



## Ethnobotanical Study of Rattans on Suku *Anak Dalam* Community in Bukit Duabelas Nasional Park

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### Abstract

*Suku Anak Dalam (SAD)*, a tribal in *Bukit Duabelas Nasional Park (TNBD)* has knowledge for utilizing rattans. This research attempts to investigate the species of rattans utilized and to analyze the local wisdom of *Suku Anak Dalam (SAD)* community. The data was collected by doing an interview the informants consisting of *temenggung* (head of the tribe), *jenang* (the liaison between the villagers and *anak dalam*), rattans gatherers, *induk* (mother) and hand maker. Then, the researcher observed active participation (following the SAD activity in utilizing rattans). The interview was conducted based on the appropriate time with qualitative condition and situation. The result showed 12 (twelve) species of rattan utilized by the SAD community, *Calamus ornatus* (Blume), *Calamus caesius* (Blume), *Calamus flabellatus* (Becc.), *Calamus manan* (Miq.), *Calamus csipionum* (Lour.), *Calamus javensis* (Blume), *Calamus axilliaris* (Becc.), *Calamus* sp., *Daemonorops geniculata* (Griff.) Mart., *Daemonorops draco* (Willd.) Blume, *Daemonorops verticiliaris* (Griff.) Mart., and *Korthalsiaechinometra* (Becc.) The eight species were utilized as *ambung*, *penampilan*, and *tekalo* handicraft. One type for rituals, ropes, clotheslines, dye, durian *lempok* cakes preservatives (*Durio* spp.), and the species for the food for pregnant mothers ('*ngidam*'), and the three species for medicine. The implication of this research gave a documentation for the government to formulate and to make an authority of TNB forest conservation and to protect the culture of SAD community in the form of rattans inventarization and local wisdom of SAD community in utilizing the species of rattans.

### How to Cite

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## INTRODUCTION

Forest is one of the natural resources that has many functions for the continuity of human life, such as ecosystem protector, foreign exchange producer, and to improve welfare. Indonesia is one of *mega-biodiversity* countries for its abundant and various biodiversity. Alikodra (2010) states that Indonesia biodiversity places the second largest forest in the world. One of the biodiversities is rattans. The presence of rattan in Indonesia is quite varied, approximately predicted of around 306 types and 51 of them have been utilized.

Rattans are one of forest plants that has commercial values and stands for national foreign exchange. Indonesia is the biggest rattan producers in the world. Sanusi (2012) states, "in 2005, rattans are able to contribute the national foreign exchange of US\$ 222.387.659, that is why the potential of rattans need to develop in order to improve genetic resources preservation, utilization dan conservation. According to Republic of Indonesia Employee Cooperative (2013), Indonesia supplies 80% of world's rattans needs every year. Of the total percentage above, 90% is produced from tropical forest in Sumatra, Kalimantan, and Sulawesi. Whereas the remaining is produced from rattans cultivation.

Rattans are the propagating plants of *Areca-aceae* spp. and has spines of each segment. It plays an important role as non-wood forest resources which has economical and cultural values for society, one of them is for *Suku Anak Dalam* (SAD) community, a tribal in Jambi who live in the area of Bukit Duabelas National Park. It is one of conservation area with a fairly high biodiversity dan potential to develop, such as its non-wood forest products that can support the life of SAD local community as crafts, medicines, household equipments, and source of income (Jambi Nature Conservation Agency, 2009). Nowadays, non-wood forest products management is considered 'outplayed' and is not got the attention yet from society sue to the limitation of knowledge and information about its conomical values and benefits. *SAD* community has closely relations with the rattan resources. It has many functions and beenefits for them for craft materials, household equipments, and source of livelihoods (Mairida et al 2014). Regarding the issues, SAD community has a culture and a local wisdom to preserve rattans. However, the information is not explored yet widely. The information about rattans utilization and SAD local wisdom in keeping rattans preservation in Bukit Duabelas National Park of Sarolangun is not known yet by society. It is so

