



GSJ: Volume 10, Issue 5, May 2022, Online: ISSN 2320-9186
www.globalscientificjournal.com

Review article "TILAPIA FISH DENDENG Products"

By:

Junianto¹, M. Gufron Sugih² and Reza Salsabila²

**Staff Lecturers of the Department of Fisheries, Padjadjaran University,
Bandung-Indonesia**

**Students of The Bachelor of Fisheries Study Program, Padjadjaran University,
Bandung-Indonesia**

ABSTRACT

Tilapia fish is a processed fish product based on flat-shaped tilapia fish (slabs) made from sliced fish or whole fish seasoned and dried. This review article aims to get information about the stages of making tilapia jerky. Based on riview literature that the stages of making fish jerky consist of preparing fish, turning / turning and drying. Keywords : drying, reviewing, quality, seasoning, stages.

INTRODUCTION

Tilapia (*Oreochromis* sp.) is one type of freshwater fish that is widely cultivated in West Java – Indonesia and ranks second only to goldfish. The increase in tilapia production in West Java increased significantly from year to year.

The advantages of tilapia fish are that it has a specific taste, solid meat, easy to serve, does not have many thorns, is easy to get and the price is relatively cheap (Yans 2005). The characteristics of fishery products that are easily damaged and not durable cause the competitiveness of fishery products in the form of fresh fish less able to compete with substitute products on the market (Afief 2013).

One alternative way of processing that can be done is the manufacture of tilapia jerky. Jerky is a semi-wet food product that can be eaten and does not give a dry impression on the product. Some of the processed forms of fish jerky include butterfly-shape jerky, fillet jerky, milled jerky, and sayat jerky. Processing of butterfly-shape

jerky using tilapia fish that are relatively small because tilapia fish do not have many thorns and the texture of dried fish meat to the inside (Amri 2007).

Brown fish jerky is caused by the reaction of Maillard. Maillard reactions are also a source of aroma and flavor for food products. The Maillard reaction is a non-enzymatic browning reaction that occurs due to a reaction between reducing sugars and amino groups free of amino acids or proteins (Mauron 1981). The browning reaction in fish jerky is influenced by the addition of sugar. This review article aims to get information about the stages of making tilapia jerky.

Tilapia fish

Tilapia fish is a type of freshwater fish that has a fairly high consumption value. Tilapia fish come from the Nile river and surrounding lakes, and are currently spread across five continents with both tropical and subtropical climates. In cold climates, tilapia fish cannot live well (Central Sulawesi Regional KP Office, 2012).



Figure 1. Tilapia (Source: suhana.web.id)

According to Saanin (1984), tilapia (*Oreochromis niloticus*) has the following classification:

Kingdom: Animalia

Phylum : Chordata

Class : Osteichthyes

Order : Percomorphi

Famili : Cichlidae

Genus : Oreochromis

Species : Oreochromis niloticus

Morphology of tilapia fish (*Oreochromis niloticus*) according to Saanin (1984), has a flat round body shape, on the body and tail fins (caudal fin) found straight lines. On the dorsal fins of tilapia fish are found elongated straight lines. Tilapia fish can live in fresh water by using the tail to move. Indigo has five fins, namely the dorsal fin, the pectoral fin (pectoral fin) the abdominal fin (ventral fin), the fin (anal fin), and the tail fin (caudal fin). Its dorsal fin extends from the top of the gill cap to the top of the tail fin. There is also a pair of pectoral fins and a small abdominal fin and a rather long shaped fin.

Fish jerky

Fish jerky is one form of processed meat preservation traditionally and has been widely done by the people of Indonesia since long ago. According to SNI 01-2908-2006 (National Standardization Agency, 2006), fish jerky is a slab-shaped food product made from slices or grinds of fresh fish meat that has been seasoned and dried. Fish jerky has a distinctive taste, namely a slightly sour sweet and dark color due to its high sugar content. The combination of sugar, salt, and seasonings gives rise to a distinctive odor in the final product (Purnomo, 1996). Tilapia jerky is a processed fish product based on flat-shaped tilapia fish (slabs) made from sliced fish or whole fish that are seasoned and dried. Jerky water content between 15 to 50%, plastic and does not feel dry. Tilapia jerky is usually fried for its presentation.(Salamah & Jamilatun, 2017).



