Savory Salt Production and Characterization from Mixed Fishes Protein Hydrolysates

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ABSTRACT

The aims of the research was to study the production of savory salt from mixed fishes protein hydrolysates (FPH). Savory salt were prepared by adding salt in different concentration (2; 4; and 6 % (g/ml) from mixed FPH). The result showed that higher concentration of salt have the better sensory characteristic, and salt 6% was the best treatment. The characteristics of the best treatment are protein solubility (3,545% ± 0,207), maillard value (0,577 ± 0,023), level of rancidity (35,104 mmol/kg ± 10,792), water content (6,345% ± 0,219), ash (19,973% ± 0,737), and lipid (0,773 ± 0,194). The savory salt from FPH may potentially be applicated in food industry, because of the ability to produce umami taste.

Key Words: savory salt, salt, mixed protein hydrolysates (FPH), umami.

INTRODUCTION

One of natural material alternative as flavor potentiator is fish source. As previous research result showed that the milkfish hydrolysate able to use for flavor enhancer (Witono, 2007). Combination of *golden trevally* (*Gnathanodon speciosus*) fish hydrolysate from Madura strait and salt produced savory flavor which is tasty salt for food seasoning (Witono *et al*., 2013).

Bibisan (*Apogon albimaculoses*), Baji-baji (*Platycephalidae cymbacephallus*), and Lidah (*Cynoglossus lingua*) are populer freshwater fishes in Madura island, Indonesia. They have a low price because of abundant and only use as food. Thus, no information has been publised on the production of savory flavor from them.

The research was further study on exploration of protein hydolysate from above inferior fishes. The fishes protein hydrolysate were mixed with salt in ratio variation. The aims of the research was to study the production of savory salt from mixed fishes protein hydrolysates (FPH).

MATERIALS AND METHODS

Main materials of the research were Bibisan (*Apogon albimaculoses*), Baji-baji (*Platycephalidae cymbacephallus*), and Lidah (*Cynoglossus lingua*) were obtained from Madura local market. Fresh fish was filleted and the fish meat was stored in polyethylane bag

at 4^{o}C until used for FPH production. The proteolytic enzyme used protease from biduri and papain that produced by sentrifugated method. Savory salt was producted by combination of salt and FPH.

Production of savory salt: the samples of mixed meat fishes were partly thawed at room temperature and mixed with distillate water (1:2) and blended for 2-3 minutes. The homogenate sampless were adjusted to pH 7.00 with buffer addition and added by activator (sistein). The hydrolysis process was done in waterbath (Memmert, Germany) set up at 55^{o}C. the enzymatic hydrolysis was started by added 1,5% (v/v) of the combination of biduri protease:papain 70:30 and the concentration of sistein as catalisator 0,6% (w/v). The enzyme was inactivated by heating at 100 ^{o}C for 10 minutes. The homogenate (fish protein hydrolysates then added by 0.4% (w/w) CMC; 2% (w/w) sugar; and salt with difference concentration (2,3, and 6% (w/w) then drying by oven at 40^{o}C during 18 hours. The sampel will be mashed until 60 mesh and the be analysed.

Functional properties analysis: Solubility and nitrogen solubility index were calculated to determine the solubility of protein hydrolysates, following the prosedure of Morr (1985). Maillard value was determined according to the method proposed by Subagio et al. (2002), and the rancidity by Hofmann et al. (1999) method. The proximate properties including water content, ash and lipid be analyzed by AOAC (2007) methods.

RESULTS AND DISCUSSION

Maillard Reaction Product

The results indicated that the higher concentration of salt caused lower absorbance in maillard reaction product analysis of savory salt from inferior fishes (Figure 1).

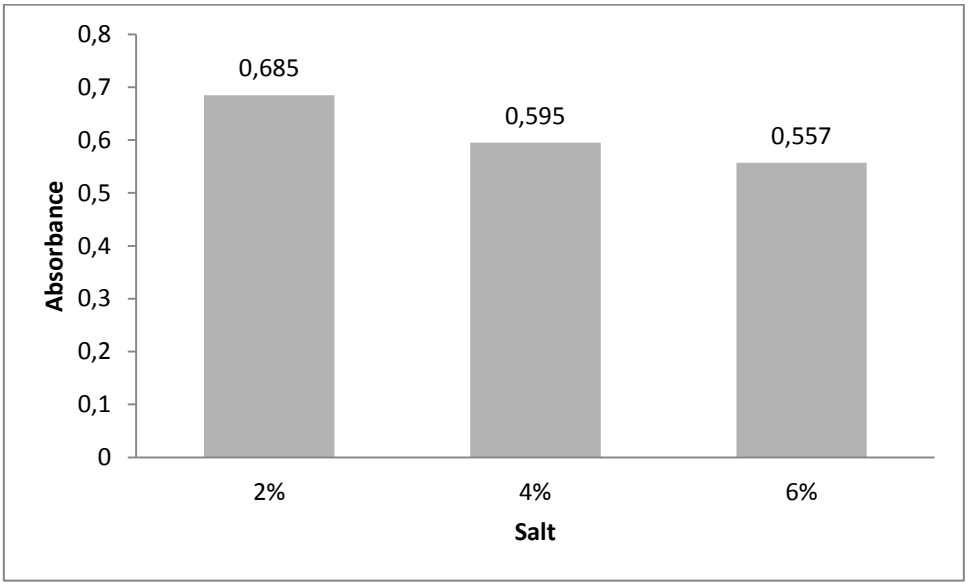

Figure 1. Maillard reaction product of savory salt from fishes protein hydrolysate in different concentration of Salt

Protein Solubility

Protein solubility of savory salt from inferior fishes using different concentration of salt are presented in figure 2.

