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Ethnobotany study of lontar tree (*Borassus flabellifer* L.) at Raijua Island

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Abstract. The aims of the study were to determine the utilization of Lontar Plant (*Borassus flabellifer* L.), its organ used in relation to the culture of the Savu community. Data were collected using semi-structured techniques interviews, field observations, questionnaires, preference and direct matrix ranking with an index of cultural significance. Data were analyzed to calculate the index value of cultural significance which was included 3 aspects, namely the use-value (q), the intensity value (i), and the exclusivity value (e) of the plant and were described qualitatively. The results showed that the utilization of plants in the cultural life of the Savu community was very high. The utilization of plant parts was carried out by cutting, slicing, tapping and weaving. The parts mostly used were the roots, stems, stalks, leaves, flowers, and fruit.

1. Introduction

Ethnobotany, in its use in the community, relates to certain cultural and plant customs that are used in the culture of the community. The utilization assessment covers ecological, cultural and economic factors that are closely related to daily life [1, 2].

The people of East Nusa Tenggara are one of the most culturally and culturally active in the community. The Savu community on the island of Savu Raijua includes a community of strong cultural traditions and practicing ethnobotany in its cultural culture. Origin customs in their community always use both plants and animals for primary needs are also used in traditional rituals, medicine, literature, traditional textiles/weaving, cosmetics, coloring, construction, tools, and social life [3, 4].

Lontar is a kind of palm tree that grows in many areas in Indonesia, including in East Nusa Tenggara. Distribution of palm plants can be found on the coast of North to South Flores islands and Timor island, East and South coast of Sumba island and on small islands. The largest dispersal of the plant in Kupang Regency (West Timor Island, Rote Island) and *Kapuwe Duwe* (Savu Island) is known as *Tuak*, East Sumba Regency (Rindi Umalulu District and Pahungalodu District) are called *Manggita*, *Manggitu* (Sumba), South Central Timor Regency, South and North of Belu are called *Tua* (Timorese) and East Flores [5, 6].

Lontar (*Borassus flabellifer* L.) is one of the plants that dominate the Savu and Raijua land because of suitable geographical and climatic conditions. Generally, these trees grow wildly and spread so widely that planting is carried out in certain areas to facilitate processing, especially tapping sap [7].



2.3. Analisis data

Data were analyzed to calculate cultural significance index using the formula of Turner [11] and Yuniati [12]. Cultural importance index is the result of quantitative ethnobotany analysis which shows the importance of plant species based on the needs of the community which includes 3 aspects namely use-value (q), intensity value (i), and exclusivity value (e). Index of cultural significance is calculated using the formula:

$$ICS = \sum_i^n (q_1 \times i_1 \times e_1)n_1 + (q_1 \times i_1 \times e_1)n_2 \dots + (q_1 \times i_1 \times e_1)n$$

Which are:

ICS : The sum of the calculation of the utilization of a plant species from 1 to n, where n indicates the umpteenth utilization (last)

I : Intensity value.

Q : The quality value is calculated by using a score or scale to the quality value of a plant species. The scoring are 5 = staple food; 4 = secondary food + primary material; 3 = other food + secondary material + medicine; 2 = ritual, mythology, recreation, etc., and 1 = mere recognition

e : Exclusivity value

3. Results and Discussion

The findings of the research showed that the utilization of Lontar (*Borassus flabellifer* L.) plants in the Savu community at the island of Raijua was very high. Society uses all parts of palm plants such as roots, stems, leaves, stems, flowers and fruit varieties.

All parts of the lontar plant have high cultural significance to the people of Raijua Island as follows: there are 21 kinds of utilization for leaves, 4 kinds of stems, 2 kinds of roots, 2 kinds of uses of stems, 2 kinds for fruits and 1 flower as well as daily necessities and to the cultural traditions uses of the people of Raijua Island.

Table 1. The utilization of Lontar Tree (*Borassus flabellifer* L.) parts in the culture of Savu tribes community at Raijua Island

