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## Traditionally Catching and Processing of *Laor* in Moluccas Islands

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### Abstract

**Keywords:**

*Bakasang, Laor, Lawar, Tanggo, Timba laor*

Laor is a fishery product that found in Moluccas at March or April, a few days after the full moon. The swarming of laor in Moluccas is called timba laor. This event is one of the local wisdoms that must be conserved. The people have always consumed this worms for long time, but research of catching and processing techniques of laor has never been done. This research aimed to describe the techniques of catching and processing laor in Moluccas Province. This research was descriptive qualitative. Data was collected from direct observations and documentation from volunteers in several villages only in Moluccas Province, i.e. Latuhalat (Ambon), Booi (Saparua), Taruy (Geser), Elaar (Kei), and Emplawas (Tepa) villages. The catching and processing laor were very diverse in Moluccas. The people were usually catch of laor used a tanggo, both of triangular or oval shape. Laor that has been taken then processed into laor lawar and bakasang. Both of these food products were very popular in Moluccas community. This research was expected to conserve of timba laor culture to support the tourism in Moluccas province.

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## 1. INTRODUCTION

Moluccas or “the Spice Islands” have high fishery potential. One of the fisheries products that often consumed is laor. The swarming of laor in Moluccas is called timba laor. This event is one of the local wisdoms that must be conserved. The tradition of timba laor was carried out to protect fisheries resources, so that it’s can support food supply in this area (Pical 2013). Timba laor is one of the indigenous fishery management which has been conducted from generation to generation by local people in Moluccas. In Uliaser Islands (Central Moluccas), this tradition usually controlled by kewang as a traditionally institution that maintains of natural resources in the village. The tradition of timba laor is usually interspersed with songs and dances. Some places outside the Moluccas region, this tradition was begins with special rituals. These cultures are almost extinct, so it’s must be conserved.

The catching and processing of laor are very diverse because the Moluccas region consists of thousands of islands with different cultural characteristics. The research about

the techniques of catching and processing laor in complete has not been done until now, even though this animal has been consumed since long time ago by the community. The lack of research about laor because the swarming time of these worms usually only for two nights a year, so that these worms information is very limited. The catching of laor in Moluccas is called timba laor. Previously this event was interspersed with music and dances. The interest of the community, especially the youth to timba laor began to decrease, so the government organized a timba laor festival in various regions. In Ambon City (the capital of Moluccas), the festival was held on several beaches in Leitimor Peninsula to preserve the timba laor culture. This study aimed to describe the techniques of catching and processing of laor in several regions in Moluccas Province. The conservation of timba laor cultures is expected to support the development of Moluccas region, especially Ambon as a “city of fish” which is one of the icons of this city.

## 2. LITERATURE REVIEW

### *Laor in Moluccas Islands*

The periodical swarming of the polychaeta species has been known as socially, culturally, and spiritually important event in Southeast Asia and South Pacific Islands (Tadataka 2018), include laor in Moluccas Islands. Laor is a sea worm colony that appears in Moluccas at March or April a few days after the full moon (Radjawane 1987). Its annual appearance is directly related to phase of the moon. The appearance of laor at sea surface is called swarming. The native people in Moluccas have been consuming and calling these animals with various names. The name of laor was originally used by native people who live in the Leitimor Peninsula of Ambon Island. The people of Ternate (North Moluccas) and Banda Islands (Central Moluccas) call these animal as wawo and uli (Rumphius 1999), respectively. Laor is also found in other places with different species and times of swarming such as Sangihe, Lombok, and Sumba Seas. The Sangihe (Celebes) people calls puhli, while the Lombok and Sumba (Nusa Tenggara) people refer to nyale (Monk, de Fretes, et al. 1997) (Table 1). The swarming of laor in Sumba Sea is full of myths and is celebrated in a traditional ceremony called pasola. The aforementioned of various name, laor is more famous than other name, so that it's used to refer to various types of sea worms (polychaeta) which appear periodically at sea surface in certain times (Monk. de Fretes, et al. 1997).