Figure 2. Tilapia Jerky (Source: <https://perikanan38.com>)

Techniques and ingredients for making jerky sangat easy, jerky products are traditional products of fish yang processed raw dan seasoning kemudian dried dengan sunlight atau oven dengan temperature 60oC. Ada 2 kinds of jerky products: jerky sayat dan jerky meat lumat fish. The ingredients used for the manufacture of tilapia jam jerky are sugar, kitchen salt, onions, garlic, coriander, acid, galangal and brown sugar. The composition of raw materials and the mixing of spices in the processing of jerky products will affect the quality of the jerky produced. The procedure for processing Tilapia fish jerky, which was modified from (Eko, Nurcahaya et al., 2008) is as follows:

- a. Choose fresh Tilapia fish then weeded and cleaned of scales and fins then tilapia fish cut to a length of 3 cm x width 2 cm x thickness 0.5 cm. Furthermore, washing with clean water is carried out to clean the fish from Tilapia fish droppings ready to be treated.
- b. Puree the seasoning in the form of brown sugar according to treatment (bb), salt 4% (bb), laos 5% (bb), coriander 5% (bb), shallots 2% (bb), garlic 2% (bb) and acid 4% (bb).
- c. Mix all the seasonings and stir until evenly distributed then apply the seasoning on the tilapia meat pieces for \pm 2 hours. Dry the seasoning seasoning jerky in the oven at 600C for 20–30 minutes, the dried jerky is then lifted and cooled.

Quality of Fish Jerky Products According to Standards (SNI / Others)

Chemical Characteristics

1. Water Content

Water Content Is a certain amount of water contained in foodstuffs that are physically and chemically bound and are an important component in foodstuffs. The moisture content in foodstuffs helps determine the receivability, freshness, and durability of the material against damage (Winarno, 1997). The average water content value of Tilapia fish jerky ranges from 10.45% to 11.32%. Based on SNI-2908-2013 the maximum jerky water content is 12%, because there are no quality requirements for fish jerky, then as a reference used beef jerky quality requirements. The water content of tilapia fillet jerky has been in accordance with the standard of 10.45%.

2. Ash levels

Ash levels are not always equivalent with mineral materials, due to the presence of some minerals lost during volatilization or interaction between constituents (Sulaiman et al., 1995). The average value of tilapia jerky ash content ranges from 3.17%-4.32%. The level of jerky ash fillet tilapia has qualified SNI. Because there is no quality standard of fish jerky, then as a comparison data for the quality value of fish jerky using beef jerky quality criteria. According to the Indonesian National Standard (2013), the quality requirement for jerky ash content is a maximum of 5%.

3. Fat Content

Fat Content is one of the groups of organic compounds contained in plants, animals and humans that are very useful for human life. The average fat content value of Tilapia fish jerky ranges from 2.18% to 2.36%. According to the Indonesian National Standard (2013), the quality requirement for jerky fat content is a maximum of 3%.

4. Protein

Protein is a food substance that is very important in the body for every living cell. In addition to functioning as fuel in the body also serves as a building and regulatory substance (Winarno, 1997). Based on the jerky quality standard of SNI 2908: 2013, the minimum protein level in jerky is 18%. Protein levels in tilapia jerky are in accordance with jerky quality standards because they are higher than the minimum limit, which is 39.48-41.94%.

Sensory Characteristics

1. Sightings

The first characteristic that consumers assess a product is the appearance, before knowing or liking the other organoleptic quality properties even though it does not determine the absolute level of consumer favorability. Products with neat, good, intact shapes are definitely preferred by consumers compared to products that are less neat and not intact (Soekarto, 1990). Based on hedonic tests, it is known that the level of reception of panelists to the appearance of tilapia jerky produces an average fish sighting value ranging from 3.68 to 4.00, meaning that it ranges from like to very preferred.

