

Optimasi Formulasi Tepung Biji Nangka (*Artocarpus heterophyllus*) Pada Pembuatan Chiffon Cake Menggunakan Metode *Simplex Lattice Design*
*(Optimization Of Jackfruit Seed Flour (*Artocarpus Heterophyllus*) Formulation In Chiffon Cake Production Using The Simplex Lattice Design Method)*
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ABSTRACT

Chiffon cake is one of the most popular cakes in Indonesia which is known for its great taste and easy to make. Using jackfruit seed flour as a substitute in producing chiffon cake could reduce the dependency on wheat flour and add the fiber content value on the product. This research aims to find the optimum formulation of the jackfruit seed flour. Simplex Lattice Design is used as method in this research which also involving two factors namely jackfruit seed flour 30-50% (lower limit 30% and upper limit 50%) and wheat flour 50-70% (lower limit 50% and upper limit 70%) that generates 10 treatment combinations. The optimization targets are maximize the specific volume and the fiber content, and also minimize the texture of the chiffon cake. Based on the result, the highest specific volume is 3.99 cm³/g with 7:3 proportion (wheat flour: jackfruit seed flour), the highest crude fiber content is 5,46% with 5:5 proportion (wheat flour: jackfruit seed flour), and the lowest texture is 8,21 gF with 7:3 proportion (wheat flour: jackfruit seed flour). The developed model predictions are linear (specific volume), quartic (fiber content), and quadratic (texture). Based on the optimization result, the optimum formulation is 68,65% wheat flour and 31,35% jackfruit seed flour that produce a chiffon cake with response prediction value of 3,85 cm³/g specific volume, 5,46% crude fiber content, and 8,86gF texture that have accuracy value of 99,22%, 99,82%, and 93,01% respectively. A formula that has an accuracy above 90% is considered as having a high accuracy and is indicated to not have any difference between the prediction and actual value (valid).

Keywords: *Optimization Formulation, Simplex Lattice Design, Chiffon Cake, Jackfruit Seed Flour.*