Indigenous Knowledge Degradation of Lom Community, Bangka Island in identifying and using Pelawan Padang (*Tristaniopsis merguensis*)

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DOI: http://dx.doi.org/10.15294/biosaintifika.v10i3.14089

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Abstract

Pelawan padang (*Tristaniopsis merguensis*) plays an important role in providing daily needs including goods and services for Lom community in Bangka island. Recently, modernization has an impact on the indigenous knowledge related to plants utilization in Lom community, especially *pelawan padang*. The aims of the study were to analyze the roles and benefits and to determine ethnobotanical knowledge changes of Lom people on the use of *pelawan padang*. Data were collected through interviews using a structured questionnaire. *Pebble Distribution Method* (PDM) was used to analyze the quantitative data, while the qualitative data were analyzed using descriptive statistic. The result showed that *pelawan padang* can be used for material construction, firewood, honey production, traditional medicine and material of *bagan* traditional stilt houses. The degradation of indigenous knowledge of Lom people related to natural resources such as *pelawan padang* could be assessed according to individual factors which were; age classes and occupation. More respondents aged over 40 years showed the ability in identifying and using Pelawan padang compared to the younger (25-40 years old). According to occupational group, there was higher number of unemployed respondents and respondents working as farmers that used *pelawan padang* compared to respondents working as employee. No difference was found for tribal leaders and community members regarding to the knowledge of *Pelawan padang* benefits. This study provides the latest information about the benefits of plants from the Lom Community that can be developed through the further research, especially for the benefits *pelawan padang* as a drug.

How to Cite

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INTRODUCTION

Indigenous knowledge can be defined as the knowledge systems that have been naturally developed over a long time, unique, learned, and inherited in a local community group. Local communities have different ways, points of view, and habits in their lives. The perceptions and conceptions of local communities have been obvious and defined including how they learn to utilize natural resources in their environment (Ifandi *et al.* 2016). Perceptions and conceptions of local community are followed by the increase of the management and utilization of natural resources to fulfill their various daily needs. Management of natural resources continues to increase not only in food, clothings, construction of dwellings but also in the fulfillment of other needs (Chinsamy *et al.* 2011).

Lom community is a group of people that inhabit the coastal region of Bangka island. Smedal (1989) reported that Lom people spread evenly in this area. In the past, Lom community houses were a stilt house with wooden walls or boards and roof made of rumbia leaves. Lom people mainly work as farmer, fisherman and labor. They also depend on plant resources to support their activities. One of the beneficial plants species that is still used by Lom community is *pelawan padang* (*Tristaniopsis merguensis*).

Pelawan padang is a member of Myrtaceae, this species grows well in Bangka island. Akbarini (2016) revealed that *Pelawan padang* becomes one of the key species for biodiversity sustainability in Namang Central Bangka district (Muslich & Sumarni 2008). It is because this species has role as a host of the fungus (*Heimioporus* sp.) and produce typical "bitter honey" from its flower which has high economic value. *Pelawan padang* also has strong and firm structure, so it is usually used as a construction material. In addition, firewood is also an important use of this species because it produces a good flame, less ash and higher heat than other species (Yarli 2011).

Pelawan padang is often used by Lom people in the fulfillment of their daily needs. However, there is no hereditary knowledge of the Lom community that will affect forest management in maintaining the wisdom of the local community. Lom people's knowledge on the use of *pelawan padang* needs to be explored more and conserved in order to avoid its extinction. The aims of this study were to investigate and analyze the knowledge of Lom community in recognizing and utilizing *pelawan padang*, as well as analyzing the Lom community's knowledge degrada-

tion on the use of *pelawan padang*. This research is expected to contribute to Lom Community in cultivation *pelawan padang* considering the potentials contained in this plant. For Scientists, this research can be developed through the further research, especially for the benefits *pelawan padang* as a drug

METHODS

This study was conducted from January to March, 2017 in Pejem and North Pejem sub-villages, Gunung Palawan villages, District of Bangka, Bangka Belitung Province (Fig. 1). The respondents (Lom community), both males and females, whose ages ranged from 25 to 80 years old were interviewed during the study. The respondents were divided into two groups, which were fixed and unfixed respondents. The fixed variable was divided into sub-groups according to the sex category, which consisted of 45 men and 20 women. Meanwhile, the unfixed variable was distinguished by age classes, occupation, and social status.

