

2nd International Symposium on Aquatic Products Processing and Health  
ISAPPROSH 2015

## Physical, Chemical, and Microbiological Properties of “*Ronto*” a Traditional Fermented Shrimp from South Borneo, Indonesia

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### Abstract

*Ronto* is a traditional fermented shrimp paste from South Borneo. It is made of shrimp (*Acetes* sp.) mixed with salt and rice boiled then fermented in closed bottle anaerobic condition. This research is aimed to determine the physical, chemical, and microbiological properties of *ronto* and identify the lactic acid bacteria which is involved. Nine samples of *ronto* were collected from different districts in South Borneo. The average of salt is 13.08 %, moisture 70.02 %, ash 13.04 %, protein 9.07 %, lipid 0.98 %, and pH 5.30. Total bacteria, total lactic acid bacteria, proteolytic bacteria and halophilic bacteria in all samples were log 3.01 - log 5.36; log 0.77 - log 3.38; log 2.7 - log 4.79; and log 3.24 - log 5.3. About 27 lactic acid bacteria were isolated by culture on CaCO<sub>3</sub>-MRS agar plate. Two isolated *ronto* were selected, screened and grouped according to phenotypic, physiologic and biochemical characteristics. The representatives of the Lactic Acid Bacteria involved in this fermentation were identified as *Pediococcus halophilus* [(Mees 1934) Collins et al. 1993] and *Pediococcus dextrinicus* (Mees 1934).

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Peer-review under responsibility of the science and editorial board of ISAPPROSH 2015

**Keywords:** fermented shrimp; Lactic Acid Bacteria; *Pediococcus halophilus* [(Mees 1934) Collins et al. 1993], *Pediococcus dextrinicus* (Mees 1934); *ronto*

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## 1. Introduction

*Ronto* is a pink to brownish purple fermented shrimp paste and has a distinctive taste with a prominent aroma of acid and fermented shrimp. This product is made of shrimp (*Acetes* sp.) mixed with salt and rice and fermented in anaerobic condition for 7 d to 15 d (Khairina et al., 2013). *Ronto* is widely known in the coastal area of South Borneo and very famous in the coastal areas of South Borneo, Central Borneo and East Borneo. Similar product is also known in other areas of Indonesia and some Asian countries but with different names. In some Asian countries this like-product has been sold in supermarkets in the form of paste packed in interesting packaging like bottles, pouches or plastics. In Malaysia, this product is called *cincalok* (Hajep and Jinap, 2012), in Philippine called *balao-balao* (Hall, 2002) in Korea called *kong chai* (Haseltine and Wang, 1987), and in Thailand sold with the name *kong soom* (Faithong et al., 2010).

The making process of *ronto* is very simple and cheap so that it is easy for traditional fisherman to do it. The stages of making include washing shrimps, adding salt and rice, and fermenting in anaerobic condition. Salt and rice (as the source of carbon) will stimulate the growth of lactate acid bacteria. Various types of lactic acid bacteria are reported have been isolated from various fermented fish and shrimp products (Juste et al., 2008; Kobayashi et al., 2000; Kobayshi et al., 2003). In addition, it is reported that some fermented shrimp products also play a role as prebiotics because the biochemical properties of the simple compounds are created as the result of fermentation (Adams et al., 1985).

Existing in the shrimp body, astaxanthin and carotene compounds contribute to the formation of the color pink. Carotene is bound to protein so that such color does not appear or only create color blue or grayish-blue in fresh shrimp. When the protein is denaturated, the carotene binding of the protein is broken and the carotenoids are free from the protein binding, causing the appearance of color pink to orange.

In South Borneo *ronto* is famous in Tanah Bumbu, Kotabaru and Tanah Laut Regency. This product is sold in traditional markets as a part of the diet of the people living in the coastal areas. *Ronto* is consumed as side dish, spicy sauce, or added to vegetable dishes as seasonings like “*terasi*”. In other places of Indonesia the similar product is known as *cincaluk* in West Borneo, *rusip* in Riau and *chao-teri* in Makasar.



Figure 1. The map of South Kalimantan

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