



THE
UNIQUENESS OF

ASEAN FOOD

Edited by:
Winiati P Rahayu
Lee Kim Lian

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VIETNAM

**(VIETNAM ASSOCIATION OF FOOD SCIENCE
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FOREWORD

A trend toward an increase in consumption and development of indigenous food products in South East Asia has been proof that these products are attractive and liked during the past 10 years. For example, tempe which is unique and originally from Indonesia has been known all over the world. In the last decade, tempe product consumption and export has increased significantly. This shows that traditional food has high potential and economic value to be scaled-up. Likewise, every country in ASEAN has many kinds of unique indigenous or traditional food.

The intent of writing this book is to provide information and a reference for those who are interested in indigenous ASEAN Foods. The publication of this book will be highly valuable in making ASEAN countries become more united.

To make the book complete, every FIFSTA member has been proposed to publish their topics on unique food. Finally, I would like to thank the authors, contributors, editors and especially to Prof. Dr. Rindit Pambayun and Prof. Dr. Winiati P. Rahayu from the Indonesian Association of Food Technologists (IAFT) who have initiated writing *The Uniqueness of ASEAN Foods*.

Jakarta, July 2019

President of FIFSTA,
Prof. Dr. Umar Santoso

PREFACE

The works of people through a very long time from the beginning of civilization to the present have created cultures. It is a common knowledge that all countries in South East Asia are so rich in terms of cultures, especially food, both for the processed and culinary food. People from different areas creatively make food as fundamental need of human being. With the help of the development of technology hundreds of indigenous foods were born in South East Asia. These foods are unique because each has its appealing points that stand out from the others.

Although there are some similarities between foods from each South East Asia country, each food has special uniqueness. This may vary from sensory value, appearance, technology or even the nutritional properties. With their special recipes and technologies, these food offer different kind of sweet, salty, and bitter taste. Additionally, different types of processing technic create signature flavor to each. As a culture these foods also have history and special value for the people. For instance, some foods have become a part of cultural ceremony or a must have food for special occasions. Indigenous food thus is a very fascinating topic to discuss.

Technology plays a big role in food development. A lot of technologies and techniques are used during the preparation of the food, from preparing the raw material to serving the food. People use them to produce high quality food. They are looking for higher sensory and nutritional properties. Additionally, some techniques are used to maintain product safety and/or extend shelf life. The most common technology used in the main processing is fermentation technology.

Fermentation technology is widely used and all countries in South East Asia have their own fermented products. Fermentation as a valuable asset in food technology has been inherited through the generations. It succeeds in increasing the quality of food product. The sensory value, digestibility,

functional and other properties of food increased significantly due to the use of this technology. Several of raw material and starters are used in South East Asia indigenous fermented food.

The uniqueness of indigenous foods in ASEAN should be explored because it is too valuable to be kept for merely a small group of people. This book is intended to introduce indigenous foods from South East Asia countries to the world. Knowledge of the indigenous food will open the opportunities for further development both in terms of food science and technology and culture, especially culinary techniques. It can also developed into business opportunities since only few products have been produced on industry scale and exported to other countries.

This book gives all information related to the foods including description, raw material, technology and production process, nutritional properties, and serving and consuming method. In addition, this book includes pictures of the products. Flow chart and diagram of the food processing is also included to illustrate more clearly how the food is made. The discussion of each of the foods was made not too long yet covers the important points of each discussion, so that readers can understand well.

Within this book, six countries already joined to present their indigenous foods. Contributors from Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam discuss at least four topics of indigenous food from each of the countries. In the next volume, food technologists from all South East Asia countries should join to create a more complete discussion of indigenous food from South East Asia Countries.

