



THE
UNIQUENESS OF

ASEAN FOOD

Edited by:
Winiati P Rahayu
Lee Kim Lian

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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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RENDANG

ARDIANSYAH DAN WINIATI P. RAHAYU

(THE INDONESIAN ASSOCIATION OF FOOD TECHNOLOGISTS)

DESCRIPTION AND UNIQUENESS

Rendang or *Minangkabau rendang* is a traditional food originating from Minangkabau-West Sumatra. *Rendang* is commonly made of beef (especially tenderloin) with special sauce containing a high amount of coconut milk and other spices. In the past, Minangkabau people prepared *rendang* in order to extend the shelf life of the beef and make it be able to be stored during long journeys. *Rendang* has longer shelf life due to heat processing and additional of several spices used during the process. Nowadays, *rendang* is known worldwide not only in Indonesia but also in Malay ethnic (such as Malaysia, Singapore, Brunei Darussalam) and other countries. CNN reported in 2011, *rendang* took the top position on the list as the most delicious food in the world. *Rendang* is characterized by dry texture and strong fragrant aroma due to low temperature and long-time cooking process, which results in dark brownish appearance.

RAW MATERIALS AND ALTERNATIVES

The main ingredients of *Rendang* are beef, coconut milk, and spices. Spices and herbs which are commonly used to make *rendang* are garlic, onion, red chilies, turmeric, ginger, pepper, lemongrass, galangal, star anise, lime leaves, bay leaves, turmeric leaves, and *asam kandis* (*Garcinia xanthochymus*) (Nurmufida *et al.* 2017). The addition of salt and sugar to enhance flavour during the heating process is also a common practice. The most important

thing that should be considered is the quality of beef. Freshness of beef will affect on the delicacy of *rendang*. According to Nurmufida *et al.* (2017), the main ingredient of *Minangkabau rendang* was beef because of its abundance in West Sumatra. However, people could nowadays find *rendang* with different kinds of meat, including chicken.

PRODUCTION PROCESS

The cooking process of *Rendang* takes around 6 to 7 hours at temperature around 80–93°C (Rini *et al.* 2016). The production process is shown in Figure I.15. All of the spices are ground except galangal and leaves and all mixed together with coconut milk and then heated in 90–93°C (1.5 hours) until the sauce is thick. The next step is to mix the meat into the sauce and keep in the same temperature around 90–93°C for another 1.5 hours until the sauce thicken and the colour change brown-named *kalio*. Then, the process is continued with slightly lower temperature (80–83°C) for 2 hours until the product dry and the colour change to dark brown or black-named *rendang*. While cooking, the product needs to be steered regularly to protect it from browning. The maillard reaction is the critical during the process that will be affecting on the quality of *rendang*. The maillard process will cause the unexpected favour, aroma, colour, texture, and it will lower its nutrition composition. The optimization heating process should be considered to produce *rendang* in good sensory and nutrition quality. There are 3 types of product based on the cooking processes which was differentiated by its water content and colours. There are (1) *gulai* (cooked until the sauce became thin and yellowish), (2) *kalio* (cooked until the sauce was thick brown colour) and (3) *rendang* (cooked until the sauce was thick and dry and dark brown colour) (Figure I.16).

HOW TO CONSUME

Traditionally, *rendang* is served during special occasions to honour guests and during festive seasons (such as the Muslim festival of Eid), but recently we can easily found *rendang* in the restaurant. *Rendang* can be served with other dishes such as *gulai*, *sayur rebung* (stem bamboo soup), fried fish, *sayur nangka* (young jackfruit vegetable), etc. (Nurmufida *et al.* 2017).

NUTRITION FACTS

As a consequence of relatively long period of cooking time and with various additional ingredients, the composition of *rendang* is slightly lower when compared to fresh meat and *kalio* in terms of water, protein, and carbohydrate and slightly higher in terms of fat and ash content. The composition of *rendang* according to Rini *et al.* (2016) is shown in Table I.3.

Table I.3. Chemical composition of *rendang*

Parameters	Fresh meat	<i>Kalio</i>	<i>Rendang</i>
Moisture (db %)	72.75	46.43	29.87
Protein (% db)	81.15	62.93	59.67
Fat (% db)	3.46	16.35	21.10
Ash (% db)	4.22	4.63	5.13
Carbohydrate (by different)	11.17	16.09	14.10

