

Organoleptic Characteristics of the Albumin of Snakehead Fish (*Channa striata*) with the Addition of Bay and Basil Leaves

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ABSTRACT

Snakehead fish is a very rich source of albumin, an important type of protein that the human body needs every day. The source of snakehead fish albumin is very good for sufferers of hypoalbumin (low albumin) and healing post-operative wounds or burns. In rural areas, post-circumcision boys are always advised to consume this type of fish to heal faster, women after giving birth, and post-operative patients are advised to consume it to speed up wound healing. The organoleptic characteristics of snakehead fish albumin consist of color, aroma, taste and texture of snakehead fish albumin. The average organoleptic value of snakehead fish albumin color without treatment was 5.08 (neutral), with the treatment of adding basil leaves during albumin extraction it was 5.24 (neutral), the organoleptic value of albumin with the addition of bay leaves during albumin extraction was 5.2 (neutral) and the organoleptic value of albumin with the addition of basil leaves and bay leaves during albumin extraction is 6.8 (close to like). The average organoleptic value of snakehead fish albumin aroma without treatment was 4.68 (close to neutral), with the treatment of adding basil leaves during albumin extraction it was 6.44 (somewhat good), the organoleptic value of albumin aroma with the addition of bay leaves during albumin extraction of 5.2 (neutral) and the organoleptic value of albumin with the addition of basil leaves and bay leaves during albumin extraction was 4.15 (somewhat unfavorable). The more leaves you add, both basil leaves and bay leaves, the more the albumin aroma you get will increase. The average organoleptic value of the taste of snakehead fish albumin without treatment was 4 (somewhat disliked), with the treatment of adding basil leaves during albumin extraction it was 5.6 (close to somewhat liking), the organoleptic value of albumin with the addition of bay leaves during albumin extraction was equal to 5.44 (close to liking) and with the addition of basil leaves and bay leaves the texture organoleptic value was 6.64 (close to liking). The average organoleptic value of snakehead fish albumin texture without treatment was 5 (neutral), with the treatment of adding basil leaves during albumin extraction was 6.84 (close to liking), the organoleptic value of albumin with the addition of bay leaves during albumin extraction was 6.84 (close to like), with the addition of basil leaves and bay leaves, the texture organoleptic value is 6.2 (somewhat like).

Keywords: Organoleptic; albumin; characteristics; Channa Fish; Basil leaves; Bay leaves.

INTRODUCTION

Snakehead fish itself has compounds that are important for the body, such as protein and several minerals.¹ The protein content of snakehead fish reaches 25.5% compared to other fish proteins, snakehead fish albumin is quite high, reaching 6.22% and snakehead fish meat contains the mineral zinc at a level of 1.74 mg/100 grams.² According to research by Tawali *et al.*³ snakehead fish have a high albumin content, an important type of protein that the human body needs every day.

Albumin extraction is done by steaming and boiling. In extraction, albumin still has a rancid smell, which reduces the acceptance of albumin when consumed directly. Extracted albumin has many benefits for the health of the human body. Susilowati *et al.*⁴ stated that snakehead fish extract is a prospective alternative as a raw material for nutraceutical products. Albumin is the main protein in human plasma and makes up about 60% of the total plasma protein. The source of albumin that is widely used is Human Serum Albumin but the price is very expensive.⁵ In order for albumin extract to have bioactive activity, it needs to be made into albumin peptides using protease enzymes and other proteolytic enzymes. Prastari

*et al.*⁶ reported that snakehead fish protein peptides have antihyperglycemic potential.

In extracting albumin, bay leaves and basil leaves will be added to reduce the rancid smell which will increase the acceptance of this albumin product. Extraction which is carried out by steaming and boiling with the addition of bay leaves and basil will be chosen which is the best in terms of sensory acceptance using the hedonic test method. With the addition of bay leaves and basil leaves which contain phytochemicals which dissolve in albumin, it is hoped that the bioactive activity of albumin will increase. Albumin which is proven to have an impact on health (used for hypoalbumin sufferers, healing postoperative and burn wounds, for faster healing and for women after childbirth) so that it also has bioactive activity (antioxidant and anticancer) will be hydrolyzed using enzymes to obtain albumin peptides. Albumin and albumin peptides will be tested for bioactive activity, namely antioxidant and anticancer activity.