*Table 1.* The Local names of *laor* in Moluccas and it's surroundings

Districts	Location	Local name	References
North Moluccas (Province)	Ternate	<i>Wawo, wau</i>	Rumphius 1999
North Moluccas (Province)	Tobelo	<i>Waoko</i>	Tadataka 2018
Ambon City	Leitimor (Ambon)	<i>Laor, laur</i>	Rumphius 1999
Central Moluccas	Haruku	<i>Melaten</i>	van Hoeffell 1877
Central Moluccas	Saparua	<i>Mulatonno</i>	van Hoeffell 1877
Central Moluccas	Nusalaut	<i>Mulaono</i>	van Ekris 1864
Central Moluccas	Hitu (Ambon)	<i>Mulaton</i>	van Ekris 1864
Central Moluccas	Asilulu (Ambon)	<i>Lakule</i>	van Hoeffell 1877
Central Moluccas	Banda	<i>Uli, ule</i>	Rumphius 1999
West Ceram	Kaibobo	<i>Melaten</i>	van Ekris 1864
West Ceram	Piru	<i>Lakol</i>	van Ekris 1864

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East Ceram	Geser	<i>Anjonji</i>	van Burg 1904
Southeast Moluccas	Kei	<i>Es'u,</i>	Geurtjens 1913
Tanimbar Islands	Tanimbar	<i>Sule, medi</i>	Tadataka 2018
Nusa Tenggara (Province)	Nusa Tenggara	<i>Nyale</i>	Tadataka 2018
Pacific Islands (Countries)	Pacific Islands	<i>Palolo</i>	Woodworth 1907

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*Laor* is grouped in Annelid phylum and Polychaeta class. Annelida is a segmented worms whereas Polychaeta is a worm that has a number of hair on its body surface. The swarming of *laor* at sea surface to reproduce when it reaches sexual maturity. *Laor* which appear in Moluccas Sea consist of *Eunice*, *Lysidice*, *Palola*, *Nematoneris*, *Lumbrineris*, and *Perineris* (Martens, Heuer et al. 1995, Liline, Amin et al. 2016). Geurtjens, a Dutch scientist popularized this worm as hemelwormen (= sky worm) or ular langit because it's swarming was mostly influenced by change of the sun and moon in the sky (Geurtjens 1913).

The swarming of *laor* in Moluccas Seas generally take places for two nights i.e. only on the second and third night after full moon. On the first night was generally dominated by small size *laor*, while on the second night it was dominated by large size (Rumphius 1999) (Figure 1). The swarming of *laor* on the second night resembles a red centipede, so that the sea surface looks like blood. This phenomenon is known as bloody sea (Ludeking 1868). The colour of *laor* very diverse. Male *laor* are usually bluish green, while female are orange and red (Horst 1904, Metaxas and Scheibling 2016).

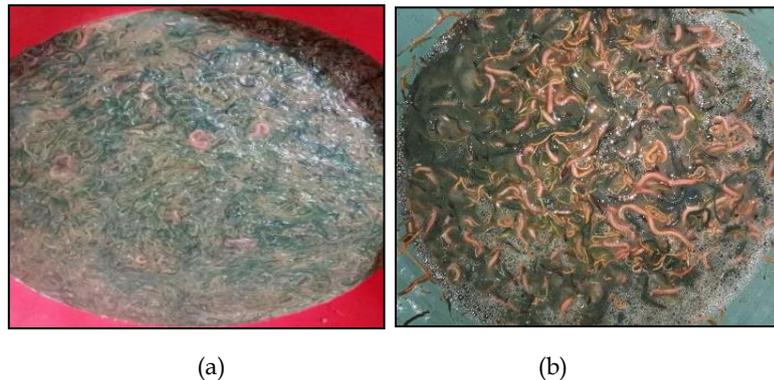


Figure 1. *Laor* worms. *Laor* that has been caught at the first night (a), and the second night (b)

### ***Timba Laor***

The swarming *laor* on the sea surface was caught by the native people using siru-siru (tango) and sieve (locally called tapis-tapis) with a torch or lamp for bait. Siru-siru is a filter made of mosquito net. The equipment is generally used by Ambonese people and its surroundings. There are two types that known in catching of *laor*, i.e. triangular and oval shape. Both types of tango are also used for catching of *laor* outside the Moluccas region (Tadataka 2018).

The *laor* is only found on the beach that has coral reefs with high salt content because these worms live in rock. A large number of swarming *laor* are found at Latuhalat, Airlouw, Hutumury, and Allang beaches in Ambon Island. The people was interested to catch a *laor* because it was natural product that only appears once a years. The catching *laor* in Moluccas Sea is called timba laor (Rumphius 1999). Previously the Ambonese people was celebrate this event with musics and dances (including the timba laor song

and dancing) (Welsem 1915). The people interest in this event has diminished now. Timba laor was only liked by the people who live on the coast. The government is trying to maintain this tradition by organizing a timba laor festival every years while swarming of laor at several beaches in Ambon.