Figure 1. Map of the study area and *pelawan padang* sampling site (source: google maps)

a. Grouping of respondents based on the age classes

Based on the age classes, the respondents were classified in different age sub-group. Respondents aged from 25 to 40 years were considered as introduction group, those aged from 41 to 60 years were considered as understanding group, and those aged over 60 years (60-80 years) as advanced knowledge group.

b. Grouping of respondents based on the occupation

Based on community occupation, the respondents were divided into three major groups which were farmer, employee, and unemployed respondents. Group I was farmer consisting of respondents who worked as fishermen, farmer, labor, and gardener. Group II was employee consisting of respondents who worked as govern-

ment employee. Group III was unemployed respondents.

c. Grouping of respondents based on the social status

Based on social status, respondents were divided into two sub-groups, tribal leaders group and community members group. Tribal leaders were defined as a person or group of people who have an important role in the community. They are used as a reference about the problems that occurred to the community, whether in determining the law of the case, or explaining things that have not been known by the community members. Community members are Lom society that do not hold any position in the custom (tribal ritual) or government.

To investigate the degree of knowledge of plant uses, we divided respondents into groups by the ability to identify and use the plants. Respondents that knew the benefit of *pelawan padang*, but did not use it were considered as group I. Group II contained respondents that had used *pelawan padang*, but no longer used it. Respondents that still use *pelawan padang* in their daily needs was as Group III.

The interview was conducted by visiting the respondent's house directly without Forum Group Discussion (FGD). It is intended that informations obtained were a genuine knowledge of every people (respondents). Data was collected from respondents by using a structured questionnaire as a guide. Respondents were asked to mention the use of *pelawan padang* plant, then distribute 100 of crystal beads that have been prepared as a value or score for each use.

Data Analysis

Data collected were analyzed qualitatively and quantitatively. Qualitative data were analyzed through the descriptive statistic. Quantitative data were scored by using *Pebble Distribution Methods* (PDM) (Sheil *et al.* 2004) with the following equations:

$$\frac{Na}{Nt} \times 100\%$$

where *Na* was the number of crystal beads distributed by the respondents in a category of *pelawan padang* usability; *Nt* was total of 100 crystal beads.

RESULTS AND DISCUSSIONS

The result of the interview showed that

pelawan padang (Fig.2) was used by Lom community as traditional medicine, firewood, construction material, honey production, and materials for *Bagan* houses. *Bagan* (traditional houses) are buildings just like the stilt house that were built by fisherman over the water at the sea or river as shelter or resting place when they went to the sea for catching fishes (Genisa 1998; Aliyubi *et al.* 2015). Respondents revealed that type of *bagan* commonly used in the coastal of Bangka island were raft *bagan* and floating *bagan*. Then, percentage of respondents knowledge were categorized by age classes, occupation, and social status.
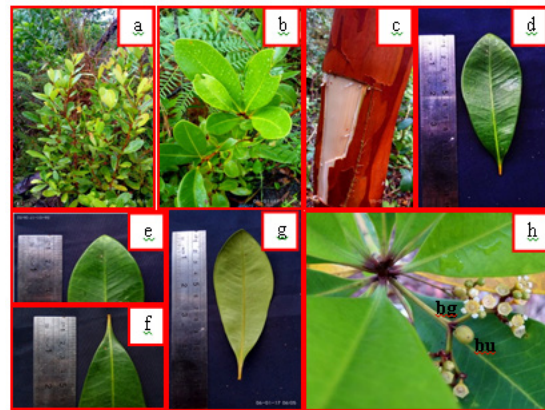

Figure 2. *Pelawan padang* morphological features. (a) Plant physique (b) (c) bark (d) leaf blade structure (e) leaf tip (f) leaf base (g) leaf vein (h) flower and seed/fruit

Knowledge of *pelawan padang* based on the age

Knowledge of respondents in identifying the benefit of *pelawan padang* could be classified based on age classes (Fig.3). The interview result showed that respondents in the age over 40 years identify more the benefit of *pelawan padang* in various uses. The majority of respondents that have higher understanding about the benefit of *pelawan padang* were women in identifying the benefit of plant species related to their level of needs, including plants from the forest. Local comunities living around the forest have interacted and know the sustainable use of forest plants (Pei *et al.* 2009). Ethnobotanical knowledge of local community has an important role in managing and conserving of the forest properly (Iswandono *et al.* 2015). This knowledge is further used as a role model for development of community wisdom in the future.
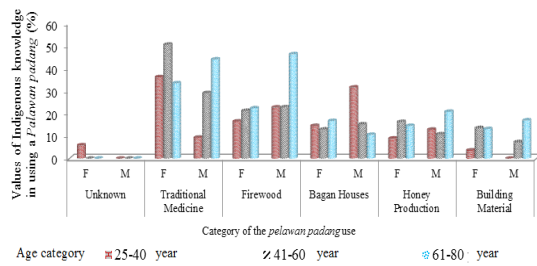
Figure 3. Percentage of indigenous knowledge of Lom people in identifying and knowing the benefit of *pelawan padang* based on age classes. M = male; F = female