Note. db; dry basis

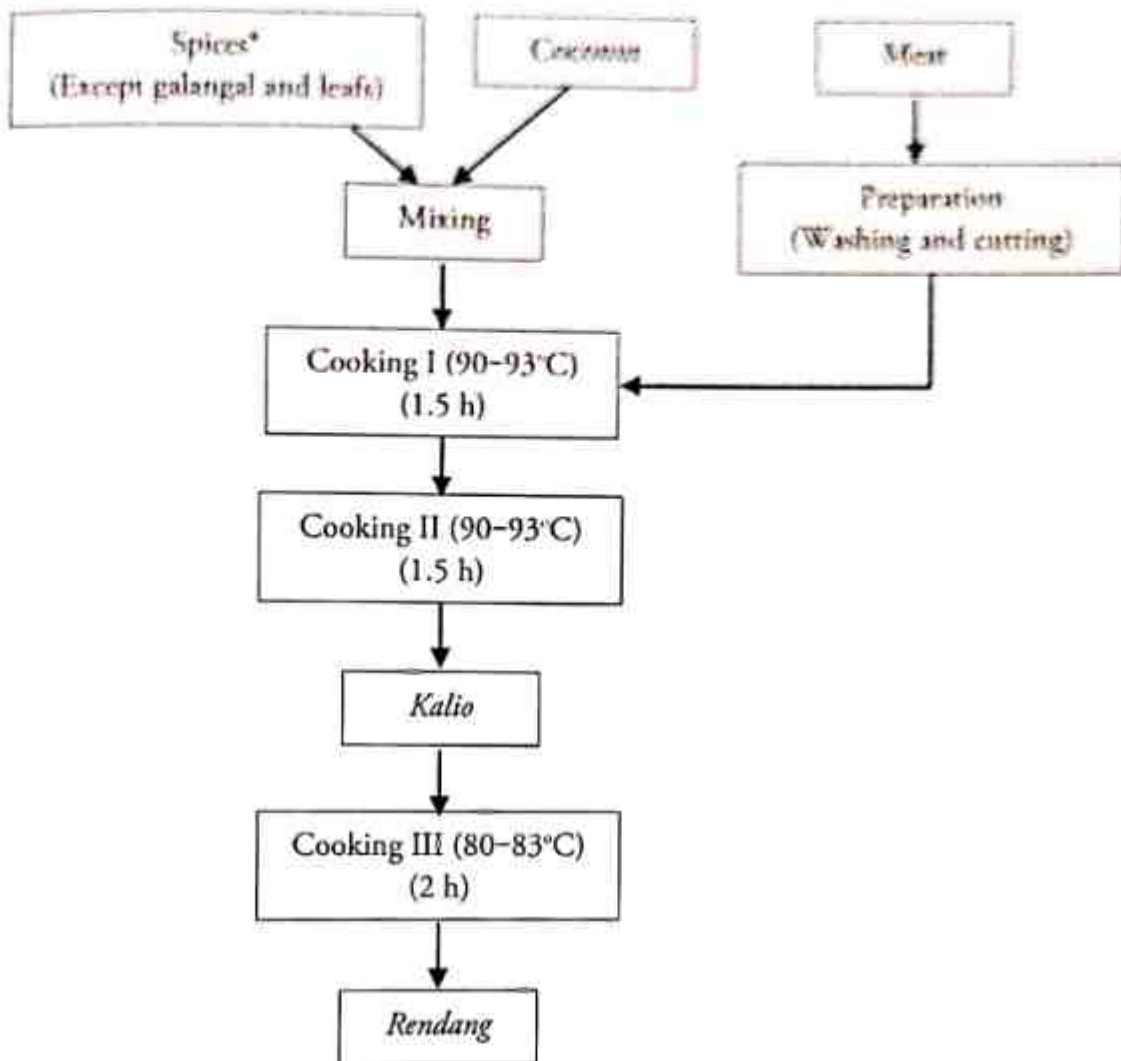
Rini *et al.* (2016) further reported that the concentration of all amino acid decrease from fresh to *kalio* and *rendang* meat, but some of them are a bit stable after the heating process such as leucine, proline, glutamine and histidine. The most unstable amino acid is tyrosine, phenylalanine and tryptophan. To conclude, the decrease from fresh meat to *kalio* is around 6.31% and from *kalio* to *rendang* is around 6.20%.

PRODUCT DEVELOPMENT

The production of *rendang* in Indonesia has mostly been carried out by small and medium-sized enterprises (SMEs). To increase the market share, SMEs should be given assistance such as developing human resources, helping to provide more advanced technology equipment, and developing marketing programs. In-terms of the development of equipment technology, SMEs may wish to enhance product diversification, for example they may use vacuum packaging and canning technology (Figure I.17) to improve the quality of packaging. A combination of refrigeration (on average at 5-7°C) and vacuum packaging would enhance shelf-life of *rendang* up to six months to one year.

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- Rini, Azima F, Sayuti K, Novelina. 2016. The Evaluation of Nutritional Value of Rendang Minangkabau. *Agriculture and Agricultural Science Procedia*. 9: 335-341.