### Periodicity of *Laor* Swarming

Reproduction period of laor differs in various places (Table 2). This is closely related to the complex interactions between various systems that control the biological clocks, i.e. the nervous and endocrine system under the influence of various environmental factors that take place regularly. The periodic swarming of laor has been ascribed to various stimuli such as light, heat, salinity, and pressure of the water in the sea.

**Table 2.** Swarming of *laor* in Moluccas and its surroundings

Location	Time of Swarming	Species	Event	References
Lombok	Before sunrise (February/March)	<i>Eunice siciliensis Lysidice collaris</i>	Bau Nyale	Monk, de Fretes <i>et al.</i> 1997
Sumba	Before sunrise (February/March)	<i>Eunice viridis</i>	Pasola Ceremony	Monk, de Fretes <i>et al.</i> 1997
Moluccas	After sunset (March/April)	<i>Lysidice oelo Palola viridis</i>	Timba Laor	Radjawane 1987 Martens <i>et al.</i> 1995
Pacific Islands	Before sunrise (October/November)	<i>Eunice viridis</i>	Palolo day	Tadataka 2018

Reproductive of laor is determined by complex interactions between various natural rhythms, i.e. annual, lunar, and daily rhythms. The annual rhythm (circannual) controls the seasonal cycle and regulates changes of temperature from one season to next, so that the period of laor reproduction only take place in transitional season (Villem, Walker, *et al.* 1969). At this season the sun's nearest the zenith in Moluccas Islands around March and April (Burrow 1955). The position of the sun causes the sun light and heat is greatest called laor warming (locally named panas laor). The high light intensity and heat can accelerate maturation of laor gonad before reproducing. The annual rhythm also regulate the swarming of laor when the sun at the pisces constellation (Rumphius 1999).

Lunar rhythm (circalunar) controls the tide cycle and the amount of light intensity at night, so that limited the reproduction period of laor only a few nights, i.e. after the full moon. The sexual maturity of laor take place during the full moon and usually waited several nights before swarming on the sea surface to reproduce. Light of full moon is emits energy in atmosphere which it's capable of ripening gonad of laor (Weber 1902). Lunar rhythm limited the swarming of laor when water pressure of sea decrease and very low tide of sea allowing the laor swim to the sea surface just before moonrise (Woodworth 1907). The highest tide at the day is a sign that laor will swarming at night. The lunar rhythm also regulates the swarming of laor when the moon at the virgo constellation (Rumphius 1999)

Daily rhythm (circadian) which controls the daily cycle (diurnal cycle) that regulates changes of light and temperature from day to night, so that it's limited the swarming of laor at certain hours, i.e. the darkness that separate the sunset and moonrise (Villem, Walker, *et al.* 1969). Daily rhythm cause vertical migration of various types of polychaeta to surface the sea after sunset.

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### **Phenomenon of *Laor* Swarming**

The native people were estimated the swarming time of laor based on changes the sun and moon in the sky. The signs before the swarming of laor are (1) the sea surface is higher and presence of black spots during the day. The high sea surface because occurrence of highest tide in a year. These sign is often used by the people to determine the swarming time of laor (Rumphius 2009). (2) Some trees bear fruits. The people usually consume laor with this fruit (Mahulette 2020), (3). *Gecarcinus*, a land crabs marching to the sea to deposit their eggs. Previously the ancestors considered that the eggs crabs experienced metamorphosis to become laor. (Woodworth 1907), and (4). The fruits are around the beach rot. This phenomenon is known as laor disease (Radjawane 1987).

Laor has a very sensitive vision and smell. Laor was able to smell a wound. The people who have wound on their feet are not recommended to catch laor because the wound will be drilled like its habit as a substrate digger. The native people also believes that the women who was menstruation should not caught laor because the worms will not swarm or rot quickly, however the presence of pregnant women and beautiful girl can stimulate the laor swarming (Rumphius 1999). In some places, women who catch laor was beautified herself to stimulate the swarming of large numbers of worms. In Ambon Bay, previously the pregnant women usually hold a torch in a small boat while the man catch laor using a siru-siru (Colin 1896). Laor are interested to girls and pregnant women related with their swarming to reproduction.