Knowledge of *pelawan padang* based on the occupation

Ethnobotanical indigenous knowledge about *pelawan padang* uses can also be analyzed through respondents' occupation category (Fig. 4). Occupation group was correlated with how respondents identify and use *pelawan padang*. This knowledge was associated with fulfillment of their daily needs, especially their activities. Respondents working as farmer or unemployed respondents had a higher percentage in identifying the benefit of this species.
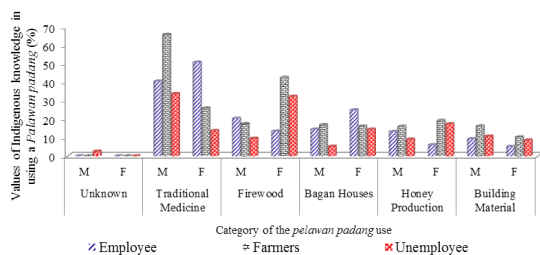

Figure 4. Percentage of indigenous knowledge of Lom people in identifying and knowing the benefit of *pelawan padang* based on profession/occupation. M = male; F = female

The interview result found that most of the unemployed respondents had previously worked as farmer. Employee group was defined as those who are highly educated. This group had a lower percentage in identifying the benefit of *pelawan padang*. Occupation was strongly influenced by education background and social status. Generally, the respondents of the employee group have a good educational background and aged under 40 years old, so, their ability to identify the benefit of natural resources in their environment was lower than other groups.

The low level of education also caused low level skill of respondents, so, some of uneducated respondents worked as farmer and depend on

forest product as their livelihood. Human activities related to the management of natural resources and environment are generally influenced by several-individual-factors such as education level and occupation (Nugroho *et al.* 2008; Suhartini 2009).

Knowledge of *pelawan padang* based on the sosial status

Respondents were also divided according to their social status in the community (Fig. 5). There was no influence was found for social status regarding to the knowledge of *pelawan padang* uses. It could be seen that local/indigenous knowledge tend to be influenced by how the knowledge was passed down and learned by the next generations from their ancestor. Annas (2013) revealed that this process (inheritance process) could occur both vertically and horizontally. Local/indigenous knowledge comes from the values that have developed over a long time in the traditional/tribal community (Nygren 1999; Aulia and Dharmawan 2011). This knowledge was further used by certain group of people to survive in the specific environment (Vardiansyah 2008; Bahtiar 2012).
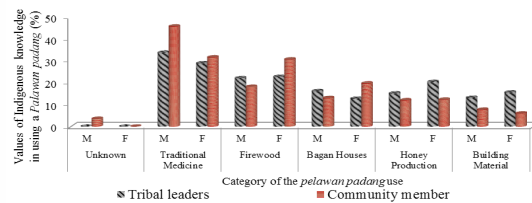

Figure 5. Percentage of indigenous knowledge of Lom people in identifying and knowing the benefit of *pelawan padang* based on social status: M = male; F = female

The use of *Pelawan Padang* by Lom community

Based on the interviews, Lom community indigenous knowledge in recognizing *pelawan padang* is not followed by the knowledge for utilizating this species. There were three groups of respondent who can be determined according to the difference of percentage of individual knowledge related to the use of *pelawan padang*. Group I was defined as those who only know the use of *pelawan padang*, group II as those who have used *pelawan padang*, and group III as those who still and often used *pelawan padang*.