MATERIALS AND METHODS

Materials and tools

The main ingredients used in the research: snakehead fish. The equipment used includes a spectrophotometer and incubator

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Albumin Extraction

Extraction by steaming: cleaned snakehead fish meat is cut into ± 1 cm pieces. After that, the extraction process was carried out for 4 h by steaming the snakehead fish meat at 70 °C with the addition of bay and basil leaves. The snakehead fish extract obtained was then filtered using a 4-layer cloth and then the snakehead fish extract was pasteurized by heating 50 °C for 15 min. Finally, the snakehead fish extract is stored in the refrigerator until it is ready to be used.

Sensory Testing of Albumin Extracts and Albumin Peptides

Sensory testing is used to assess a product by using human senses as a means of receiving a product. The sensory test in this study used 25 semi-trained panelists. The parameters observed were color, taste, aroma and texture.

RESULTS AND DISCUSSION

Albumin Color

The organoleptic characteristics of albumin color with steam extraction with the addition of bay and basil leaves are in Figure 1.

The average organoleptic value of snakehead fish albumin color without treatment was 5.08 (neutral), with the treatment of adding basil leaves during albumin extraction it was 5.24 (neutral), the organoleptic value of albumin with the addition of bay leaves during albumin extraction was 5.2 (neutral) and the organoleptic value of albumin with the addition of basil leaves and bay leaves during albumin extraction is 6.8 (close

to like). With the use of basil and bay leaves, the organoleptic value increased from neutral to almost favorable. Basil leaves and bay leaves contain certain compounds which, if added during albumin extraction, will increase the level of preference for the albumin produced.

Aroma of Albumin

The organoleptic characteristics of albumin aroma using steam extraction with the addition of bay and basil leaves are in Figure 2.

The average organoleptic value of snakehead fish albumin aroma without treatment was 4.68 (close to neutral), with the treatment of adding basil leaves during albumin extraction it was 6.44 (somewhat good), the organoleptic value of albumin aroma with the addition of bay leaves during albumin extraction of 5.2 (neutral) and the organoleptic value of albumin with the addition of basil leaves and bay leaves during albumin extraction was 4.15 (somewhat unfavorable). By adding basil leaves, the albumin aroma is produced with good organoleptic value. This is because the basil plant contains contain eugenol as the main component.⁷

Albumin Taste

The organoleptic characteristics of albumin flavor with steam extraction with the addition of bay and basil leaves are in Figure 3.

The average organoleptic value of the taste of snakehead fish albumin without treatment was 4 (somewhat disliked), with the treatment of adding basil leaves during albumin extraction it was 5.6 (close to somewhat liking), the organoleptic value of albumin with the addition of bay leaves during albumin extraction was equal to 5.44 (close to

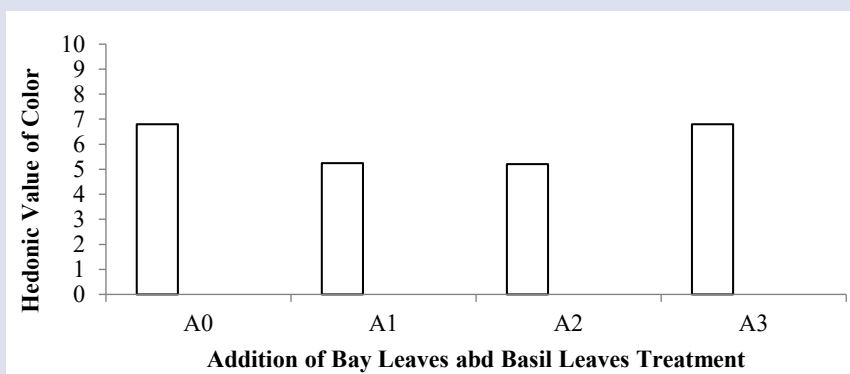


Figure 1. Organoleptic results of albumin color by steam extraction with the addition of bay and basil leaves (A0=without the addition of leaves, A1=addition of bay leaves, A2=addition of basil leaves and A3=addition of bay and basil leaves).