### **Research of *Laor***

The study of laor was begun by Georg E. Rumphius who called the worms as *Vermiculi marini* in 1684. He suspected that this worms has similarities with the palolo worm (*Eunice viridis*) in Pacific Islands (Rumphius 1999). The next two centuries research of laor was done by the Siboga Expedition, Dutch scientific explorations led by Max Weber in the Banda Islands at 1899. In this study a new species has been found which has different characteristics from laor in Pasific Islands (Horst 1904). It is called *Lysidice oelo* Horst (oele is Dutch spelling refer to uli, the laor name was used by native people who live in the Banda Island). The next research was done by Johannes Martens et al. in 1991. They suggested that the laor in Ambon Sea consist of 13 species which were dominated by Palola, Eunice, and *Lysidice*. In this study also found a new species, i.e. *Lumbrineris natans* Hartman-Schroder (Martens, Heuer, et al. 1995). Highest biomass of laor reaches 2.86 g/m<sup>2</sup> in the Latuhalat Beach, Ambon (Mahulette and Leimena 2012).

### **Benefits of *Laor***

Beside have delicious taste, laor is also a food that has high protein content. The protein content of laor is 31.15 % (three times than fish protein) (Radjawane 1982). The protein are composed of amino acids. The highest amino acid in laor is glutamic acid. The laor also contains lipid, vitamins and minerals (Latumahina 2011). Laor that have been caught can be directly consumed or processed into various products with traditional processing technique. The communities in Ambon and Banda Islands usually process laor into bamboo, smoked laor, and salty laor (bakasang) (Rumphius 1999). In Sumba, laor that has been salt-fermented can be used as natural seasoning by adding it during cooking. This worm is also used as natural fertilizer and medicine (Sukenti, Hakim, et al. 2016).

### 3. METHOD

This research was descriptive qualitative to describe the method of catching and processing laor in Moluccas. Data was collected from direct observations and documentation from volunteers in several villages (different districts) only in Moluccas Province, i.e. Latuhalat Village (Ambon City), Booi Villages (Central Moluccas), Elaar Village (Southeast Moluccas), Taruy Village (East Ceram), and Emplawas Village (Southwest Moluccas) (Figure 2). The information was also collected from elders and volunteers in other areas. The results were analyzed based on geographical and cultural differences of each regions and supported by a literature review

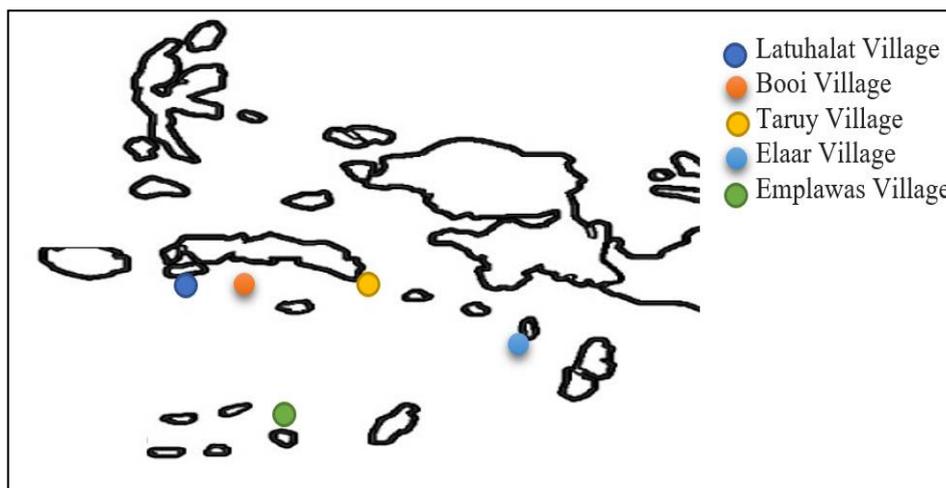


Figure 2. Location of research

### 4. RESULTS AND DISCUSSION

#### The Catching and Processing *Laor* in Ambon City

*Laor* usually only appears on the coral shores in Ambon City. The catching of *laor* was often taken places in Latuhalat, Airlouw, Seri and Rutong Beaches (Leitimor Peninsula) of Ambon Island. The swarming of *laor* in Latuhalat Beach was taken place for two nights, i.e. the second and third nights after the full moon. Before the swarming of *laor*, the people continued to observe the shape and position of the moon to determine the exactly time to catch this worm. The others clues that often used as signs of the swarming of *laor* were (1) highest tides and the presence of black spots in the sea. The highest tide was often used by the people to determine the time of *laor* swarming (Rumphius 1999) (2) the fruiting of gayang tree (*Inocarpus edulis* Forst). This fruit was often consumed with *laor*. The *laor* swarming and fruiting of gayang tree were used as indicator of transition from dry (west) season to wet (east) season. Rain usually occur after the catching of *laor* was finished. The people were considered *laor* as an annual natural product (locally named *nahosi*) which must be taken and consumed.

