ChemTech

International Journal of ChemTech Research
CODEN(USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.10 No.4,pp 533-541,2017

Optimization of Extraction of Milkfish (*Chanos chanos, forskal*) Gelatin using Rsm-Bbd(Response Surface Methodology Box Behnkendesign)

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Abstract: Milkfish bone is one of the potential waste of fishery products as raw materials for halal gelatin. Conditions of the extraction process such as the extraction of HCL, its extraction time, and extraction temperature will affect the quantity and the quality of gelatin produced. Program of Design Expert 7.1.5 withResponse Surface Methodology Box-Behnken Design (RSM-BBD) is used to observe and choose the process condition from the combination of factor level which produces optimum response. RSM-BBDreported that concentration of HCl (X_1), pre-treatment time (X_2) and extraction temperature(X_3) are the highly influential factor on the value of yield response (Y_1) dan the gel strength (Y_2) of gelatin. Optimization results with RSM-BBD showed that the optimum conditions to process the extraction of milkfish bone gelatin obtained when concentration of HCl reached 4,65%, pre-treatment time was 26,89 hours and the extraction temperature reached 89,92 ^{0}C with yield result as much as 12,93% and the gel strength as much as 335,57 gram bloom. Verification results showed that the gelatin of fish bone extracted with optimum conditions had yield value as much as 12,97% and the gel strength as much as 335,57 gram bloom.
Keywords: Gelatin, Milkfish bone, RSM, Box-Behnken Design, Yield, Gel Strength

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