Plant organ	Utilization
Root	1. Drill (<i>Dere</i>) 2. Water shelter (<i>Jiab Kerabba Jiu</i>)
Stem	1. Building material (<i>Adju ammu</i>) 2. Pig flood plates (<i>Keraba wawi</i>)
Stalk	1. Robe (<i>Pipe</i>) 2. Fence (<i>Lau</i>) 3. Bearer (<i>Dpa dui</i>) 4. Fishing gear (<i>Kenaha</i>)
Leaves	1. Roof of a traditional house (<i>Rau Ammu Ada</i>) 2. Dwelling house (<i>Rau Ammu Pe</i>) 3. Mat (<i>Dappi</i>) 4. Ketupat <i>Pedo'a</i> dance (<i>Kedu'e Do'a</i>) 5. Big water container or <i>Haik besar</i> (<i>Haba Dau</i>) 6. Small <i>Haik</i> (<i>Haba Kao</i>), 7. Traditional hat (<i>Heguddu</i>), 8. Betel nut plate (<i>Pai Kenana</i>), 9. Borse eye protector (<i>Ro Wiri</i>), 10. Lontar flower wrapping (<i>Kebiha</i>) 11. Small <i>ketupat</i> (<i>Kedu'e</i>)

12. Place of agricultural products (*Hope*)
 13. Rice winnowing or *Nyiru* (*Kerigi dai*),
 14. Plate to eat (*Kerigi nga'a*)
 15. *Kerigi wore*
 16. *Ok*
 17. Bag (*Beka*)
 18. *Kehedi*
 19. Cigarette paper (*Roko rokalli*)
 20. Knife sheath (*Hope tudi*)
 21. Horse leg jewelry (*Lale Kae*)
 22. Dry leaves for burning animals (*Tunu Bada*).
- Flower
1. Producer of lontar sap (*Ai due*) which is then cooked into sugar. The process of tapping the palm sap by the community is done through the ritual which is called *Tu'i Taga*.
 2. The last ritual related to tell the community that the results of palm juice can be consumed by the public is called *Nga'a Ma Rao*.
- Fruit
1. Animal food (*Wokalli*)
 2. Appetizer (*Wohiru* - young fruit) during the cutting palm leaves activities.
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Tambunan [6] reported that the by-product of lontar parts that been used were root, stem, leaves, fons, fruits including young fruit either in South Sulawesi and Kupang. The by-products of leaves are mostly used, consist of handicraft business products, such as baskets or baskets, hats, carpets, brushes, mat and traditional musical instruments.



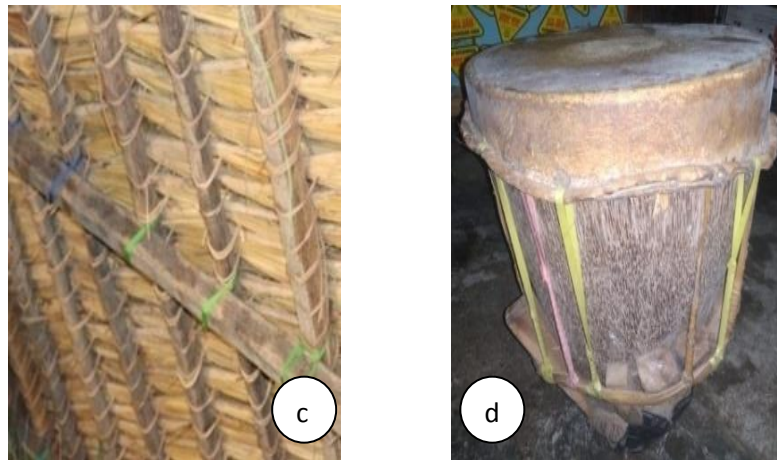


Figure 2. Utilization of Lontar (*Borassus flabellifer* L.) plant organs in the cultural traditions of the Savu people. a. Big water container or *Haik Besar (Haba Dau)* from leaves, b. Fishing Gear (*Kenaha*) from the stalk, c. The roof for building material (*Ajjū Ammu*) from the stem, d. Drum or Tambur (*Dere*) from the root.

From measuring the indices of the culture importance value of lontar in the life of the people of Raijua Island, data shown in the following table.

Table 2. Measurement of Cultural Importance Index of community lontar plants on Raijua Island.

NO	UTILITY	Q	I	E	ICS
1	Staple food	5	5	2	50
2	Ingredient food from flower	4	5	2	40
3	Wood building material, wood for container	4	4	2	32
4	Beverage ingredients	4	4	2	32
5	Cigarette material	3	5	2	30
6	Mat material	3	5	2	30
7	Traditional handicraft or traditional technology	4	3	2	24
8	Environment Indicators	2	5	2	20
9	Valuable plant for medicinal	2	5	2	20
10	Medicinal for internal pain	3	3	2	18
11	Birth Ritual	2	4	2	16
12	Rope material, waterproof material	3	4	1	12
13	Edible fruits	4	3	1	12
14	Agriculture activity	2	3	2	12
15	Food flavor enhancer	3	3	1	9
16	Plant types play a role in myth	2	4	1	8
17	Suplemen food ingredient a mixture in food menu, food packaging	3	2	1	6
18	Livestock feed or animal food	3	2	1	6
19	Ritual of burial, heroism	2	2	1	4