2. Aroma

Aroma is a volatile substance released from products in the mouth, aroma is often referred to as the smell of foodstuffs, and one of the factors that determine a food can be accepted by consumers is aroma. The aroma of food is also largely determined by the delicacy of these foods (Winarno, 1997). Based on the results of hedonic tests, it is known that the reception rate of panelists to the smell of Tilapia jerky produces an average value of tilapia jerky aroma ranging from 3.44 to 4.00. The meaning ranges from likes to highly liked.

3. Color

Color is important for the appearance of food products. Color is the result of the response received by the eye from physical stimuli in the form of light related to the sense of sight (Soekarto and Hubeies, 2000). The results of hedonic tests on the color of Tilapia fish jerky showed that the average value of the favorability level ranged from 3.32 (likes) to 3.92 (very likes)

4. Taste

Taste is something accepted by the tongue. In sensing divided four main tastes, namely sweet, bitter, sour and salty and there is an additional response when made modifications (Kustyatiah and Nurjannah, 2005). The results of hedonic tests on the taste of Tilapia fish jerky showed that the average value of the favorability level ranged from 3.20 (likes) to 4.00 (highly preferred).

Total Mikrob

Based on jerky quality standard SNI 2908:2013, the maximum limit of total microbes in jerky is 1×10^5 colonies/gram. The total microbes in tilapia jerky ranging from 1×10^4 - 1.2×10^4 colonies / gram are in accordance with jerky quality standards because they are lower than the maximum limit of jerky quality requirements. The low total microbes indicate a lack of contamination during the manufacturing process and also good quality of raw materials.

Market segmentation of tilapia jerky

Market segmentation of tilapia jerky is based on age and occupation. Vulnerable age that is the target of products ranges from 12-50 years, because tilapia jerky is used as a side dish that is eaten as a friend of rice. Based on the type of work, the target market of this tilapia jerky is housewives and career women who need ready meals.

The promotion of tilapia jerky is now done through facebook and the distribution of brochures. Product promotion to be better recognized by consumers can be done by using digital trade transactions known as e-commerce that have been widely used in promotions, such as Shoppe, Tokopedia, Buka Lapak, Lazada and others. In addition, the use of social media such as WhatsApp, Instagram and Tiktok can help promote products online because considering the start of the people who use the social media application.

Marketing of tilapia jerky products is carried out in marketing places such as kiosks, shops, markets and minimarkets. Marketing carried out directly in a place of sale that is visited by many people has its own advantages and advantages. The advantages of marketing include the quality and quality of the product is guaranteed because the product can be seen clearly and the price of the product is cheaper than online which spends funds for postage. While the shortcomings of the marketing is that product promotion is not widely spread so that only some people know the sale of tilapia jerky products.

Conclusion

Tilapia jerky is a processed fish product based on flat-shaped tilapia fish (slabs) made from sliced fish or whole fish that are seasoned and dried. The stages of making fish consist of preparing fish, turning / turning and drying.

BIBLIOGRAPHY

- Badan Standar Nasional (BSN). 2006. SNI 2908:2013. Dendeng Sapi. BSN. Jakarta.
- Badan Standar Nasional (BSN). 2006. SNI 01-23323-2006. Pengujian Mikroba. BSN. Jakarta.
- Badan Standar Nasional (BSN). 2006. SNI No. 01-2354.4-2006. Prosedur Pengujian Kadar Protein. BSN. Jakarta.