*Red chili, onion, garlic, ginger, galangal, coriander, nutmeg, clove, white pepper, caraway, cardamom, lemon grass, turmeric leaf, lime leaf, and bay leaf

Figure I.15. Flow chart of *rendang* processing (modified from Rini *et al.* 2016)

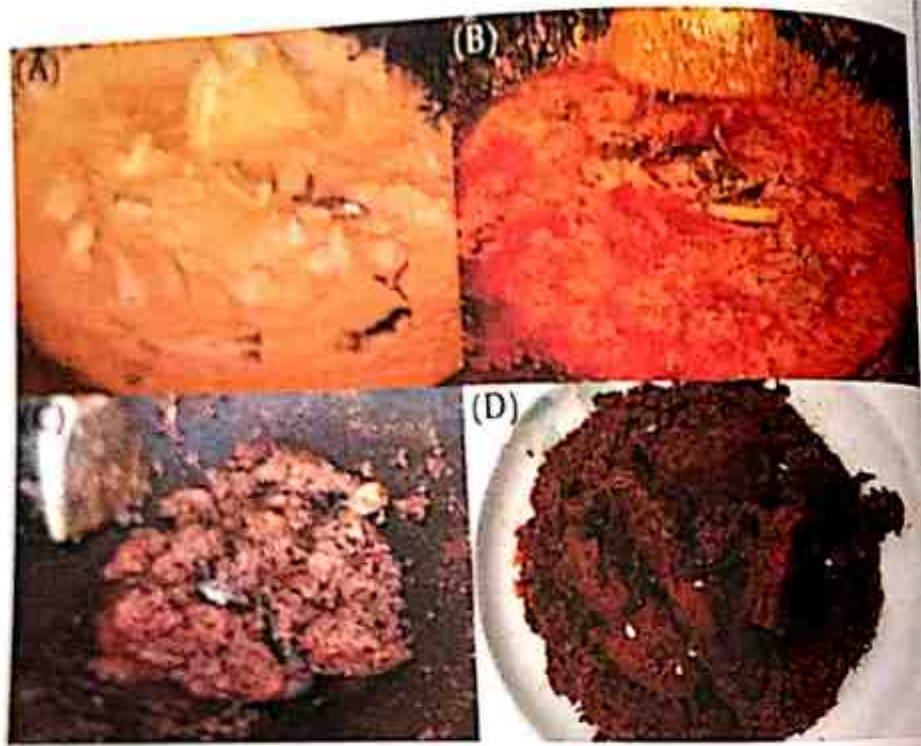


Figure 1.16. (A) The first stage of *rendang* processing with lots of liquid. (B) The second step at, which *rendang* is becoming drier with small amount of liquid (*kalio*). (C) The condition which the liquid is almost gone. (D) The final product of *rendang* (Nurmufida *et al.* 2017)



Figure 1.17. The example of product development of *rendang*. (A) Canning technology and (B) Vacuum packaging

CONTRIBUTOR PROFILE

EDITOR

WINIATI P RAHAYU (IAFT ADVISOR)



Winiati P. Rahayu, obtained her PhD in Food Science from IPB University in 1999 and she was appointed as a Professor in 2003. Since 1985–now she has been working in the Department of Food Science and Technology, Faculty of Agricultural Engineering and Technology, IPB University as well as researcher in the Southeast Asian Food and Agricultural Science and Technology/SEAFAST Center. She has experienced as a consultant to food industries and a facilitators in a variety of food safety training. More than 200 titles of scientific publications have been successfully published. She was the Vice President of Indonesian Association of Food Technologist for Scientific and External Affairs 2012–2018. Now she is an advisory board member of IAFT. (wini_a@hotmail.com).

LEE KIM LIAN (SIFST ADVISOR)



Lee Kim Lian is honorary advisor and fellow of Singapore Institute of Food Science & Technology (SIFST). Dr Lee has previously hold multiple roles at SIFST Council before she became the President of SIFST in the 90s. She was the course chair of the Diploma in Food Science & Technology program at Singapore Polytechnic for more than 20 years. Dr Lee was also a member of the Food Standard Committee and has written several Singapore Standards during her terms as the committee member.

AUTHOR INDONESIA



Ardiansyah, obtained his PhD in Agricultural Science from Tohoku University, Sendai, Japan in 2007. His career started as Lecturer at Department of Food Technology, Universitas Bakrie since 2012 up to now. He is appointed as secretary general of IAFT (2014–now) and ISFFN (P3FNI) (2015–now). He also active as Journal Editors in Journal of Food Technology and Industry, Food and Nutrition Journal, Hayati Journal of Biosciences, and Current Research in Nutrition and Food Science.



Agus Wijaya, obtained his doctoral degree in Food Microbiology from Karlsruhe Institut fuer Technologie, Karlsruhe, Germany in 2003. Since 1993–now he has been working at Agricultural Product Processing Technology, Department of Agricultural Technology, Faculty of Agriculture, Sriwijaya University. He has experience as KAN (Indonesian National Accreditation Commission) assessor since 2013. Almost 50 titles of scientific international and national publication has been published. Since 2008 he is President of IAFT for South Sumatera Chapter.



Anton Rahmadi, a lecturer in Agricultural Products Technology, University of Mulawarman. His PhD is from Dept. of Pharmacology, School of Medicine, University of Western Sydney, Australia, while his Master degree is from Dept of Food Science and Technology, School of Chemical Engineering, University of New South Wales, Australia. He is a Dikti scholar and an AusAid Alumni. He can be contacted by email: arahmadi@unmul.ac.id or antonrahmadi@gmail.com or by phone: +62 812 550 2073.



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