20	Fuel wood	4	2	0.5	4
21	Plant species play a role in myths that are magical and religious	2	2	1	4
22	Medicine for animal diseases	3	1	1	3
23	Plant species have natural role in myths or history	2	1	1	2
24	Burns medicinal ingredient	3	1	0.5	1.5
Total Indeks of cultural significance (ICS)					395.5

The way of using lontar trees (*Borassus flabellifer* L.) in the culture of the people on Raijua Island, namely cutting, cutting and tapping as well as weaving in daily life and during traditional ceremonies. Based on the results of research on Raijua Island, the results of the index of cultural importance of the trees showed that there were 9 uses with a high category (T) that has ICS values above 20, there are 5 uses with a medium category (SD) with a range of ICS values of 10-19.9 and 10 uses with a low (R) category or have an ICS category of 1 - 9.9 [13]. The use of lontar in the life of Savu Raijua community is as a staple food with ICS value was 50, and the lowest is used as an ingredient in burns with ICS value was 1.5.

Table 3. Range of *Index Cultural Significance* categories

ICS Value	Category	Code
≥ 20	High	T
10 - 19.9	Moderate	SD
1 - 9.9	Low	R

Adapted from [13]

4. Conclusion

Based on the results of research on the ethnobotany of lontar plants (*Borassus flabellifer* L.) on the island of Raijua can be concluded as follows: The relationship between lontar plants (*Borassus flabellifer* L.) with the culture of the people on Raijua Island was very high in utilization value (T). The way of using the trees in their culture, namely cutting, slicing and tapping as well as weaving in daily life and during traditional ceremonies. Lontar plant organs that are used by people on Raijua Island are leaves, stems, roots, stems, fruit, and flowers.

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6. Conflict Of Interest

The author states there is no Conflict of Interest in this study.

7. References

- [1] Ginting J S 2012 Perubahan Sosial Budaya Merdang Merdem sebagai Tradisi pada Masyarakat Karo (Medan: Bartong Jaya)
- [2] Soekarman and Riswan S 1992 Status pengetahuan etnobotani di Indonesia Prosiding Seminar dan Lokakarya Nasional Etnobotani (Cisarua, Bogor)
- [3] Supriono 1997 Tumbuhan Obat Indonesia: Penggunaan dan Khasiatnya (Jakarta: Pustaka Populer Obor)

- [4] Acharya D and Anshu S 2008 *Indigenous Herbal Medicines: Tribal Formulations and Traditional Herbal Practices* (Jaipur: Aavishkar Publishers Distributor)
- [5] Heyne K 1987 *Tumbuhan Berguna Indonesia* (Jakarta: Penerbit Jakarta Sarana Wana Jaya)
- [6] Tambunan P 2010 Potensi dan kebijakan pengembangan lontar untuk menambah pendapatan penduduk (The Potential and Policy for Lontar Development to Increase the People Income) *Jurnal Analisis Kebijakan Kehutanan* **7**(1) 27–4
- [7] Jayusman 2010 Pengembangan budidaya lontar di Pulau Sawu Nusa Tenggara Timur *Jurnal Paramita* **20**(1) 67–71
- [8] *Statistic of Kupang Regency 2018 Sabu Raijua Regency in Figures* (Kupang: Statistic of Kupang Regency)
- [9] Esterberg K G 2002 *Qualitative Methods in Social Research* (New York: Mc Graw Hill)
- [10] Sing A and Sing P K 2009 An ethnobotanical study of medicinal plants in Chandauli District of Uttar Pradesh India *J. Ethnopharmacol* **121**(2) 324–9 doi: 10.1016/j.jep.2008.10.018. Epub 2008 Oct 30
- [11] Turner N J 1988 The Importance of a Rose: Evaluation the Cultural Significance of Plants in Thompson and Lillooet Interior Salish *American Anthropologist* **90**(2) 272–90
- [12] Yuniati E M 2004 Pengaruh faktor sosial budaya dan ekonomi terhadap keanekaragaman jenis tumbuhan pekarangan pada perkampungan yang dihuni oleh masyarakat Sunda dan Jawa di Kabupaten Brebes *Tesis* (Bogor: Pasca Sarjana IPB)
- [13] Setyaningrum 2009 Struktur Tumbuhan dan Bioprospeksi Jenis di Taman Hutan Raya Raden Soerjo Wilayah Kecamatan Jombang Jawa Timur *Tesis* (Bogor: Institut Pertanian Bogor)