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## **The Conservation of Jernang Rattan (*Daemonorops Draco*) By Anak Dalamtribe In Jebak Village, Batanghari, Jambi Province**

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### **ABSTRACT**

Conservation of Jernang Rattan (*Daemonorops draco* Willd.) in Jebak Forest, Batanghari, Jambi is not well documented. It is noted that fruit of *D. draco* is the best income source for Anak Dalam Jambi people since 1624. They harvest fruit of *D. draco* as much as they need. The Jebak forest is an open access, so all the people of Anak Dalam Jambi Tribe have the same right and responsibility on the forest. However, almost 70% of Jebak Forest area has been degraded because of illegal logging. This is the reason why people of Suku Anak Dalam, try to cultivate *D. draco* by growing 30 clumps of this species in their rubber plantation. The aim of their activity is to conserve *D. draco* at their forest. Based on the recent situation, research study of jernang rattan conservation in Jebak Forest was conducted. The research method was semi structural interview. All data were analyzed descriptively. The results showed that the conservation and cultivation of *D. draco* in Jebak Forest was very difficult because the availability of seeds was not sufficient for root stocks.

Keywords: Cultivation, income source, jebak Forest, management, jernang rattan

### **1. INTRODUCTION**

The people belonging to Anak Dalam Tribe in Jebak Village, Batanghari District, Jambi Province are the refugees who came from South Sumatra. They came to the forest in Jambi province in 1624 because of the war between the Sultanate of Palembang and Jambi Kingdom. The majority of the populations are moslems. Their daily language is Malay. The people of Anak Dalam Tribe in Jebak forest have yellow skin, ranging in height between 140 -160 cm. Their houses are usually made of wood and thatch-roofed (Ministry of Social Affairs 1998).

The people of Anak Dalam Tribe who settle in Jebak forest make use of all forest products as a source of their livelihood. All members of the population have equal opportunity to use forest products. One of uses of jernang rattan is as a producer of red resin called dragon's blood. The people of Anak Dalam Tribe who work as seekers of dragon blood are between 40 - 55 years old. Those under the age of 40 years collect other forest products such as honey, rattan sticks, raman fruit, petai, and kabau and hunt wild bear, snakes, turtles, and birds. Extraction activities of dragon's blood are done Individually Muchlas (1975). Extraction of jernang rattan has been done intensively by the people since the 1600s (BKSDA Jambi 2010).

The extraction of jernang rattan in the past was the main income for most people living in forest areas in Sumatra, especially for people in Jambi, such as the Malay people and Anak Dalam Jambi Tribe. Traditionally, the people of Anak Dalam Jambi Tribe extract dragon's blood in the surrounding forest, and so do the people of Anak Dalam Tribe who live in Jebak village.

Demand for dragon's blood continues to increase, causing over - exploitation of jernang rattan. This causes the increase of harvest of jernang rattan without considering its sustainability that is harvesting by cutting the stems. Beside over-exploitation, which threatens the sustainability of the jernang rattan in Batanghari, there is also encroachment and illegal logging. Therefore, the people of Anak Dalam Tribe in the village of Batanghari try hard to find strategies to manage

jernang rattan for sustainability and benefit to people's lives and seek to develop and cultivate rattan in the forest of Anak Dalam Tribe in Jebak village.

One of Anak Dalam Tribe's efforts to conserve jernang rattan is harvesting the fruits by climbing up a tree where the jernang rattan creeps its stems. The people of Anak Dalam Tribe take only the fruits and never cut the stems during harvesting the fruits. Therefore, the harvesting technique done by the Anak Dalam Tribe does not reduce the population of jernang rattan (Winarni *et al.* 2004). Based on direct observations and specimen observation in the Herbarium Bogoriense observations, there are two rattans that produce dragon's blood in the village of Batanghari. They are jernang rattan (*Daemonorops draco*) and kelemunting rattan (*Daemonorops didymophylla*). The jernang rattan can be processed to make modern medicine and high-quality dye (Soemarna and Anwar 1994).

