NU Science Journal 2013; 9(2): 14 - 17

Fish Biodiversity in Pla Soi Fish Sauce Production

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ABSTRACT

Pla Soi Fish sauce is the famous fermented food product of Thailand which has been produced since many past centuries. The significant area of production is the Yom river-shade including Sukhothai, Phitsanulok, Phichit, and Nakhonsawan Provinces. Due to the species of fishes, the production processes, the sanitary systems, Pla Soi Fish sauce is a famous product with good quality. By surveying the Pla Soi Fish sauce productions in Sukhothai, Phitsanulok, and Phichit Provinces during October 2007 to September 2008. It was found that four species of Pla Soi were mainly raw materials for production. They were: *Henicorhynchus siamensis* de Beaufort, 1927; *Labiobarbus siamensis* Sauvage ex Bleeker, 1881; *Cirrinus prosemion* Fowler, 1934; and *Lobocheilos melanotoenia* Fowler, 1935. The most founded was *Henicorhynchus siamensis* de Beaufort, 1927 followed by *Labiobarbus siamensis* Sauvage ex Bleeker, 1881; *Cirrinus prosemion* Fowler, 1934; and *Lobocheilos melanotoenia* Fowler, 1935. The average length of *Henicorhynchus siamensis* de Beaufort, 1927 was 7.48(5.72-10.25cm). Pla Soi in Yom river seemed to be bigger than those in the other canal areas. The sustainable production of Pla Soi Fish sauce industry has been depended on Pla Soi in Yom river.

Keywords: Pla Soi, Pla Soi Fish sauce production

INTRODUCTION

Fish sauce is the famous local fermented food product and most familiar traditional product which is significant for life style and Thai people economy thru family, community, and national level. In 1985 the number of exported fish sauce was 9,109 tons which valued 145 million baht (Department of Fisheries, 2000). In 2002 the number of fish sauce was 31,740 tons (Department of Fisheries, 2003). The raw materials in using for production of fish sauce were marine fishes for example: Indian anchovy (*Stolephorus indicus)*, and Commerson anchovy (*Stolephorus commersonii*). For freshwater fishes, Pla Soi was mainly used to produce fish sauce in the lower northern region of Thailand and other areas abundant of Pla Soi. There were some problems in production of Pla Soi Fish sauce for example: the species, the number and distribution of Pla Soi in Yom river being used for raw material. Since the traditional fish sauce production along Yom river is depended on species and amounts of Pla Soi. But mostly researches were not focused on these crucial

information. These problems attracted us to study the species, numbers, and distribution of Pla Soi on aspect to acquire the basic information for development of Pla Soi Fish sauce production to be a sustainable One Tambon One Product (OTOP).

METHODOLOGY

Surveys are conducted in target areas at fish harbors and fish sauce production areas in Sukhothai, Phitsanulok, and Phichit Provinces. Unlived fresh Pla soi samplings were weighed, measured the length, and photographed with the camera. Then the fishes were classified for the species of Pla Soi according to the key and reference on Fisheries report which was published by Phitsanulok Inland Fisheries research and Development Center, Inland Fisheries Research and Development Bureau, Department of Fisheries (DOF)(2006).