Table 1 shows the use of *pelawan padang* as traditional medicine. Respondent aged over 40 years who had the highest percentage of *pelawan padang* uses were in group III. Male respondents aged between 25 and 40 years who had

Table 1. The use of *pelawan padang* as traditional medicine by Lom community

Group of respondent	Sex	Age classes (year)			Occupation/profession			Social status	
		25-40	41-60	61-80	employee	farmer	unemployed	Tribal leaders	Community member
I	M	29.42	0.00	0.00	0.00	12.50	0.00	0.00	7.86
	F	60.00	11.11	0.00	25.00	16.67	0.00	0.00	33.33
II	M	30.29	0.00	0.00	0.00	15.00	0.00	0.00	21.43
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
III	M	40.29	100.00	100.00	100.00	72.50	100.00	100.00	70.71
	F	40.00	88.89	100.00	75.00	83.33	100.00	100.00	66.67

Note: respondents who only know the use (I); respondents who have used *pelawan padang* (II); respondents who still and often used *pelawan padang* (III). male (M); female (F).

Table 2. The use of *pelawan padang* as honey producer by Lom community

Group of respondent	Sex	Age classes (year)			Occupation/profession			Social status	
		25-40	41-60	61-80	Employee	farmer	unemployed	Tribal leaders	Community member
I	M	70.59	45.00	50.00	60.00	32.50	0.00	5.88	46.43
	F	60.00	44.44	33.67	60.00	45.00	20.00	0.00	46.67
II	M	5.88	30.00	25.00	0.00	20.00	43.33	49.41	14.29
	F	20.00	22.22	33.00	40.00	0.00	30.00	60.00	26.67
III	M	23.53	25.00	25.00	40.00	47.50	56.67	44.71	39.29
	F	20.00	33.33	33.33	0.00	55.00	50.00	40.00	26.67

Note : respondents who only know the use (I); respondents who have used *pelawan padang* (II); respondents who still and often used *pelawan padang* (III). male (M); female (F).

the highest percentage were in group III, while female respondents who had the highest percentage was in group I. According to profession and social status, male and female respondents who had the highest percentage were in group I.

Table 2 shows the use *pelawan padang* as honey producer. It was known that respondents according to age classes who have the highest percentage of *pelawan padang* uses was in group I. The highest percentage was also found on the respondents who worked as employee in group I as well as respondents who worked as farmer and unemployed respondents from group III. Tribal leaders in group II and community member in group I also had the highest percentage on the use of *pelawan padang* as honey producer.

Table 3 shows that respondents aged 25 – 40 years in group I and respondents aged over 40 years in group III used *pelawan padang* as construction material of *bagan* traditional stilt house. The highest percentage of *pelawan padang* use as construction material was found in the respondents working as employee in the group I and unemployed respondents in group III. Male res-

pondents working as farmer who had the highest percentage were in group II, while female respondents were in group III. Tribal leaders and community members that had the highest percentage in using *pelawan padang* as construction material of *bagan* traditional stilt house were in group II for the male and group III for the female.

Table 4 shows the use of *pelawan padang* as construction material. Respondents aged under 41 years (<41 years) who had the highest percentage were in group I, while respondents aged over 60 years (>60 years) were in group III. Male respondents aged between 41 and 60 years who had the highest percentage were in group II, while female respondents were in group I.

Male respondents working as employee who had the highest percentage were in group I, while respondents working as farmer and unemployed respondents were in Group III. Overall female respondents were in group I on the use of *pelawan padang* as construction material. Tribal leaders who had the highest percentage on the use of *pelawan padang* as material construction were in group II, while community members

Table 3. The use of *pelawan padang* as building material of traditional stilt house by Lom community

Group of respondent	Sex	The use of *pelawan padang* by respondents							
		Age classes (year)			Occupation/profession			Social status	
		25-40	41-60	61-80	employee	farmer	unemployed	Tribal leaders	Community member
I	M	52.94	5.00	0.00	55.00	22.50	10.00	0.00	35.71
	F	60.00	22.22	10.00	50.00	16.67	30.00	28.00	20.00
II	M	47.06	40.00	42.00	0.00	40.00	37.00	52.94	25.00
	F	20.00	21.11	35.00	25.00	26.67	20.00	29.00	26.67
III	M	0.00	55.00	58.00	45.00	37.50	53.00	47.06	39.29
	F	20.00	56.67	55.00	25.00	56.67	50.00	43.00	53.33

Note : respondents who only know the use (I); respondents who have used *pelawan padang* (II); respondents who still and often used *pelawan padang* (III). male (M); female (F).