Bogor, August 2019

Chief Editor

Prof. Dr. Winiati P Rahayu

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BEKASAM

ARDIANYAH AND AGUS WIJAYA

(THE INDONESIAN ASSOCIATION OF FOOD TECHNOLOGISTS)

DESCRIPTION AND UNIQUENESS

Bekasam or *bekasem* is a traditional, indigenous fermented fish food that originated from South Sumatra Province (Indonesia), particularly from Ogan Ilir, Ogan Komering Ilir and Ogan Komering Ulu districts. In the other part of Indonesia, such as Kalimantan especially in Melayu ethnic, *bekasam* is also well known as one of indigenous fermented product made from fish water. In ASEAN country, it is called *pekasam* (Malaysia) and *burong isda* (Philippines), while in Japan, it is called *funazushi*. A specific characteristic of *bekasem* processing is the addition of cooked rice, roasted rice, or fermented rice as a source of carbon (energy) for the growth of the preferred bacteria. The spontaneous, anaerobic fermentation takes place for one week to one month at room temperature. *Bekasam* has following characteristics: good nutrition content, typical and pleasant flavour and taste and safe for consumption. Lactic acid bacteria (LAB) plays a major role in the fermentation. On the other side, yeast plays a minor role. According to Wijaya *et al.* (2008), the dominant genera of LAB were *Lactobacillus*, *Streptococcus*, *Pediococcus*, *Enterococcus* and *Tetragenococcus*.

RAW MATERIALS AND ALTERNATIVES

The main raw material is fresh water fishes such as *seluang*, goldfish and *sepat*. Some other freshwater fish are suitable raw material, such as catfish (*Clarias batracus*), java barb (*Puntius javanicus*), tilapia (*Oreochromis*

mustard), spiced ground (*Trichogramma reuterianum*) (Murtini et al. 1997) and milk fish (*Chanos chanos*) (Chaudhri 2006). The other materials for *bekasam* are cooked rice and salt. Shrimps are also used instead of fish. An alternative for carbon and energy source, coconut sugar could also be used.

PRODUCTION PROCESS

Fermentation process for *bekasam* is prepared traditionally. The bones, scales and belly content are removed before the fish is cleaned with water. Cooked rice and salt are added to the fish and mixed thoroughly. Glass container with tight cap functioned as fermentation vessel. Fermentation took place for one week up to one month in anaerobic condition. *Bekasam* is produced at household scale and sold at traditional markets. The production process is shown in Figure I.1. As a result of bacterial fermentation especially LAB, *bekasam* has a lower pH, range from 4.46–4.98 (Putro 1993). The effect of soaking in brine solution is the increase in the salt content of *bekasam* to 6%–17% (wb) (Huda 2012).

HOW TO CONSUME

Bekasam needs to be washed in order to remove the remaining rice and salt as further processing before consumption. The following condiments, including red chili, red onion and green chilly are then fried with a little oil till the distinctive aroma developed. After that, the fish is added and mixed with the seasonings for about 15–20 minutes.

NUTRITION FACTS

The chemical/nutrition composition of *bekasam* according to Murtini (1992) and Putro (1993) is shown in Table I.1.

Table 1.1. Chemical composition of *bekasam*

Parameters	Murtini (1992)	Purris (1993)
Moisture (%)	66.95	55-66
Protein (% db)	45.23	41-64
Fat (% db)	17.31	11-23
Ash (% db)	17.42	13-28
Salt (% wb)	15.55	6-17
pH	-	4.46-4.98

Note. db; dry basis, wb; wet bulb.

Indigenous LABs during fermentation of *bekasam* such as *Lactobacillus plantarum*, *L. pentosus*, and *Pediococcus pentosaceus*) have high proteolytic activity including the production of bioactive peptide that has capacity to inhibit Angiotensin I Converting Enzyme (ACE)-the enzyme that contribute to increase in blood pressure (Wikandari 2011).

PRODUCT DEVELOPMENT

The concentration of added salt and cooked rice varied from one area to another depending on how *bekasam* is produced. Consequently, *bekasam* quality is never uniform and varied greatly. Standardization of *bekasam* production process, including raw materials, is needed to ensure uniform quality. Standard *bekasam* will have consistent nutritional composition and sensory properties. *Bekasam* product should be free from rice residue and packed properly to provide attractive appearance and longer shelf life. To enhance the quality of *bekasam*, the liquid of cabbage and Chinese leaf pickles can be added (Murtini *et al.* 1997). The addition of the pickled liquid result in significant increase in the number of LABs, aerobic and anaerobic bacteria counts, yeast counts, pH value, total volatile acid and fat content. The sensory evaluation in this study showed that panellists still accepted the product after 8 weeks of storage. In the future, fermented foods will become more important in our diet in the maintenance of our intestinal

micro flora population that plays in health and diseases prevention. More fermented food will become available in the market place, many directed towards consumer's needs.