At the time of *laor* swarming, the people were used triangular *tango* while the sieve was only used by women and children. The lighters used were torches, petromax and emergency lamps. When *laor* appears in large numbers, the people usually cheers "kloyang kloyang kloyang, nene(k) rambu(t) puti(h)", probably means quickly to prepare a basin (= *kloyang*) to hold *laor* which was likened to grandma's hair. The people usually was less interested to caught *laor* that appears on the second night because it was shape

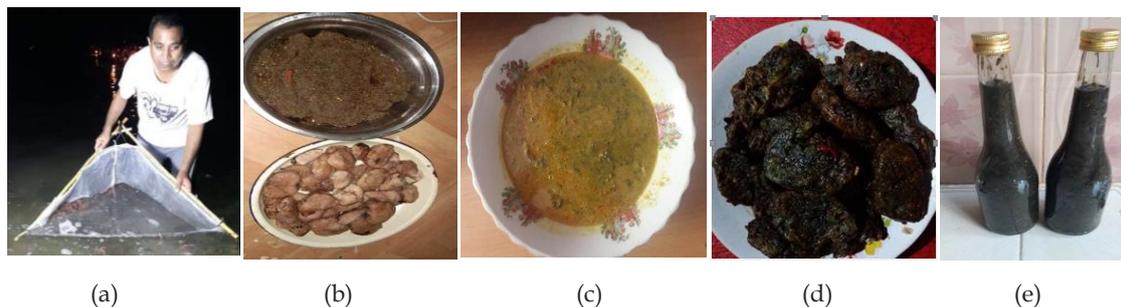
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which resembles centipede. If the swarming of laor coincides with the Chinese New Year was called laor tenteng (Jansen 1939).

Laor has been taken was then processed into various products, including laor lawar, curry laor, fried laor, and salty laor (*bakasang*) (Figure 3). The curry and fried laor were usually processed after catching laor from the beach. Laor lawar processing uses fried coconut which was crushed to release oil and then mixed with a number of herbs and sprinkled with peanuts or walnuts, while the processing of the *bakasang* only uses salt then was put in a bottle and allowed to ferment for more than a year. *Bakasang* should not processed by women who was menstruating because the product will rot quickly. Laor lawar was usually consumed with boiled gayang, while *bakasang* was consumed with raw eggplants fruit. The laor lawar and *bakasang* have high content of glutamic acid, a kind of amino acids. Both of these food products were very popular in Moluccas community (Latumahina 2011). Food products with high content of glutamic acid have a taste of umami (savory flavor) (Koesoemawardani, Hidayanti, et al. 2018).

Processing of *bakasang* was still uncontrolled, so that many microbes play a role in fermentation, including microbial contaminants, such as halotolerant and coliform bacteria. Both types of bacteria were opportunistic pathogens whose numbers limited in food. Bacteria that play a role in *bakasang* fermentation was lactic acid bacteria (LAB). The type of lactic acid bacteria found in *bakasang* was *Leuconsotoc* sp (Mahulette and Kurnia 2020).



**Figure 3.** The catching and products of processing *laor* in Latuhalat Village, Ambon  
The catching of *laor* used a triangular *tanggo* (a), *laor lawar* with boiled gayang (b), curry laor (c), fried laor (d), and *bakasang* (e)

### The Catching and Processing *Laor* in Central Moluccas

The laor swarming in this region include Uliaser Islands (Haruku, Saparua, Nusalaut), Banda Islands, and a parts of Ceram and Ambon Islands. At the beginning of the colonial period, the people of this area mentioned laor with various names, such as melatten and melatono (van Ekris 1864, van Hoeffel 1877), but eventually also called laor because they were often related with the people of Ambon city. The catching of laor in Saparua Island, especially Booi Village usually uses a canoe with a square or triangular tanggo and a torch or petromax lamp. People were more interested to catch laor that appears on the second night because the number was more than the first night.