Table 4. The use of *pelawan padang* as material construction by Lom community

Group of respondent	Sex	The use of *pelawan padang* by respondents							
		Age classes (year)			Occupation/profession			Social status	
		25-40	41-60	61-80	employee	farmer	unemployed	Tribal leaders	Community member
I	M	76.47	30.00	0.00	55.00	25.00	0.00	17.65	57.14
	F	100.00	55.56	0.00	75.00	55.00	50.00	20.00	60.00
II	M	17.65	45.00	42.50	0.00	35.00	43.33	52.94	21.43
	F	0.00	44.44	33.67	25.00	45.00	30.00	60.00	33.33
III	M	5.88	25.00	57.50	45.00	40.00	56.67	29.41	21.43
	F	0.00	0.00	66.33	0.00	0.00	20.00	20.00	6.67

Note : respondents who only know the use (I); respondents who have used *pelawan padang* (II); respondents who still and often used *pelawan padang* (III). male (M); female (F).

Table 5. The use of *pelawan padang* as firewood by Lom community

Group of respondent	Sex	The use of *pelawan padang* by respondents							
		Age classes (year)			Occupation/profession			Social status	
		25-40	41-60	61-80	employee	farmer	unemployed	Tribal leaders	Community member
I	M	52.94	20.00	25.00	40.00	30.00	10.00	17.65	35.71
	F	42.00	22.22	16.67	25.00	16.67	10.00	0.00	33.33
II	M	5.88	30.00	22.50	60.00	17.50	35.00	35.29	14.29
	F	20.00	33.33	30.00	50.00	26.67	40.00	40.00	26.00
III	M	41.18	50.00	52.50	0.00	52.50	55.00	47.06	50.00
	F	38.00	44.44	53.33	25.00	56.67	50.00	60.00	40.67

Note : respondents who only know the use (I); respondents who have used *pelawan padang* (II); respondents who still and often used *pelawan padang* (III). male (M); female (F).

were in group I.

The use of pelawan padang as firewoods can be seen from Table 5. Respondents aged under 41 years (<41 years) who had the highest percentage were in group I, while respondents aged over 40 years (>40 years) were in group III. Respondents working as farmers and unemployed respondents who had the highest percentage were in group III. Male and female employee who had the highest percentage were in group II. Tribal leaders and community members who had the highest percentage were in group II.

Generally, the result showed that the degradation of Lom people's knowledge in using

pelawan padang was associated with age classes and occupation. Young respondents can only identify the benefit of *pelawan padang*, but no longer used it. It may be due to lifestyle changes of Lom community nowadays. The lifestyle of Lom people that become more modern cause the loss of local knowledge that have developed in previous period. The degradation of knowledge on the use of plant species resulting in the loss of local wisdom in an area regarding to the use of plants and management of the forest. Beside as natural resources to fulfill daily needs, forests also play important role in keeping the local wisdom of community (Negi 2010; Turner *at al.* 2011; Batoro *et al.* 2017). The wisdom of local people in forest utilization is very important in the process of conservation of a region (Rist *et al.* 2010).

Respondents knowledge based on occupation showed that there is significant degradation of knowledge of the use of *pelawan padang*. Most of the respondents working as employee only knew the benefits of *pelawan padang* from other community members, but no longer used this species in the fulfillment of their needs. it can be caused by the exposure of modern life to the employee, so, their habit to use plants traditionally began to be abandoned. Every community group in the same region does not necessarily have the same knowledge in identifying and using plants (De Beer and Van Wyk 2011). The use of plants is affected by the level of needs, the change of mindset and the influence of the local residence environment.

Grouping the respondents by social status did not show the differences in Lom society's perception regarding to the use of *pelawan padang*. Tribal leaders in Lom community was chosen from generation to generation according to their roles in the community. This selection is not influenced by the level of knowledge in utilizing of plant species. Giving the title as tribal leaders to someone is due to the influence of position, ability and expertise that were acknowledged in their community (Stamadova 2017).

This study provides the latest information about the benefits in harvested plants originating from the Lom Community. This research is expected to contribute to Lom Community in cultivation *pelawan padang* considering the potentials contained in this plant. For Scientists, this research can be developed through the further research, especially for the topic of the benefits *pelawan padang* as a drug.

CONCLUSION

Lom community used *pelawan padang* as traditional medicine, firewood, construction material, material of *bagan* traditional stilt houses, and honey production. Respondents in lower age group (20 to 40 years) and employee group only identified the benefit of *pelawan padang* but no longer used it in their lives. A higher percentage in identifying and using *pelawan padang* was found in the age classes over 40 years. Unemployed respondents and farmers had higher percentage in using *pelawan padang* compared to respondents working as employee. Identification of the benefit of *pelawan padang* was not affected by social status.

ACKNOWLEDGEMENT

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