because of the limitation of research documentation regarding the SAD local wisdom in utilizing rattans. According to Ramirez (2007), the decrease of biodiversity is then followed by the decrease of knowledge about its benefits. The results of the previous research by Setyowati (2003) in Bukit Dua Belas National Park of Sarolagun confirmed that there were 10 types of rattans (*Calamus* spp.) utilized as household equipments (7 types), food ingredients (2 types), and ropes (1 type). Form the result, it still requires to conduct the further study on the benefits of rattans for SAD community in Bukit Duabelas National Park of Sarolagun, Jambi. This research attempts to investigate the types of rattans utilized and to evaluate the local wisdom of SAD community in utilizing rattans so that it would be able to make an effort of rattans preservation on society traditionally.

## METHODS

This research was conducted in TNBD Sarolangun on March-June 2014. The data was collected by doing in-depth-interview (Purwanto, 2003), observation of active participation, and documentation (pictures, recordings, and specimen) as well as the study of another data source literature (Martin, 1995). The interview method was conducted to the number of main informants (Sugiyono, 2008) consisting of three people, *temenggung* (head of the tribe) and rattans gatherers, one person called *jenang* (the liaison between the villagers and the SAD), two people called *indung* (snowballs). The level of informants' education is that they have never taken formal education at schools.

The data analysis was conducted qualitatively and descriptively, including the SAD community knowledge regarding the utilization and local wisdom of the rattans. The index analysis regarding SAD culture of utilizing the rattans was conducted by using *Index of Cultural Significance* (ICS) (Cunningham 2001), counted by the following formulation:

$$ICS = \sum_{i=1}^n (q \times i \times e) n_i$$

Description: ICS = Indeks of Cultural Significance; q = Quality Value; i = Intensity Value; e = Exclusivity Value;  $n_i$  = rattans utilization order.

ICS showed the equality of the number of utilization value of rattans from the first utilization ( $i$ ) up to  $-n$ . It is determined by giving score

or quality value on a type of rattans; intensity value shows the intensity of rattans utilization and exclusivity value as the level of the needs regarding the culture. Purwanto (2011) said that ICS value is influenced by three aspects: (1) quality of the type of plants, (2) intensity of utilization, and (3) exclusivity.

Determining scale of ICS category based on the utilization value of the species of rattans as shown in Table 1.

**Table 1.** Scale of ICS category (Modified by Setyaningrum, 2009)

Value range ICS	Category	Code
≥ 50	High	H
25 – 49,5	Medium	M
1 – 24,5	Low	L

### Rattans identification

Rattans identification was conducted to unknown scientific names of the rattans. They were made to be herbarium, then it was observed the morphology, and compared the specimen or collection in LIPI Herbarium Bogoriense, Cibinong, as well as using identification book entitled 'Manual of the rattans of the Malay Peninsula (Dransfield 1979), The rattans of Sabah (Dransfield 1984), The rattans of Sarawak (Dransfield 1992), and The rattans of Brunei Darussalam (Dransfield 1997).

## RESULT AND DISCUSSION

### Rattans utilization by SAD community

The result of this research showed that SAD community in TNBD used 12 species of rattans (Attachment 1). It was used as handicraft materials, medicine, dye, preservatives, food for pregnant mothers (*ngidam*), rituals, and ropes. It can be seen in Table 2. Documentation of rattan species is presented in Figure 1.