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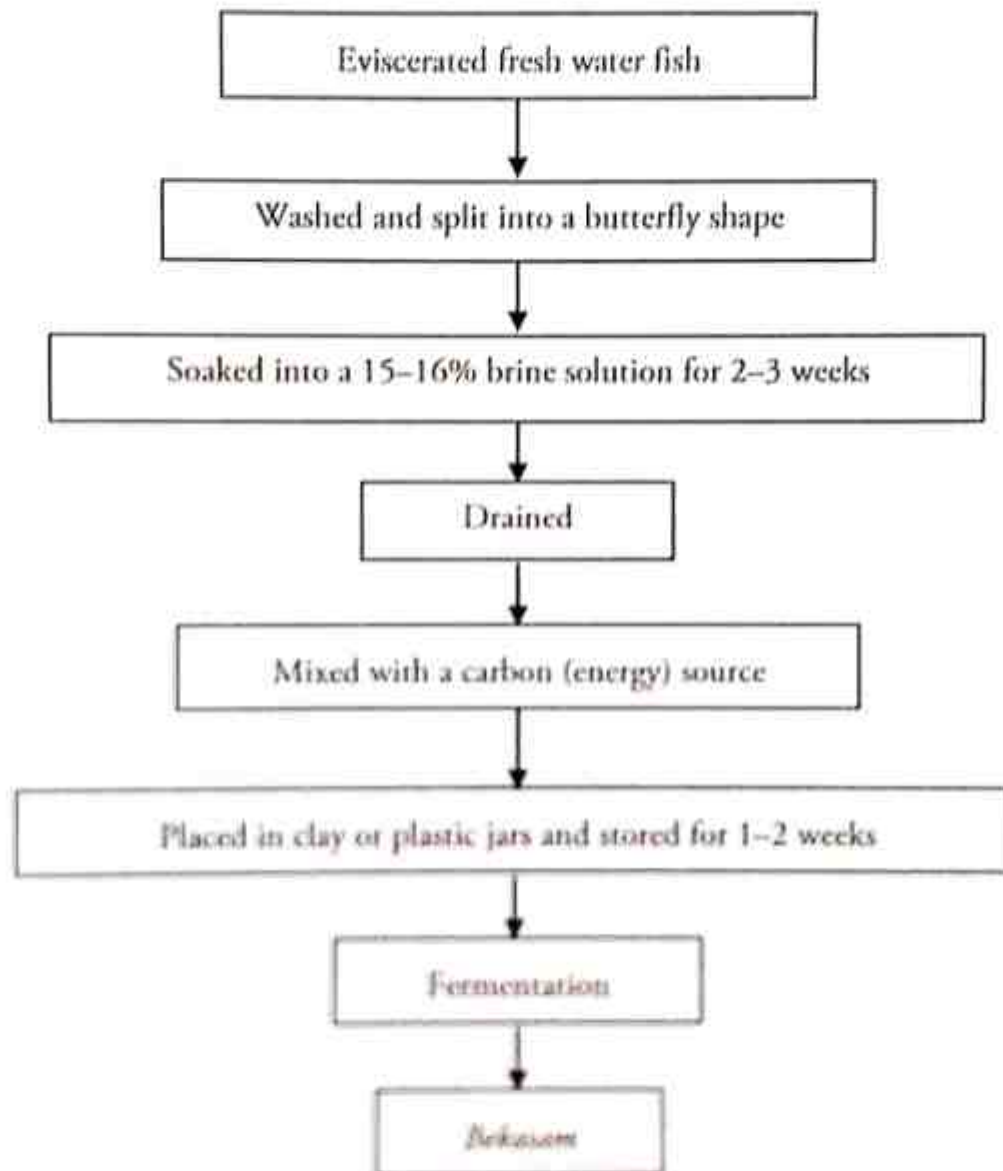


Figure 1.1. Flow chart of bekasam processing (Huda 2012)



Figure 1.2. Raw *bekasam*
(Source: bukalapak.com)



Figure 1.3. Cooked *bekasam*
(Source: cookpad.com)

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