 35% (w/w) of sucrose were added and continue heating for 20 min, added 5% of glucose syrup and 1.5% of pectin, continue heating until the total soluble solid reached 75 °Bx.

Student's signature

Thesis Advisor's signature

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