Table 2 describes the species of rattans used by the community which are from three families, *Calamus* (8 species), *Daemonorops* (3 species) and *Korthalsia* (1 species). *Calamus* was used the most. Purwanto *et al.* (2005) said that the species of rattans are found and used the most from *Calamus*, consisting of 20-25 species. Whereas other species have the utilization from *Daemonorops* and *Korthalsia*. The SAD community used rattans for:

### Medicines

The utilization of rattans for medicines was found three species, *Daemonorops draco*, *Calamus manan* and *C. scipionum*. *C. manan* The type of

*C. manan* was used for asthma and stomachache medicines. The way to make it is rattans stams have to be pointly cut, then pour water of stams into a glass, the top of the stams is cut, and pour the water of the stams into the glass and it is ready to drink. Hariyadi and Ticktin (2012) said that the communitu of Serampas Jambi use *manau* rattans sap (*C. manan*) for thrush medicines. *C. scipionum* is used for ulcers medicines, the part used from this type is the bulbs by processing, punding and stick it to the ulcers.

The SAD community use *D. dracofor* headache, wounds, fever, and diarrhea, and the part used for the medicines is the sap. The way to cure the wounds is by scraping the sap, then it is spread to the wounds. The community think that the sap of *D. draco* can stop the bleeding. Soemarna (2009) described that the sap of *D. draco* has chemical components 'benzopyran' to stop the bleeding and saponin that can neutralize the venom. Curing the diarrhea is done similarly to the ulcers or wounds medicines (by scraping the sap and it is mixed bith water. The medicines is ready to drink). Waluyo (2008) described that the sap *D. draco* has 'tanin' components that can stop diarrhea. According to Munawarah *et al.* (2011), the use of the sap of *D. draco* is traditionally used for medicines potion of diarrhea and gastrointestinal disturbance. In Europe, it is used for dysentery and diarrhea. In Malay, it is used for gastrointestinal disturbance medicines and in Greek, it is used for eyes sore medicines in the past.

### Handicraft Materials

Handicraft materials are a proceed materials which have beautiful, useful and economic art works values. *Ambung* is the place of tobacco, filter, household tools storage like plates, cup, pan, crops, and fruits. It has shape like a basket, rounded surface, wicker meeting, and the color is made of natural dye. Making *ambung* made by plaiting and woving it, then it is carried. Sasmita (2009) reported that the main equipment had by the SAD community like a basket are made of rattans used to carry many tools while in the road and crops by carrying the basket. *Tekalo* (small fish trap) is a tool used to catch fish in a small river or a tributary. The way to cath the fish is by covering body or blocking the tributary by planting woods that are arranged straightly like the fence in the river called *jerejak*. The next step is planting the woods transversely called *bremben*. Then, it is corked by using *jerejak* and *bremben* with small woods twigs and the arrangement of various leaves is called *papah*. Then, the *tekalo* is mounted in front of the river dam by applying the

**Table 2.** Rattans Utilization by SAD Community in TNBD Sarolangan Jambi in 2014

Name of Rattans		Usage	Part of Rattans Used by the SAD Community	ICS Total
Local Name	Scientific Name			
Jernang	<i>Daemonorops draco</i> (Willd.) Blume	Medicines for a headache	Sap of the fruits	60
		Medicines for ulcers/ wounds	Sap of the fruits	
		Cold catcher	Sap of the fruits	
		Medicines for diarrhea	Sap of the fruits	
		Dye	Sap of the fruits	
Semambu	<i>Calamus scipionum</i> (Lour.)	Medicines for wounds	<u>Empulur</u>	48
		Cake Wrap	Leaves	
SenamoKeke-cik/Pledais	<i>Calamus flabellatus</i> (Becc.)	Ropes	Stems	40
		Preservatives	Leaves	
Manau	<i>Calamus manan</i> (Miq.)	Medicines for stomach-ache	Stems water	36
		Medicine for asthma	Stems water	
		Food	Fruits	
Cacing	<i>Calamus javensis</i> (Blume)	Handicraft materials	Stems	32
Tetebu	<i>Calamus ornatus</i> (Blume)	Food	Fruits	32
Gelang	<i>Daemonorops verticillaris</i> (Griff.) Mart.	Handicraft materials	Stems	16
Sego Air	<i>Calamus axillaris</i> (Becc.)	Handicraft materials	Stems	16
Sego Putih	<i>Calamus caesius</i> (Blume)	Handicraft materials	Stems	16
		Handicraft materials	Stems	
Siuh/Udang	<i>Korthalsia echinometra</i> (Becc.)	Handicraft materials	Stems	12
Temiang/ Temati	<i>Calamus</i> sp.	Handicraft materials	Stems	12
Cikoi	<i>Daemonorops geniculata</i> (Griff.) Mart.	Rituals	Leaves	12

base of *tekalo* placed to the river bank. The next is all the tools has to be left until the fish become entangled in the *tekalo*. It is made by wwavng the rattans.