The laor has been taken more processed into laor kedondong, laor tumis, and *bakasang* (Figure 4) Laor kedondong was laor that cooked using kedondong (*Spondias dulcis* Forst) and orange leaves, some herbs and then sprinkled with walnuts. Walnut was the main natural product of this area. In *bakasang* processing, the laor was sprinkled with salt and then dried in the sun for several hours. *Bakasang* was usually placed around the

fireplace or stove to maintain the temperature, so that the fermentation can take place quickly. After allowed for several days, the bakasang was consumed with raw eggplants fruit, boiled cassava or eaten with papeda. Papeda was a type of food made from sago. This was a traditional food of the Moluccas community.

The people were prohibited to consume laor with mangoes fruit because it will cause other mangoes fruit to rot. This may be related to laor disease (*penyakit laor*). Laor disease was the phenomenon of rot fruit around the coast when the swarming of laor (Radjawane 1987). This phenomenon was an unsolved mystery until now. The processing of laor by the Saparua community was very diverse. In Ullath Village (southeast of Saparua Islands), the people usually process laor into laor tone (coconut laor) and bakasang. Laor tone was mixed laor and fried coconut (no crushed) and then cooked with some herbs. Bakasang processing by adding salt only or salt and vinegar, so that it can be consumed in a long time. The people used aren vinegar which was the product of palm sugar fermentation. Bakasang was also often added other spices to contribute a specific taste.



**Figure 4.** The catching tool and products of *laor* processing in Booi Village, Saparua Triangular *tanggo* (a), *laor kedondong* (b), *laor tumis* (c), *bakasang* that placed around the fireplace (d).

The tradition of laor catching and processing were also different from the people of the Banda Islands. In this area the swarming of laor (locally named *uli*) usually taken places for 3 nights, although on the third night the appearance of this worms were only slightly. Laor usually more appears in Banda Besar, Rum and Hatta Islands. Some of the clues used as a signs to the swarming of laor were (1) the fishy odor from sea to land, (2) the fish do not eat the bait of the fishermen because the fish has eaten a small laor. The catching of laor was used oval *tanggo*. In some places, women who also catch of laor should look beautiful to attract worms appeared more on the surface of the sea. This assumption may be related to the swarming of laor for marriage. The laor was usually processed into laor lawar and then sprinkled with walnuts.

### **The Catching and Processing *Laor* in East Ceram**

Laor was known by the people of East Seram (Geser and its surroundings) as *anjonji* (van Burg 1904). The catching of laor in this area was usually taken places on the shore for two nights. The catching of laor was used oval *tanggo* called *beban anyanyi*. After catching of laor, the people can directly consume this worms by adding lime juice and onions. The laor processing in this area was very diverse. The most popular product was laor lawar, but it was quite different from the one processed by the people of Ambon Island. In processing of laor lawar, the fried coconut that added to this product was crushed until it releases a lot of oil, so that the product more oily (Figure 5)

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Figure 5. The catching and product of *laor* processing in Taruy Village, Geser

The catching of *laor* used *beban anyanyi* (a), raw *laor* consumed with cucumbers and eggplant fruits (b), *bakasang* consumed with eggplant fruit (c), *laor lawar* (d)

The people were also process *laor* into *pepes* and *bakasang*. *Pepes* was processed by wrapping *laor* in sago starch then roasted. Some people were processed a *bakasang* by adding nutmeg fruit called *laor pala*. The addition of this fruit, so that *laor* can consumed for long time. Nutmeg fruit can produces acids to inhibit the growth of spoilage microbes in food (Nagja, Vimal, et al. 2015). Nutmeg was the most popular of spice in Banda Community. The tradition of *bakasang* processing use nutmeg in Geser community may have originated from the Banda community culture because the geographical location of two regions was close together.

### The Catching and Processing *Laor* in Southeast Moluccas

The *laor* swarming in this region include Great and Little Kei (Elaar, Wearlilir, Tanimbar-Kei Villages and surrounding areas). The catching of *laor* (locally named *es'u*) in this area was usually taken places on the shore for two nights. When *laor* appears in sea surface, the people usually cheers "*Es'u enlek ruk*" that means the *laor* have fallen. The swarming of *laor* was also called *ular jatuh* (snake fell) (Geurtjens 1913). The catching of *laor* was used *tanggo*, but indigenous people use bamboo sieve called *ayakan*. *Laor* that has been taken by people then placed in a large round of woven which was also made of bamboo. The *laor* can processed into *laor tumis* or roasted *laor* (Figure 6). In the processing of *laor tumis*, the spices were fried then added *laor* and stirred until cooked. Roasted *laor* processing was began by adding a number of herbs and then wrapped in banana leaves before smoked until cooked. *Bakasang* was also often processed by adding vinegar or orange juice in this area.