- Bailey, M.E. 1998. *Maillard Reaction and Meat Flavour Development*. Dalam: F. Shahidi (Ed), *Flavour or Meat Product and Seafood Second Edition*. Blackie Academic and Profesional. New York
- Dewi, E. N., dan Ibrahim, R. 2006. Pengaruh Jenis Gula Pada Proses Pengolahan Dendeng Ikan Nila Merah Terhadap Mutu. *Jurnal Saintek Perikanan*; Volume 2(1): 59-66.
- Farreli. K. T. 1990. *Spices, Condiment, and Seasoning Second Edition*. Van Nostrand Rein Hold. New York.
- Frans, S. K., Annytha, I., Detha R., dan Tangkonda, E. 2016. Pengaruh Pemberian Konsentrasi Gula Lontar Pada Dendeng Ikan Tembang (*Sardinella fimbriata*) Terhadap Lama Simpan Berdasarkan Kadar Air, Nilai Organoleptik dan Total Cemar Mikroba. *Jurnal Kajian Veteriner*; Volume 4(2): 28-39.
- Gaman, P. M. Dan K. B. Sherington. 1992. *Ilmu Pangan : Pengantar Ilmu Pangan Nutrisi dan Mikrobiologi. Terjemahan : M. Gardjito, S. Naruki, A. Murdiati dan Sardjono*. Gadjah Mada University Press. Yogyakarta
- Hadiwiyoto, S. 1994. Studi Pengolahan Dendeng dengan Oven Pengereng Rumah Tangga. *Buletin Peternakan*. 18:119-126.
- Heriansyah. 2010. *“Nutritional aspects of food processing and ingredient”*, An Aspen Publication. Jakarta: Gramedia.
- Maisyaroh, U., Kurniawati,N., Iskandar dan Pratama, R. I.. 2018. Pengaruh penggunaan Jenis Gula dan Konsentrasi yang Berbeda Terhadap Tingkat Kesukaan Dendeng Ikan Nila. *Jurnal Perikanan dan Kelautan*; Volume 9 (2): 138-146.
- Muchtadi, T.R, dan Sugiyono. 1992. Ilmu Pengetahuan Bahan Pangan. Petunjuk Laboratorium. Departemen Pendidikan dan Kebudayaan. Dirjen Dikti. *Pusat Antar Universitas Pangan dan Gizi*. IPB. Bogor.
- Nazlia. 2019. *Pengetahuan dan Karakteristik Bahan Baku*. Bogor: Institut Pertanian Bogor Press.

- Nugraha, B. F., Sumardianto., S, Suharto., F, Swastawati., dan R. A Kurniasih. 2021. Analisis Kualitas Dendeng Ikan Nila (*Oreochromis niloticus*) Dengan Penambahan Berbagai Jenis dan Konsentrasi Gula. *Jurnal Ilmu dan Teknologi Perikanan*; Volume 3 (2): 1-11.
- Palungkun, R. dan Budhiarti. 1995. Bawang Putih Dataran Rendah. *Penebar Swadaya*. Jakarta.
- Purnomo, H. 1996. *Dasar-dasar Pengolahan dan Pengawetan Daging*. Jakarta: Grasindo.
- Purnomo, H. 1996. *Dasar-dasar Pengolahan dan Pengawetan Daging*. PT Grasindo. Jakarta.
- Putra., dan Nengah I. K. 2016. Upaya memperbaiki warna gula semut dengan pemberian na-metabisulfit. *Jurnal Aplikasi Teknologi Pangan*; Volume 5 (1): 1-5.
- Putra., dan Nengah I. K. 2016. Upaya Memperbaiki Warna Gula Semut Dengan Pemberian Nametabisulfit. *Jurnal Aplikasi Teknologi Pangan*; Volume 5(1): 1-5.
- Rahayu. 1992. *Rempah-rempah: Komoditi Ekspor Indonesia*. Bandung: Penerbit Sinar Baru.
- Ramadayanti, R. A., Swastawati, F., dan Suharto, S. 2019. Profil Asam Amino Dendeng Giling Ikan Lele Dumbo (*Clarias gariepinus*) Dengan Penambahan Konsentrasi Asap Cair yang Berbeda. *Jurnal Saintek Perikanan*; Volume 14 (2): 136-140.
- Soeparno. 1994. *Ilmu dan Teknologi Daging*. Gadjah Mada University. Yogyakarta.
- Winarno, F. G. 2004. *Kimia Pangan dan Gizi*. Jakarta: Gramedia Pustaka Utama, 251 hal.
- Winarno, F.G, S. Fardiaz, dan D. Fardiaz. 1994. *Pengantar Teknologi Pangan*. PT Gramedia. Jakarta.