

Apinya Bhumsaidon. 2008. **Development of Molded Functional Fruit Paste Product from Mango (*Mangifera indica* L.) and Yor (*Morinda citrifolia* L.) Pulp Mixture.**
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ABSTRACT

The main objective of this study was to develop the prototype functional fruit paste product from mango (*Mangifera indica* Linn.) and yor (*Morinda citrifolia* Linn.) pulp mixture. The minor objective was to obtain the product that could be added yor pulp to the maximum level and could be accepted by consumers. The product was developed by determining the substituted level of mango pulp with yor pulp at the level of 10 15 20 25 and 30 %. It was found that the levels of 10 15 and 20 % were accepted by consumers. The 10 to 20 % substituted levels, equivalent to 3 to 6 % yor pulp in the formula were selected for further formulation. Product formulation was later development, 4 components were used with the low and high levels; mango pulp 25 and 30%, yor pulp 3 and 6 %, sugar 25 and 30% and gelatin powder 25 and 30%. Using the method in Mixture design, 18 formulas were designed for the production. It was found that when using 72 consumers to evaluate their preferences to the 18 formulas, the consumers liked all of the samples not significantly difference ($p>0.05$). Consumer preference scores and the antioxidant activity (EC_{50}) values of the 18 formulas were then used for the formulation optimization. Two optimised formular were suggested, the first optimised formula used mango pulp 30%, yor pulp 5.97%, sugar 26.67% and gelatin powder 27.36% and the second optimised formula used mango pulp 28.93%, yor pulp 5.24%, sugar 26.67% and gelatin powder 29.17% respectively. Chemical and physical properties and antioxidant activity (EC_{50}) values were measured. Two groups of 72 consumers were used for preference evaluation. The first group (Group 1) were not received the information about the health benefit of yor. The second group (Group 2) were received the information about the health benefit of yor prior to the preference evaluation. Results were found that the second group (Group 2) scored the preference evaluation of the 2 optimised formula significantly higher than the first group (Group 1) ($p\leq 0.05$). For the confirmation of the prediction value of the preference response, it was found that the first group (Group 1) scored the preference evaluation of the 2 optimised formulas significantly lower than the prediction value of the preference response ($p\leq 0.05$) except that they scored texture liking of the second optimized formula and the prediction value of the texture preference response not significantly difference ($p>0.05$). The second group (Group 2) scored the preference evaluation of the 2 optimised formulas significantly higher than the prediction value of the preference response($p\leq 0.05$). The consumer preference test was repeated with another the two groups of 72 consumers aged over 30 years. The first group (Group 3) were not

received the information about the health benefit of yor and the second group (Group 4) were received the information about the health benefit of yor. Results were found that these two groups scored the preference evaluation of the 2 optimised formulas not significantly difference ($p>0.05$). And again for the confirmation of the prediction value of the preference response, it was found that the first group (Group 3) that was not received the information about the health benefit of yor scored the preference evaluation of the 2 optimised formulas not significantly difference from the prediction value of the preference response ($p>0.05$). The second group (Group 4) that was received the information about the health benefit of yor also scored the preference evaluation of the 2 optimised formulas not significantly difference from the prediction value of the preference response ($p>0.05$) except that they scored overall liking and the texture liking score of the second optimized formula lower than the overall and the texture preference response of the prediction value ($p< 0.05$). When comparing the result of overall liking evaluated of the 2 optimised formulas by the four groups (Group1-4) of the consumers, it was found that the consumers in Groups 1, 3 and 4 scored the overall liking of the 2 optimised formulas lower than the consumers in Groups 2, they scored at the level of liking slightly to liking moderately. The consumers in Group 2 scored the overall liking on the 2 optimised formulas at the level of liking moderately to liking very much. The consumers in Group 1 liked the second optimised formula more than the first optimised formula. But the consumers in other 3 Groups liked the 2 optimised formulas not significantly difference ($p>0.05$). As because of the first optimised formula contains the higher level of antioxidant activity than the second optimised formula. Therefore the first optimised formula was then selected for the prototype product using mango pulp 30.00%, yor pulp 5.97%, sugar 26.67% and gelatin powder 27.36%.