In Elaar Village (east of Little Kai Island), the people were also catch of *laor* far from the coast in the morning, before the sunrise. This *laor* was considered as *laor* remains that could not be taken at last night. Lombok and Sumba communities in Nusa Tenggara were also taken of *laor* before sunrise (Bachtiar and Bachtiar 2019). The *laor* has been taken more processed into *abon laor*. In the village of Wearlilir (east of Little Kai), the people were catch of *laor* almost every month, but when swarming time of these worms simultaneously in Moluccas, *laor* was not found in this area. The *laor* has been taken by the Tanimbar-Kei community indigenous (Southeast of Kai Islands) was usually burned with stones together in the ground. The processing technique was called *bakar batu* (stone burning). Stone burning was a tradition of food processing in the Tanimbar community.



(a) (b) (c) (d)  
**Figure 6.** The catching and products of *laor* processing in Elaar Village, Little Kai Island  
The catching of *laor* used *ayakan* (a), cooking of *laor* in traditional fireplace (b), *laor tumis* (c), and roasted *laor* (e).

### The Catching and Processing *Laor* in Southwest Moluccas

The catching of *laor* in this area was usually taken places on the shore for two nights. When *laor* swarming, the people of Babar Islands (Tepa. Dai Island, and its surrounding areas) used an oval shaped *tanggo* with a torch or petromax lamp to catch this worms. Although geographically this area was closer to Nusa Tenggara Islands, but the appearance of *laor* at night like other areas in Moluccas. In Dai Island, the *laor* has been taken by people then placed in a bamboo woven. *Laor* (locally called *ilyal*) was processed into various products, including *laor tumis* and *bakasang*. *Laor tumis* was a product that can be consumed quickly while *bakasang* for a long time. Salt and acid compounds were added to *bakasang* processing. The acid compounds were *cuka koli* (a kind of vinegar) and lime juice (Figure 7). *Cuka koli* was product of the sap fermentation from *koli* tree (*Barassus sundaicus* Becc). This vinegar was often used as a preservative for various types of food in this area. *Koli* was a kind of palm tree which commonly found in Southwest Moluccas.



(a) (b) (c) (d) (e)  
**Figure 7.** The catching and product of *laor* processing in Emplawas Village, Babar Islands  
The catching of *laor* used oval *tanggo* (a), *laor* placed in a bamboo woven (b),  
*Laor tumis* (c), *laor* preserved with *cuka koli* (d), and with lime juice (e).

## 5. CONCLUSION

*Laor* is a sea worm colony that appears in Moluccas at March or April a few days after the full moon. The swarming of these worms were usually taken place for two nights. The techniques of catching and processing of *laor* was very diverse in Moluccas. Generally, the people were catch of these worm used a *tanggo* and bambo sieve. There were two types of *tanggo*, i.e. triangular and oval shape. *Laor* that has been taken then processed into various product, such as *laor lawar*, *bakasang*, *laor tumis*, fried *laor*, curry *laor*, and roasted *laor*. *Laor lawar* and *bakasang* were very popular of local foods in Moluccas community.