RESULTS AND DISSUSSIONS

The species of Pla Soi and distribution : There were four species of Pla Soi which were *Henicorhynchus siamensis* de Beaufort, 1927; *Labiobarbus siamensis* Sauvage ex Bleeker, 1881; *Cirrinus Prosemion* Fowler, 1934; and *Lobocheilos meianotoenia* Fowler, 1935. *H. siamensis* de Beaufort, 1927 was found with the most numbers , followed by *L. siamensis* Sauvage ex Bleeker, 1881; *C. prosemion* Fowler, 1934; and *L. melanoteania* Fowler, 1935, respectively (Figure 1). The average length of *H. siamensis* de Beaufort, 1927 was 7.48 cm (5.72-10.25cm). The most numbers of Pla Soi were distributed during the late rainy season to the beginning of the winter (the mid of October to the end of November). The characteristics of these fishes were different on fin color, stripe color, fin hardness, and the fin length. The general characteristics of these fishes are recorded in Table 1 and Figure 2. It seemed that Pla Soi in Yom river were bigger in size than those in the other canals. The information from the Department of Fisheries(2003) reported that *H. siamensis* de Beaufort, 1927 was found in Nakonsawan Province and there was a release of the off-springs of *H. siamensis* de Beaufort, 1927 into Ampoe Prompiram, Phitsanulok Province for distribution to the water resource and also to Yom river. But the target areas that we surveyed in Sukhothai were located above Ampoe Prompiram. Therefore, these fishes might be naturally originated from the Yom river in Phayao and Nan Province. The Fisheries report (2006) reported that there were twelve species of Pla-Soi in the Yom river,for example: *Cirrhinus jullieni* (sauvage, 1878); *Danggila spilopleura* (Smith, 1932); *Labeo erythroterus* (Valenciennes (ex Agassiz) in Cuvier & Valenciennes, 1844); *Lobocheilos davisi* (Fowler, 1937); *L. delacouri* (Pellegrin & Fang, 1940); *L. gracilis* (Fowler, 1937); *L. quadrilineatus* (Fowler, 1935); *L. rhabdoura* (Fowler, 1934), and *Osteochilus melanopleurus* (Bleeker, 1852). Vidthayanon, and Kottelat (2003) found that there were three new species of fishes(Teleostei;Cyprinidae and Balitoridae) from the Tham Phra caves in north Thailand. In 2005 Saowakoon H. et al. found that the Cyprinidae family was the most dominant comprising of 49 species in Surin province in Mun and Chee River. Nabheerong and Boonchum (2011) reported that

five species of Cypriniformes in the Yom river. These species were *H. siamensis, L. siamensis, C. jullieni, L. gracillis* and *O. hasseltii*. In this research we found only four species of Pla Soi. Therefore, some genera and some species of these fishes were disappeared from the Yom river. It might be possible that Pla Soi tried to migrate up stream but there were severe barriers at the spillways, dams, and water gates in Sukhothai province. It was possible that the fishes were abundant in Yom water-shade but there were a few amounts of fishes in dry season.

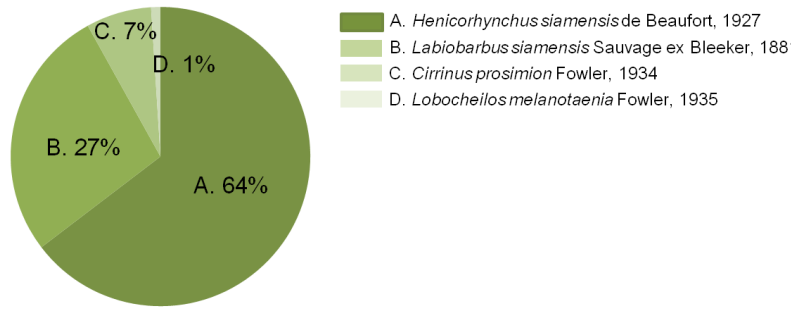

Figure 1 Diversity of Pla Soi in Yom River during October 2007 to September 2008

Figure 2 Pla Soi for fish sauce production

Table 1 General Characteristics of Pla Soi

Species	Average Length (cm)	General Characteristics
H. siamensis	7.48	Hard and short 1st dorsal fin ray
La. siamensis	8.68	Long and soft dorsal fin ray
C. prosimion	8.62	Red caudal fin
Lo. melanotaenia	5.52	Long and black stripe dorsal fin

CONCLUSIONS

The people in the three provinces: Sukhothai, Phitsanulok, and Phichit who lived along Yom river shade earned their income from the fishes in Yom river especially Pla Soi in which they were the raw material for Pla Soi Fish sauce production. There were many species of Pla Soi which recorded by Phitsanulok DOF (2006). But in this study we found only four species of Pla Soi. Phitsanulok DOF could produce only *H. siamensis* de Beaufort, 1927 by artificial insemination technique. But the industries used more than one species which naturally come from Yom river. Therefore, Pla Soi Fish sauce industry has been depended on species and amounts of Pla Soi in Yom river. Researchers should try to solve the problem by surveying the species of fishes among the variable weather every year, the barrier of fish during seasonal migration to reveal the adverse effects on survival of Pla Soi. If the problems can be solved or alleviated, sustainable production of one of the most famous OTOPs shall be achieved.

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