The SAD community used eight species of rattans to make *ambung*, *penampion*, and *tekalo* (*Calamus axillaris*, *C. caesius*, *C. flabellatus*, *C. javensis*, *Calamus* sp 2, *Daemonorops geniculata*, *D. verticillaris*, and *Korthalsia echinometra*). Rahayu et al. (2007) added that Malay people of Jambi used 'shrimp rattans' (*Calamus diepenhorstii*), 'peledas rattans' (*Calamus flabellatus*) and 'stone rattans'

(*Korthalsiaechinometra*) as the handicraft materials.

#### Dye

The SAD community used *D. draco* rattans as dye which is made of rattans sap. The sap colors the handicraft by giving brownish red color to *ambung* and mat. According to Wahyudi & Jannetta (2011), *jernang* is the type of palms whose the surface of its fruit is covered by 'blood' red color or dark red. The way to coloring the handicraft by using *D. draco* sap is by punding and sifting it in the *ambung*, then spreading the sap to the



A



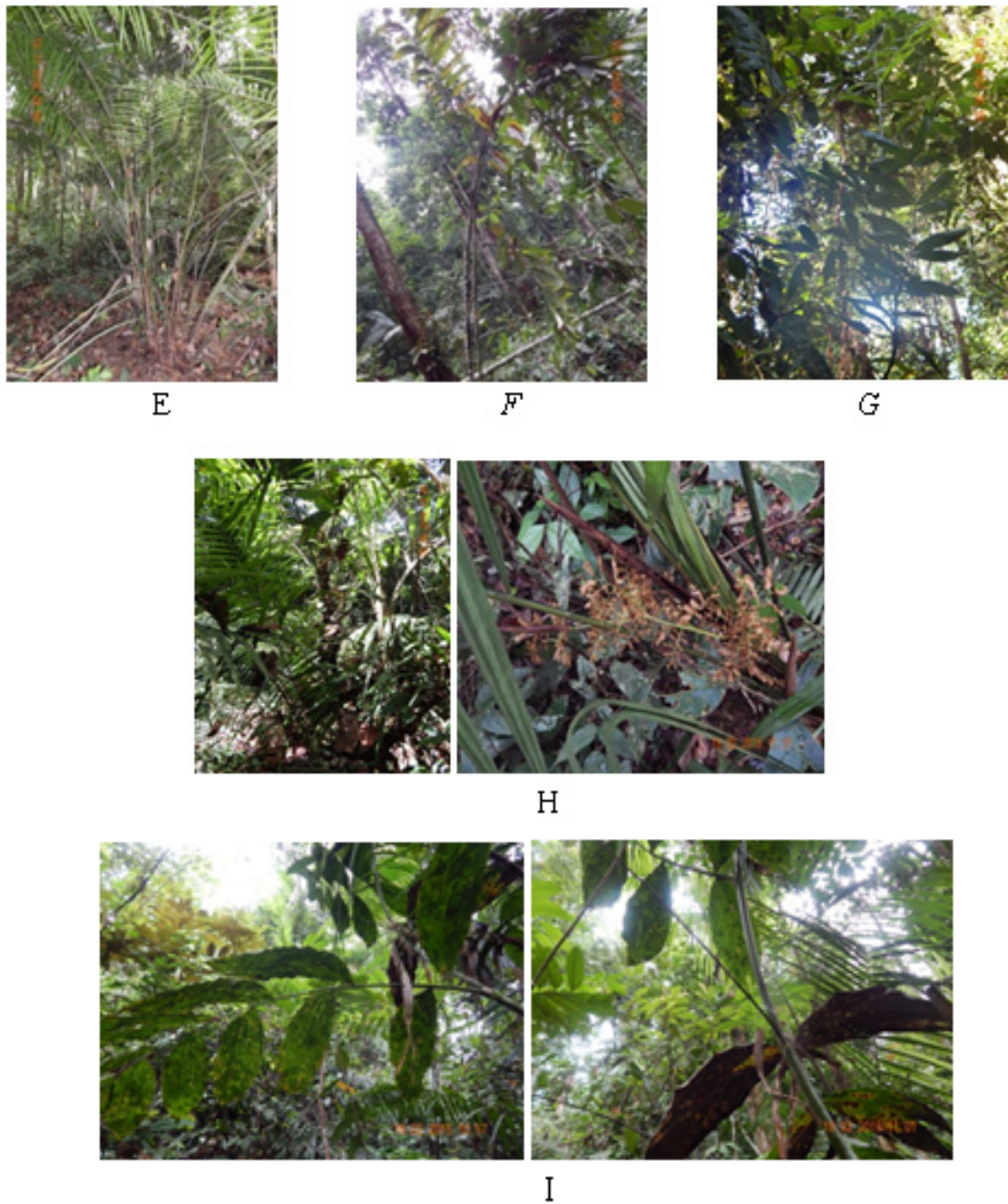
B



C



D



Description:

- A. Rattangelang (*Daemonorops verticillaris* (Griff) Mart.)
- B. Rattan senamo kekecik (*Calamus flabellatus* Becc.)
- C. Rattan siuh (*Korthalsia echinometra* Becc.)
- D. Rattan tetebu (*Calamus ornatus* Blume)
- E. Rattan jernang (*Daemonorops draco* (Willd.) Blume)
- F. Rattan manau (*Calamus manan* Miq.)
- G. Rattan sego putih (*Calamus caesius* Blume)
- H. Rattan cikoi (*Daemonorops geniculata* (Griff) Mart.)
- I. Rattan temati (*Calamus* sp. 2)