The development of jernang rattan can be done by cultivating *Daemonorops draco* in its natural habitat especially in the area near the river (Purwanto *et al.* 2009). This species should be chosen as one of the leading crops in agroforestry systems in forest areas of Anak Dalam Jambi Tribe in Jebak village and trade system of dragon's blood should be regulated by shortening the jernang rattan marketing chain, so there is no monopoly by a producer (BKSDA Jambi 2010). Jernang rattan cultivation in its natural habitat in the forests area of Anak Dalam Jambi Tribe has some benefits including conservation of biodiversity and reducing the excessive exploitation of nature. The presence of jernang rattan species in the forest will prevent conversion of forest into agricultural land (Soemarna and Anwar 1994). The development and the cultivation of jernang rattan can also be done in the area of rubber plantations as intercropping plants which may provide more benefits than converting rubber plantations to oil palm plantations, but in Jebak village haven't done this.

The objectives of this study were to examine how the Anak Dalam Tribe conserve *Daemonorops draco* to remain sustainable and beneficial, and to analyze the possibility of the development and cultivation of *Daemonorops draco* in the forest areas of Anak Dalam Jambi Tribe in order to provide both economic and ecological benefits.

## 2. MATERIALS AND METHODS

Time and place the research was carried out in forest areas of Anak Dalam Jambi Tribe in Jebak village, Muara Tembesi, Batanghari, Jambi Province. This selection of site was based upon information that the forest is a habitat of jernang rattan populations.

Jebak Village of Jambi is an old village of Anak Dalam Jambi Tribe. The Jebak village is 60 km from Jambi city which can be reached within an hour road trip. Jebak village is located at 103°05'- 103 °15E and 01°40'-01°50' S, with an altitude of 20 m above sea level, rainfall of 2296 mm/year. The population is 250, consisting of 40 households (BPS Jambi 2010; BKSDA Jambi 2010).

The methods used in this study were interviews, direct observation, and literature review. Interview method was done to obtain information about the history of jernang rattan in the forest area of Anak Dalam Jambi Tribe, the use, the habitat, the non-destructive harvesting techniques, the characteristics of fruits that can be harvested, the management, the conservation and the cultivation of jernang rattan by Anak Dalam Jambi Tribe, and the socio-economic value of dragon's blood Interview technique used was semi-structural interview that had guidelines in the form of questions, but could be developed, according to the needs in the field. The interviewees were men aged 18-70 years. The approach was based on information from key informants from traditional elders, and of ordinary people of Anak Dalam Jambi Tribe as dragon's blood seekers in

the village of Jebak (Rugayah *et al.* 2004). Data were analyzed descriptively and in conjunction with the data retrieval process. The data analyses consisted of organizing data, sorting data, and drawing conclusions.

### 3. RESULTS AND DISCUSSION

Anak Dalam Jambi Tribe and jernang rattan Jebak Village has been inhabited by Anak Dalam Jambi Tribe since 1624. But their existence has been definitive since 1970. Prior to 1970, they lived in nomadic thatched house on stilts. Since 1970, they have been localized and given shingle-roofed houses, each measuring 36 m<sup>2</sup>, and 2 hectares of rubber land near their homes. Jebak village is inhabited by 40 families comprising 250 people: 104 men and 146 women (BPS Jambi 2010).

The people of Anak Dalam Jambi Tribe are the descendants of South Sumatran people. Therefore, they are familiar with the Islamic religion, clothing, and food from their ancestors. Their livelihood is to extract the Non Timber Forest Products (NTFPs) such as balam, jelutung, dammar, dammar mato kucing, rattan, honey, and dragon blood. Because NTFPs are sources of their livelihood, Anak Dalam Tribe treat them in such a way that prevent damage.

Since 1990, the encroachment of forest has grown out of control because of lack of supervision from the government and because of unclearness of boundary between the forest area and the village around the area (BKSDA Jambi 2010). Jernang rattan is a plant which is used as a source of family income, because it produces dragon's blood which is relatively expensive. Jernang rattan has been used by Anak Dalam Tribe since 1624. There are two species of rattan producing dragon's blood in Jebak village, namely jernang rattan and kelemunting rattan.

Since 1624, dragon blood has been used by Anak Dalam Jambi Tribe as a source of income (the dragon's blood price range Rp 1-2 millions/ kg), medicine for injury, diarrhea, headache, accelerator of parturition and as explosive. Puerperal blood will dry within 3 -7 days after using dragon blood pills. The main component of dragon blood is alcoholic resin of dragon's blood, resinolanol draco (56%), when heated it will produce a smell like incense. Because it is red, then it is known as the red incense. Anak Dalam Jambi Tribe communities use the one as a substitute for incense in ritual ceremonies.