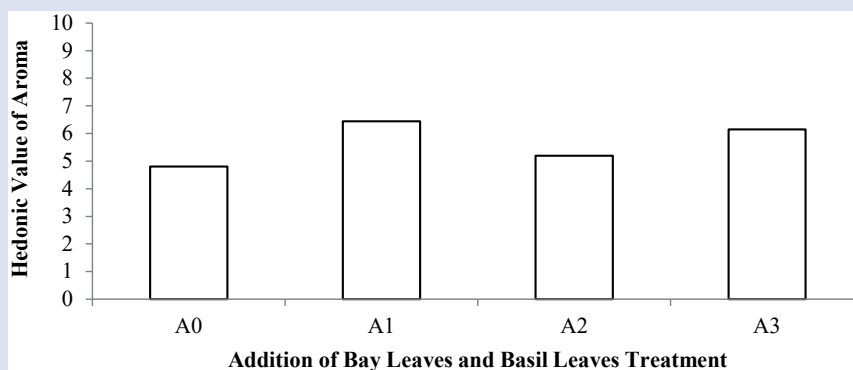


Figure 2. Organoleptic results of albumin aroma by steam extraction with the addition of bay and basil leaves (A0=without addition of leaves, A1=addition of bay leaves, A2=addition of basil leaves and A3=addition of bay and basil leaves).

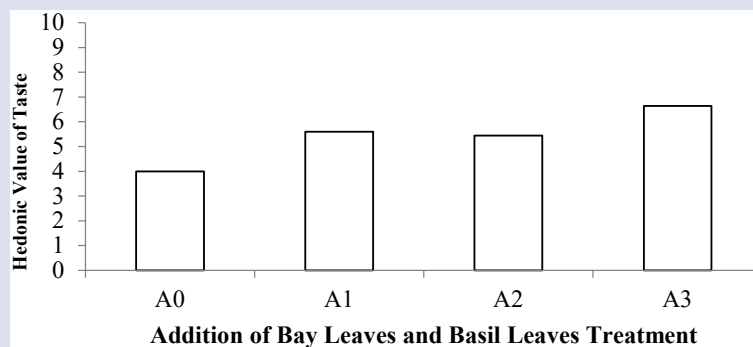


Figure 3. Organoleptic results of albumin flavor by steam extraction with the addition of bay and basil leaves (A0=without addition of leaves, A1=addition of bay leaves, A2=addition of basil leaves and A3=addition of bay and basil leaves).

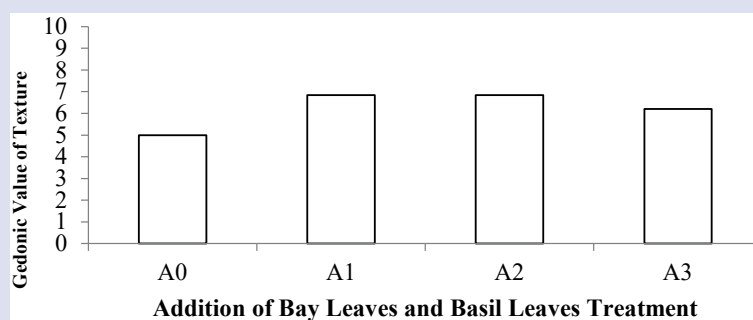


Figure 4. Organoleptic results of albumin texture by steaming extraction with the addition of bay and basil leaves (A0=without addition of leaves, A1=addition of bay leaves, A2=addition of basil leaves and A3=addition of bay and basil leaves).

liking) and with the addition of basil leaves and bay leaves the texture organoleptic value was 6.64 (close to liking). By adding leaves, both basil leaves and bay leaves, the organoleptic value increases. The highest organoleptic value was the addition of basil leaves with an organoleptic value of 5.6 (close to like), this is because basil leaves contain components including eugenol, arginine, enetol, boron, flavonoids and essential oils.⁸

The addition of bay leaves during extraction also increased the organoleptic value of taste compared to without treatment. This is because bay leaves are known to contain alkaloids, flavonoids, saponins, tannins, steroids, terpenoids, essential oils, citral, and eugenol.⁹

Albumin Texture

The organoleptic characteristics of albumin texture with steam extraction with the addition of bay and basil leaves are in Figure 4.

The average organoleptic value of snakehead fish albumin texture without treatment was 5 (neutral), with the treatment of adding basil leaves during albumin extraction was 6.84 (close to like), the organoleptic value of albumin with the addition of bay leaves during albumin extraction was 6.84 (close to like), with the addition of basil leaves and bay leaves, the texture organoleptic value is 6.2 (somewhat like). The increase in the organoleptic value of texture with the addition of leaves may be because the components of the leaves extracted during albumin extraction can increase the texture of the albumin produced.

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