Figure 1. Documentation of the species of rattans utilized by SAD community

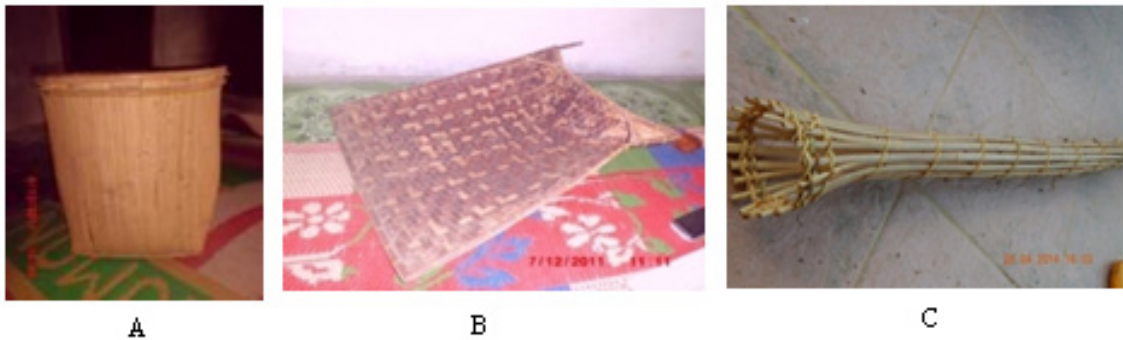


Figure 2. SAD community craft; A. *Ambung*; B. *Penampion*; C. *Tekalo*

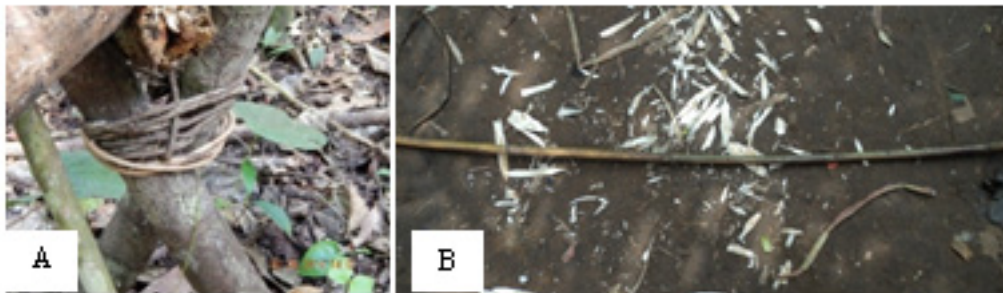


Figure 3. Use of rattan as a binder A. Lodgepole; B. Clothesline rope

parts of *ambung* and mat. Yetty et al. (2013) confirmed that the villagers in Lamban Sigatal and Sipintun used the sap of *jernang* to paint.

The process of *D. draco* sap is, first, the fruit is stamped to the bunches, closed for three days by using tarps to make the fruit easy to take off. Then, the fruits is punded in the *ambung* by using the three-branches woods so that the seeds cannot be broken. Finally, the seeds are taken off, and the fruit skins are sifted (filtered) to decrease dirt on the sap.

#### Additional Food

The SAD community used the fruits of *Calamus ornatus* and *C. manan* rattans for plants' food. The fruits are favorite food for *induk* (mother) who have their pregnancy and for SAD children because of its sour taste. Rahayu et al. (2007) described that Malay people of Jambi used the fruits of *duduk* (*Calamus* sp.) rattans as additional food, but they did not use it due to the different knowledge and culture among them. Also, Hendra (2012) said that Dayak Benuaq people in East Kalimantan used the spines of *C. ornatus* branches.

#### Ritual Materials

The SAD community used the leaves of *Daemonorops geniculata* rattans as the ritual materials called *turun* (the time when the rice has been

planted). *Turun* ritual is a ceremony for wishing to Gods to get their rice protected from pest, thrives, and good crops. The community used the leaves of *D. geniculata* rattans in the ritual. The way to use it is by taking the leaves together with the midrib, giving it mantra called *jampi-jampi*, and planting it on the farm.