Dragon's blood contains Draco Resin (11%), Draco Alban (2.5%), amino acid and benzoate (Winarni *et al.* 2004; Waluyo 2008). Benzopyran serves to stop the bleeding when injury occurs. Benzopyran can be processed as a biopesticide; trierene can cure impotence in men; flavonoids acts as antioxidants; saponins plays a role in neutralizing and clearing toxins (Soemarna and Waluyo 2009), and tannins stops diarrhea (Waluyo 2008).

#### 3.1. *Extraction activity and production systems*

Extraction of dragon blood is done every year, but in August and December jernang rattan bears the greatest number of fruits, so Anak Dalam Jambi Tribe call it great harvest. Jernang fruit is harvested when it is not too ripe and not too young. If harvested too ripe or too young, the production of dragon's blood is not optimal. According to Anak Dalam Jambi Tribe, the thickest dragon blood is obtained from the fruit at the age of 9 months from flowering. In each extraction season (from August to December) every person can obtain 30-50 kg of dragon blood. It also depends on the luck factor. In general, each tree can produce 10 - 60 kg of fruit, depending on the conditions of growth and soil fertility.

Jernang rattan plants in the forest are an "open access" meaning that every member of the society in the region has the same rights and opportunities to extract jernang fruits. There is no specific ownership for the jernang fruit in the forest in this region. The harvest principle is: the person who knows first that the jernang rattan is bearing fruit is the one who can harvest it. When he does not harvest it at once, then the next day other community members may harvest the fruit, and the first man cannot claim that the fruit is his. The harvest system is: who is faster then he gets the fruit. From the extraction of these dragon blood, Anak Dalam Jambi Tribe can meet all their basic needs, such as sending their children to school, supplementing their household needs in order not to be left behind by the outsider community. However, these conditions are hard to come by this time, because the population of jernang rattan in nature has been decreasing.

### *3.2. Post harvest handling and trading*

After the separation process of dragon's blood is completed, and then the extraction product in the form of powder is put in a plastic bag weighing 0.5 to 1 kg. Thirty minutes- one hour later, the dragon's blood powder will harden to form lumps. The lump of dragon's blood is sold in the market or to traders. There is no special treatment while waiting for dragon's blood to be sold to traders. In general, dragon blood is stored in a safe place, to prevent theft, because it has a high economic value.

### *3.3. Promotion and future role of dragon's blood*

Dragon's blood is produced from the extraction in the forests and not the result cultivation. Excessive extraction can cause damage and population decline of jernang rattan.

In addition, the system of ownership of the "open access" becomes one of triggers for competition in extracting dragon's blood. Consequently, the method to harvest becomes uncontrolled that causes disruption to the natural population of jernang rattan. Therefore, the strengthening of social institutions in the management of biological resources that involve community participation is very important. The role of dragon's blood as a natural product in the future is still needed, although artificial products are being developed. This refers to other natural products such as resins, incense, aloes, which remain important and irreplaceable by their artificial products. The problem is how to conserve the natural habitat of jernang rattan to ensure the sustainability of dragon's blood production and its benefits to the community.

### *3.4. Consequences of commercialization of dragon's blood*

The consequences of commercialization of dragon's blood can be profitable but also damaging. The advantage is that commercialization will trigger the effort to keep the jernang rattan population and possibly develop it into one of the crops that provides an important role in increasing income of farmers around the forest areas in Jebak village. The disadvantage is that commercialization will cause over-exploitation, and competition in jernang rattan extraction. Such conditions may accelerate the destruction of jernang rattan population in the region. To prevent this, it is necessary to discover jernang rattan cultivation technique and its application to the public, and to create the dragon's blood community from forest cultivation.

## **4. CONCLUSIONS AND RECOMMENDATIONS**

Jernang rattan is a source of income for Anak Dalam Tribe because it produces dragon's blood. The dragon's blood prices in 2011 ranged from Rp 1 million - Rp 2 million/kg. Besides, dragon's

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blood is utilized by Anak Dalam Jambi Tribe as drug for injuries and migraine headaches and accelerator of parturition. It is also used as substitute for incense in rituals and as explosives. The community has used dragon's blood since 1624. Excessive extraction can cause damage and population decline of jernang rattan. In addition, the system of ownership of the "open access" becomes one of triggers for competition in extracting dragon's blood. Further research is needed to cultivate jernang rattan through vegetative propagation.

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