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# Local Knowledge of Wanga (*Pigafetta elata*) as Materials of Traditional House at South Sulawesi, Indonesia

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**Abstract.** The objective of this research is to know the local knowledge of the community in exploiting the wanga plant as the material of traditional house making in South Sulawesi, especially in Tana Toraja and Enrekang Regency. The type of research is descriptive by using survey method. Data collection by observation, in-depth interviews and documentation. Determination technique of informants in snowball sampling method, with key informant is traditional chairman. The number of informants are 11 people consisting of traditional chairman, apparatus of village/sub-district, and user community. Data analysis was done by qualitative descriptive. The results revealed that local communities in Tana Toraja Regency used wanga stems for the traditional rice house poles known as Alang Sura, while local communities in Enrekang Regency utilized wanga for the traditional rice house poles known as Landak, and their utilization was more extends again as it is used for village border poles, gates, and bridges.

## INTRODUCTION

Sulawesi is one of the major and important islands in Indonesia, since it is biogeographically included in the Wallacea region, an area consisting of the islands of Sulawesi, parts of Maluku, the Banda archipelago and the West Nusa Tenggara archipelago with an overall area of approximately 346,782 km<sup>2</sup>. This region is very unique because it is a mixture of plants, animals, and other life from Asia and Australia, and is an ecological transition region between the two continents [1-3].

Sulawesi has a wealth of middle and high endemic species [4]. Furthermore Ramadanil (2009) states that Sulawesi has a high biodiversity with high endemism [5]. It is estimated that 15% of flowering plants in Sulawesi are endemic [6-7]. Furthermore Balgooy et al. (1996) reported that there were 933 native plants from Sulawesi where 112 were endemic [8]. Endemism of flowering plants in Sulawesi varies greatly among taxon groups, for example Orchid (Orchidaceae) and Palmae (Arecaceae).

The specific level of palm endemism is quite high at around 72%, of which 68% of species and 58% of the palm genera grown in this bioregion are native to Sulawesi. Among the existing palm species, two of them are endemic to Central Sulawesi, namely *Gronophyllum sarasinorum* and *Pinanga* sp. nov (longirachilla). Some other endemic species of Sulawesi palm are *Pigafetta elata* Becc, *Licuala celebica* Miq., As well as several species of rattan such as taimanu (*Korthalsia celebica*), *Calamus symphisipus* Mart., Stems (*Calamus zollingerii* Becc.), *Calamus minahassae*, *Calamus koordersianus* Becc., tohiti (*Calamus inops* Becc, ex celebicus Becc.), and others [9].

The wanga plant (*Pigafetta elata*) is one of the species in the tribe of Palmae (Arecaceae), commonly known as wanga (Indonesia), banga (Enrekang), banga, bala' (Toraja), and it is known in the world as black wanga palm. This plant was first discovered by Blume and Beccari in 1877 [10] and by Dransfield et al. (2008) described as Sulawesi's endemic plant [11].

Currently the utilization of wanga is not widely known by the people in Indonesia, except the communities around which the plant grows. According to Baker and Dransfield (2006), the utilization of wanga plants has actually been done long, but only limited to the community where the area is the habitat of plants [12]. Therefore, information on the use of local plants in the community, such as wanga, should be explored through local knowledge of the community. According to Warburton and Martin (1999), local knowledge is a collection of facts and related to the beliefs and perceptions people have about the world around them [13]. This includes how people observe and measure their surroundings, how they solve problems and validate new information. It includes the process by which knowledge is generated, stored, applied and transmitted to others. The concept of traditional knowledge implies that people living in rural areas are isolated from other parts of the world and that their knowledge systems are static and do not interact with other systems of knowledge. It is further added that indigenous knowledge systems are often linked with indigenous peoples, thus limiting policies, projects and programs that want to work with rural farmers in general. Furthermore, in some countries, the term native has a negative connotation, because it is associated with backwardness or ethnic and political connotations.

Based on the observations and literature review, it is known that wanga plants are scattered in several areas in South Sulawesi, mainly in Tana Toraja and Enrekang district. Generally, traditional houses still look to utilize wanga plants as traditional home materials. So, this article provides a report on how to use wanga plants made by communities, mainly people in Tana Toraja and Enrekang districts. The authors hope that the research presented here may contribute to the availability of data on the use of wanga plants, and may encourage various wanga conservation activities in the future. Quantification of local knowledge of plant and use can provide valuable information concerning causes of plant importance.