#### Preservative

The SAD community used the leaves of *C. scipionum* rattans to preserve durian *lempok* cakes (*Durio* spp.). The way to use it is by taking the leaves, cleaning the leaves, and wrapping the *lempok* by using the leaves. Durian *lempok* wrapped by using the rattans leaves last until three months.

#### Ropes and Clothesline Materials

The SAD community used the stems of *C. flabellatus* rattans as the ropes and the clothesline. The ropes are used to tie up a pole of hut (house), clothesline, and bridge handle (Figure 2). The way to use it is, first, by taking the rattans and clean them from dry midrib. Then, they are divided into two parts or based on the needs of the community, and the rattans are ready to use for the ropes. According to Hendra (2012), ropes is the crucial part for various use because before finding pegs from nails (iron), the traditional community used the ropes to connect the building parts. Dayak Benuaq people in East Kalimantan

used rattans as the ropes to tie fence, firewood, households, and animal trap.

The clothesline of the SAD community from intact rattans are used to dry the clothes. The way to use them is by taking the rattans and cleaning them from the midrib and the spines. The next is by tying it to the clothesline. Rahayu et al. (2007) said that Malay people of Jambi used *Korthalsiara strata* as ropes.

### Knowledge of Rattans Utilization by SAD Community

The SAD community has knowledge and skills of using rattans. The knowledge and skills were taught by ancestors from generation to generation by seeing and following the process of making rattan. The knowledge taught from one generation to the next generation by their parents, siblings, and craftsmen. The source of knowledge is mostly obtained by their parents. Parents play an important role in the inheritance of the knowledge about traditional conservation and utilization of rattans so that the knowledge will be delivered to the next generation in the future. Setalaphruk & Price (2007) said that the amount of research had confirmed that most of the traditional knowledge were delivered vertically by parents as the main contributor in transferring it.