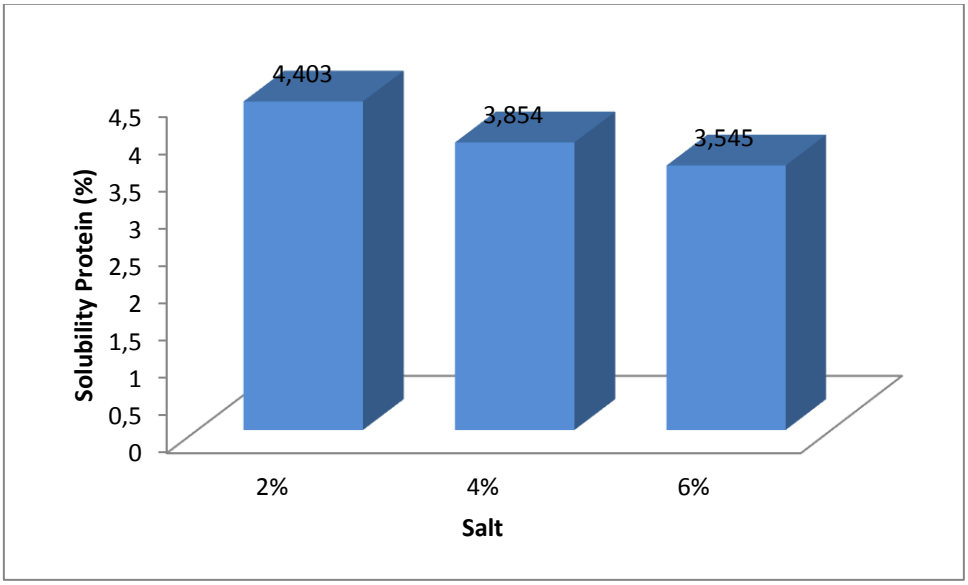

Figure 2. Protein solubility of savory salt from fishes protein hydrolysate in different concentration of Salt

Rancidity

The results of rancidity of savory salt described in figure 3.

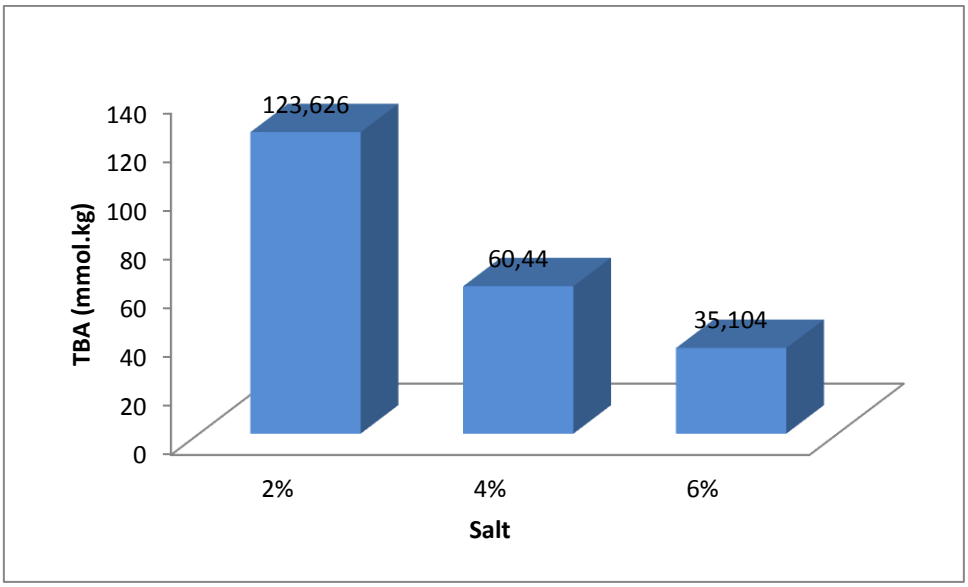

Figure 3. Rancidity of savory salt from fishes protein hydrolysate in different concentration of Salt

Proximate Component

Proximate analysis based on the best treatment (salt 6%) showed in Table 1.

Table 1. Proximate component of The Best Treatment of Savory Salt

No.	Component	Quantity (%)
1	Water content	6,345 ± 0,219
2	Ash	19,973 ± 0,737
3	Lipid	0,773 ± 0,194

CONCLUSION

The higher concentration of salt have the better sensory characteristic, and salt 6% was the best treatment. The characteristics of the best treatment are protein solubility (3,545% ± 0,207), maillard value (0,577 ± 0,023), level of rancidity (35,104 mmol/kg ± 10,792), water content (6,345% ± 0,219), ash (19,973% ± 0,737), and lipid (0,773 ± 0,194). The savory salt from FPH may potentially be applicated in food industry, because of the ability to produce umami taste.

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