## **EXPERIMENT**

This research was a descriptive research conducted by a survey on March to August 2017. The research located in Tana Toraja Regency and in Enrekang Regency. Toraja is geographically located at coordinates 2<sup>0</sup>44'21,296 "- 3<sup>0</sup>23'23,505" East Longitude and 119<sup>0</sup>22'14,322 "- 120<sup>0</sup>2'37,566" South Latitude. Meanwhile Enrekang Regency is located at an altitude of 47-3293 m and lies in the coordinates between 119<sup>0</sup>40'53 "- 120<sup>0</sup>06'33" East Longitude and 3<sup>0</sup>14'36 "- 3<sup>0</sup>50'00" South Latitude.

Research subjects are local people who use wanga plants for traditional custom house (alang sura and landak). The determination of the information was conducted using the snowball sampling method, which was started from the key informant, traditional chairman, so that the total number of informants was 11 people. Data collection in this research is done through observation, in-depth interview to informant, and documentation. Observations were made by scanning the study area to see and observe directly the wanga plant utilization activities by local communities. Interviews were conducted in a structured way, that is interviews using a questionnaire that had been made before. Interviews were conducted on adat leaders, village/sub-district officials, and user communities to obtain information on the use of wanga plants. The data obtained are analyzed descriptively qualitative, i.e. analysis that tells and interpret descriptive data in the form of speech, manifest words, writings, behavior relating to facts, and circumstances.

## **RESULTS AND DISCUSSION**

### **Description of the area study**

Tana Toraja Regency which is capitalized in Makale with geographically located in the North of South Sulawesi Province between with a total area of 2,054.30 square kilometers. With boundaries, namely: North is North Toraja and West Sulawesi Province, South is Enrekang and Pinrang Regency, East is Luwu Regency, West side is West Sulawesi Province. Distance of the capital of Tana Toraja regency with the capital of South Sulawesi Province reaches 329 km through Enrekang, Sidrap, Pare-pare, Barru, Pangkep and Maros regencies. Topographic condition of Tana Toraja Regency is a highland which is surrounded by mountains with steep slopes that is above 25% slope. Tana Toraja regency consists of mountains, highlands, lowlands and rivers with altitudes ranging from <300 m - > 2,500 m above sea level. The lowest part of Tana Toraja Regency is in Bonggakaradeng District, while the highest part is in Bittuang District.

Meanwhile, Enrekang Regency is capitalized in Enrekang with distance from the capital of South Sulawesi Province (Makassar) to Enrekang city by road along 235 Km. The boundaries of the Enrekang regency, namely the north are limited by Tana Toraja regency, the South is limited by Sidenreng Rappang Regency, the West is limited by

Pinrang Regency, and the East is limited by Luwu Regency and Sidenreng Rappang Regency. These districts generally have a topographical area that varies in the form of hills, mountains, valleys and rivers with an altitude of 47 - 3.293 m above sea level and has no coastal area. In general, the topography of the region is dominated by hills or mountains, which is about 84.96% of the total area of Enrekang Regency while the flat is only 15.04%.

### **Description of Wanga (*Pigafetta elata*)**

*Pigafetta elata* or wanga is a typical Sulawesi plant that includes Aracaceae (areca nuts), large size, single trunked and straight. Mature plants can reach a height of 50 meters and trunk diameter up to 40 cm. The cylinder-shaped rod, dark green / brownish green, shiny, has a green leaf-cut rhinestone ring and is so difficult to climb. Wanga has many roots on the base of the trunk.

Young leaves are pinnate, the base of the spiny leaf stems black, and smooth. While the old leaves are rather wide and elongated, decomposable curved to resemble bird feathers or the inherent sword hemispheres on branch. The leaves are dark green and pointy on the part end. This plant has a pair of flowers namely male and female flowers, where male flowers and female flowers are located on different palms. Flowers are brown like bronze. Flowers every September and October. Flower shaped panicle in the form of bunches and hanging.

The young fruit is greenish and when it is old the color becomes greenish yellow. The fruit is small and scaly, round  $\pm 1$  cm in diameter and fruit diameter  $\pm 0.6$  cm. The fruit can be eaten directly with a sour/spicy taste. This fruit is rarely consumed other than because it tastes sour can also cause yellowish teeth. Propagation of *Pigafetta elata* can be done generatively through seed. Mature seeds can be immediately saturated after soaking hot water for 24 hours. The seeding process requires constant moisture, sunlight and sufficient wind. The seeds sown will germinate less than a month. The growth of this wanga is relatively fast, where the seeds are seeded within 3 years of height can reach  $\pm 7$  meters and when the age of 15 years the height can reach more than 20 meters.