### The level of cultural extension of SAD community in utilizing rattans

The result of ICS (*Index of Cultural Significance*) confirmed that the level of cultural extension of the SAD community in utilizing the rattans can be seen in Table 2. It showed that rattans are very important and useful for the community. It also indicated the highest ICS found in *D. draco* rattans because the utilization intensity and the level of being favorite ones were high, so the community really needed it for the dye, headache, wounds, and diarrhea medicines.

*C. scipionum*, *C. flabellatus*, *C. manan*, and *C. javensis* rattans belong to medium ICD because they have one or two uses with the utilization intensity and the level of being favorite ones was in the medium level, so the indication was worth enough and chosen by the community. Whereas *D. verticillaris*, *D. Geniculata*, *C. axillaris*, *C. caesius*, *C. ornatus*, *Calamus* sp., dan *K. Echinometra* rattans belong to low ICS because they were used stems as the handicraft materials with the low utilization intensity, so they were rarely used since they could be replaced by another ones. The SAD community thought that those species of rattans had bad quality stems. The highest use of plants, the bigger level of the extension. Purwanto (2011)

said that a plant with high ICS shows that it mostly becomes the favorite one by the community.

### Local wisdom of SAD community in utilizing rattans

The SAD community utilized the rattans to fulfill their household needs, farming, fishing, medicines, additional food, and secondary materials. Regarding the importance of rattans, the community had an indigenous authority to preserve the rattans. Based on the result of research, the local wisdom of the SAD community in utilizing rattans was a form of rattans preservation. One of them the local wisdom in utilizing the rattans was done in the crops as follows: 1) Taking the old stems of the rattans. The characteristics of the old stems are the midrib and spines that have fallen from the stems; 2) Taking the rattans by leaving the young rattans so that regeneration of rattans will be stay conserved in the future; 3) Taking the *jernang* fruits that have been ripe because they produce an optimal sap; 4) Taking the *jernang* fruits by using a knife or climbing the host trees and it is forbidden to cut. The punishment of cutting the tree is the fines payment of 60 fabrics and being exiled by the community; 5) Prohibiting to cut the trees surrounded rattans. The conservation of the host trees by the SAD community has supported rattans conservation.

Sasmita (2009) said that taking *manau* rattans (*C. manan*) can be done without cutting the tree before it produces fruits and the tall reaches less than 15 meters. Yetyet al. (2013) reported that the productive period of *jernang* fruits (*Daemonorops draco*) in the age of 6-7 years and is harvested twice a year.

### CONCLUSION

SAD community utilized 12 species of rattans namely *Calamus ornatus* (Blume), *Calamus caesius* (Blume), *Calamus flabellatus* (Becc.), *Calamus manan* (Miq.), *Calamus. Scipionum* (Lour.), *Calamus. javensis* (Blume), *Calamus axillaris* (Becc.), *Calamus* sp., *Daemonorops geniculata* (Griff.) Mart., *Daemonorops draco* (Willd.) Blume, *Daemonorops verticillaris* (Griff.) Mart., and *Korthalsia echinometra* (Becc.). The eight species of rattans were utilized as handicraft materials, the three species for medicines, two species for additional food, one type for ropes, clothesline, dye, and rituals. The utilization intensity of *Daemonorops draco* was in the high category (60) because it had an importance use for the SAD community utilized for dye, headache, ulcers/wounds, and diarrhea medicines. The local wisdom of SAD community



who utilized the rattans had supported the conservation of the species rattans. The result confirmed an implication in the form of documentation of the species of rattans inventarization and the local wisdom of the community in utilizing them. The documentation had become an indication for the government in making a policy of TNBD forest conservation and culture protection of SAD community.

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