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### References

- Bachtiar, I. and Bachtiar, N.T. (2019). "Predicting spawning date of nyale worm (Eunicidae, Polychaeta) in the Southern coast of Lombok Islands, Indonesia", *Biodiversitas*, 20(4), 971-977.
- Burrow, W. (1955). "Palolo, notes on the periodic appearance of the annelid worm *Eunice viridis* (Gray) in Southwest Pacific Islands", *The Journal of Polynesian Society*, 64(1), 137-154.
- Colin, A. (1896). *Bemerkungen uber den essbaren palolowurm, Lysidice viridis Gray*. The Indian Press, Kolkata.
- Geurtjens, H. (1913). "Kei eilanden, uit Oewat schrijft", *de Java Post*, 14, 217-219
- Horst, R. (1904). "Wawo and palolo worms", *Nature*, 69, 582.
- Jansen, H.J. (1939). "Ethnographische bijzonderheden van enkele Ambonsche negorijen", *Bijdragen tot de Taal-Land and Volkenkunde*, 98(1), 325-368.
- Koesoemawardani, D., Hidayanti, S., et al. (2018). "Amino acid and fatty acid compositions of rusip from fermented anchovy fish (*Stolephorus* sp)". *Materials Science and Engineering*, 344, 1-6.
- Latumahina, M.CA. (2011). "Pengolahan dan komposisi gizi cacing polychaeta di Pulau Ambon", In: Jambormias E, Riupassa, PA (eds). *Prosiding Seminar Nasional Pengembangan Pulau-pulau Kecil dari Aspek Perikanan Kelautan dan Pertanian*. Institut Pertanian Bogor, Bogor, 247-253.
- Liline, S., Amin, A., et al. (2016). The Identification of laor worm (polychaeta) in marine areas of Ambon Island, Moluccas Province, Indonesia based on 16S rRNA gene sequence, *International Journal of Chemical and Technology Research*, 9(66), 307-315.
- Ludeking, E.W.A. (1868). *De Schets van Residentie Amboina*. S. Gravenhage, Amsterdam.
- Mahulette, F. and Kurnia, T.S. (2020). "Microbiological quality and proximate composition of bakasang laor, a traditional fermented fishery product in Maluku", *Biosaintifika*, 12 (1).
- Mahulette, F. and Leimena, H.E.P. (2012). *Komposisi spesies, kepadatan biomassa, dan kondisi habitat cacing laor (Polychaeta) di perairan Pulau Ambon (Laporan Penelitian)*, Pustaka Karya Ilmiah Ristek, Jakarta.
- Mahulette, F. (2020). "The swarming and benefits of laor in Moluccas". In: Sekiguchi Global Research Association (Eds). *Sustainable Shared Growth: Proceeding of The 5<sup>th</sup> Asia Future Conference*. Sekiguchi Global Research Association, Manila, 710-715.
- Martens, J.M., Heuer, U., et al. (1995). "Swarming of *palola viridis* Gray and other Polychaeta such as *Lysidice oele* Horst and *Lumbrineris natans* sp nov on Ambon". *Mitteilungen Aus Dem Hamburgischen Zoologischen Musium Und Institut*, 92, 7-33.
- Mataxas, A. and Scheibling, R.E. (2016). "Rapid eeg transport following coral mass spawning at Ningaloo Reef, Western Australia, *Bulletin of Marine Science*, 92(4), 529-544.

- Monk, K. A., de Fretes, Y., et al. (1997). *The Ecology of Nusa Tenggara and Maluku*. Periplus Edition, Singapore.
- Nagja, T., Vimal, K., et al. (2015). "Myristica fragrans: a comprehensive review". *International Journal of Pharmacy Sciences*, 8(2), 27-30.
- Pical, V.J. (2013). "Kinerja aparat pengelola sumberdaya perikanan berbasis masyarakat di Kota Ambon", *Jurnal Triton*, 9(1), 33-41.
- Radjawane, T.R. (1987). *Laor, Cacing Laut Khas Perairan Maluku*. Lomba Karya Ilmu Pengetahuan bagi Remaja 1982, Balai Pustaka, Jakarta.
- Rumphius, G.E. (1999). *The Ambonese Curiosity Cabinet*. Yale University Press, London
- Sukenti, K., Hakim, L., et al. (2016). "Ethnozoological study on Sasak cuisines: diversity, utilization, social, cultural, and nutritional aspects", *Pakistan Journal of Life and Social Sciences*, 14(3), 171-177.
- Tadataka, I. (2018). "Palolo swarming, celestial cycles, and indigenous calendrical systems in Indonesia", *東南アジア研究*, 55(2), 111-138.
- van der Burg, C. L. (1904). *De Voeding in Nederlandsch-Indië*, J.H. de Bussy, Amsterdam.
- van Ekris, A. (1864). "Woordenlijst van eenige dialecten der landtaal op de Ambonsche eilanden", *Mededeelingen van wege het Nederlandsche Zendelinggenootschap*, 8, 1-472.
- van Hoevell, G.W.W.C.B. (1877). "Iets over de vijf voornaamste dialecten der Ambonsche landtaal," (bahasa tanah). *Bijdragen tot de Taal-, Land- en Volkenkunde van Nederlandsch-Indië*, 25(1), 1-136.
- Villee, C.A, Walker, W.A., et al. (1969). *General Zoology*, Third Edition. Topan Company, Japan.
- Weber, M. (1902). *Siboga Expeditie, Introduction et Description de L' Expedition*. E.J. Brill. Leiden.
- Welsem, J.W.A. (1915). *Herinneringen uit de Molluken, De Tropische Natuur*, Amsterdam.
- Woodworth, W. McM. (1907). *The palolo Worm, Eunice viridis (Gray)*. Museum of Comparative Zoology, Massachusetts.