### **Utilization of Wanga Plant in Tana Toraja Regency**

The people of Tana Toraja generally settled in the northern mountains of South Sulawesi. They have a traditional house, known as Tongkonan. This house consists of a pile of wood decorated with red carvings, black, white and yellow. Tongkonan is a series of a group of buildings in which there are some parts, namely Banua Sura '(home carved / main house), Alang Sura' (carved barn), Lemba (also serves as a barn but not carved) and also often have a house stage which has a larger room. The main function of Tongkonan as home. In addition, it is also used as the center of social life of the Toraja tribe, primarily for their ritual belief activities, so that the existence of this traditional house is very important in the spiritual life of Toraja tribe. Therefore all family members are required to participate because it symbolizes their relationship with their ancestors.

In addition to Tongkonan, there are also similar buildings such as tongkonan but smaller in size, which functions as a granary in Toraja language called alang sura. Almost all houses in Toraja are equipped with a number of rice granaries. This building not only serves as a place to store rice but also has a role in Toraja customs and culture. In Toraja custom ceremony, alang sura is the main place for honorable guests. The existence of alang sura as a complement to the house also gives an impression of the level of ability and social status of the owner. According to One of the main ingredients in the development of alang sura is wanga (*Pigafetta elata*) [14]. Therefore, the plant becomes a very important plant for Tana Toraja people. Based on the search results in the study area, it was found that the existence of rice granary (alang sura) in Tana Toraja Regency can be found almost in every region from the district capital to the remote part of the village (Figure 1).

The alang sura building stands on a round pole from the trunk of a wanga tree. The number of poles used has a social relationship with the owner of the sura. For ordinary classes may only have 4 poles, while the upper class may have 6 poles. At one tongkonan minimal there are 2 to tens of alang sura, so the number of wanga plants needed can be up to tens or even hundreds of trees. Therefore, the people of Tana Toraja have started to use concrete pole as an alternative to replacement because wanga plants increasingly difficult to obtain and the price becomes expensive (Figure 2).



**FIGURE 1.** Traditional house (tongkonan) located at the opposite of the row of rice barn (alang sura) at Kete Kesu complex in North Toraja using wanga (*Pigafetta elata*) as building pole (Photo by Syamsiah)



**FIGURE 2.** Model of rice granary (alang sura) using wanga (*Pigafetta elata*) in Tana Toraja Regency with different number of poles: (a) 8 poles and (b) 6 poles (Photo by Nani Kurnia and Eka Setiawan)

Nevertheless, according to Tonapa et al (2014), people still prefer wanga plants for the reason that the stems are stronger, more decorative, look more grandiose, durable without special treatment, and difficult to climb by rats due to the slippery surface [15]. In addition, Toraja people used to move their wooden buildings including houses and alang sura by shifting, so if using a concrete pillar, it is not possible. Another utilization of wanga plants for the Tana Toraja community is the plant leaves are also used for the roof of the cottage at the event of death, while the fruit can be eaten. In addition, local people use the inside of the rod end (in the form of wood fibers) as the ingredients of making the ball takraw.

### Utilization of Wanga Plants in Enrekang Regency

The local community of Enrekang Regency utilizes wanga plants for rice granary buildings in Enrekang known as landak. The building of the rice barn can only be found in several villages along the Latimojong mountain range, namely Bone-bone, Salukanan, Salongge and Awo areas. According to Syamsiah et.al. (2016), that utilization of wanga plant stems not only used as a building pole, but also used as floor and wall of the rice barn building [16]. In addition, local people also use the wanga plant stems as a barrier between villages, gates, and bridges.

The number of poles in the rice granary in Enrekang Regency consists of only 4 pieces, so the size of the building looks smaller. This is likely adjusted to its function which is only as a place to store rice alone. The placement of the building usually lined around the house, but more commonly placed on certain land separated from the main house. But over time and with the influence of modernization in the community in Enrekang Regency, so the rice barn is no

longer noticed and is now no longer developed. People tend to choose to build a large house, in addition to functioning as a residence as well as a place to store rice. The following can be seen the model of wanga plant utilization by Enrekang Regency community as rice granary and village boundary in Latimojong mountain area (Figure 3 and Figure 4).



**FIGURE 3.** Traditional house of rice granary (landak) at Latimojong mountain areas, Enrekang Regency (Photo by Siti Fatmah Hiola)



**FIGURE 4.** Utilization of wanga plant as village boundary gate in Enrekang Regency (Photo by Syamsiah)

The results revealed that the use of wanga plant stems in Tana Toraja Regency is commonly used as a traditional rice granary (Alang Sura) building pole, although today its use has been replaced by concrete, due to the difficulty of finding wanga plants and the price is expensive. While local communities in Enrekang Regency use wanga plant stems for paddock poles, its use is now more expanded such as village border poles, gates and bridges. Selection of wanga plant stem is based on tree height, alignment, stem diameter, tree age and circle shape of rings (leaf stem).

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