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Optimization of process variables of Twin Screw Extruder using Response Surface Methodology for the production of Good quality Fish Added Extruded snack product

Pradeep R[a*], Rathnakumar K[b], and Karthickumar P[c]

[a] College of Fisheries Engineering, Tamil Nadu Dr.J. Jayalalithaa Fisheries University, Nagapattinam, India;

[b]Tamil Nadu Open University, Chennai, India

[c]Department of Fish Process Engineering, aCollege of Fisheries Engineering, Tamil Nadu Dr.J. Jayalalithaa Fisheries University, Nagapattinam, India

[*]Corresponding Author

ABSTRACT

Extruded fish snack products were developed using twin screw extruder (Basic Technology, Kolkata) by varying machine parameters (Screw speed, heater 1 and 2 temperature) of twin-screw extruder and varying raw materials (Maize, salt, water) quantities and keeping fish powder quantity constant (5g). A set of 30 experimental trials were conducted using twin screw extruder by changing the processing variables.

Quality evaluation of the extruded fish snack products obtained at different process variables were examined for the expansion ratio, texture, colour, bulk density, true density and 50 product weight. From the data obtained, Optimization process is carried out with Response surface methodology technique to predict the best possible process variables to produce the good quality and high acceptance extruded snack using Twin screw extruder. Research finding showed that the high dependency of process variable in the production of product. Hence, two best possible combination of input parameters was found to produce good quality and high acceptable extruded snack product.

Keywords: Twin screw extruder, Optimization, Box Behnken mechanism, Process variables