Ethnobotany *Nepenthes* And Plants in *Nepenthes* Community Based on Usage-Knowledge Of The Kerinci Local Society

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**ABSTRACT**

The study was conducted from March to July 2013 which aimed at uncovering the value of ethnobotany *Nepenthes* and other plant species in the *Nepenthes* community from the villagers’ view of LempurKerinci. The data were collected through direct observation and interviews and respondents determined by purposive sampling based on gender and age. Data analysis was performed through the Cultural Significance Index (ICS). The finding revealed the existence of 29 species of which three species were *Nepenthes*; namely *Nepenthes ampularia* (piukberuk), *Nepenthes gracilis* (kancungberuk), and *Nepenthes mirabilis* (kancungberuk). The *Nepenthes spp* earned the highest ICS score based on cultural ties, harvest intensity, and usage diversity, especially on its use as food plates. Other species earned scores as follows; *Costusspeciosus* (20), *Imperatacylindrica* (19), *Impatiens platypetala* (16), *Ficushispida* (12) and *Nephrolepis hirsuta* (12). The threats towards the *Nepenthes* sustainability, its community, and usage-knowledge were villagers’ consumptive and practical patterns as they became less dependence towards wild plants. However, *Nepenthes* can be flagship species through conservation of habitats and communities through various uses of *Nepenthes* in the society, especially in the tradition of KenduriSko (sort of thanksgiving ritual by serving a basket of meals where *Nepenthes* became one of the meals’ plates).

**Keywords:** Ethnobotany, *Nepenthes*, ICS, KenduriSko.

**Introduction**

Indonesia is an archipelago country which own abundant biodiversity in its tropical forest, and it is known as one out of seven “megabiodiversity” country after Brazil. From around 250.000 kinds of plant in the earth, 30.000 of them (12%) are available in Indonesian tropical forest. Those plants have been exploited to meet human’s needs as clothes, foods, shelter, energy, economic source as well (Ersan, 2004).

Making use of plants for human’s life is studied in a branch of discipline known as Ethnobotany. It studies the relationship between plants and man. The word ethnobotany derives from two roots namely *ethno* and *botany* in which each of them means society or culture and plants. Therefore it defines as a discipline that studies plants and making use of their materials for society’s daily life based on their local culture (Balick and Cox, 1996). Furthermore, Martin (1995) reveals that ethnobotany is a study of relationship between man and plants. It is a descriptive form of knowledge’s documentation on traditional bothany owned by local society.

One of plants species which is commonly exploited by Indonesian is *Nepenthes* genus. It has various shape, size,
colorful pouch so that it owns self charm as decorative exotic plant which has high economic value, and the protein content in its pouch is potential for developing molecular farming (Witarto, 2003; 2006). Stem of Nepenthes reinwardtiana can be used to replace ropes for tying goods (Irawanto 2009; Sari, 2009). Then Teysmann in Bangka found that the stem of Nepenthes Ampularia is to replace the function of rattan for tying fence and bearing burden due to its plasticity and long lasting (Heyne,1987a). The mature pouch is used for bowl/food plates as lamang, godah (Heyne, 1987a; Tamin&Hotta, 1986; Sari, 2009).

Nepenthes is also benefit for traditional medicines. The liquid from the closed pouch of Nepenthes kasianais useful medicine for cough, spot eyes, cataract, irritation, and digestive inflammation (Kumar et. Al, 1980; Mansur, 2006). The boiling roots of Nepenthes ampularia andNepenthes gracilis are useful for curing stomachache. Nepenthes reinwardtiainais used for curing skin irritation, and for children it cures fever and urinosexplled during sleeping(Heyne, 1987a). While in Irian Jaya and Kalimantan, its root is used for astringent (Cheek &Jebb, 2001; Irawanto, 2009).

Lempur village is one area in District Gunung Raya Regency of Kerinci in Jambi Province located 35 kms to the South of Kota Sungai Penuh, with its width approximately 195.86 km2 and occupied around 1295 head of household (KDA, 2012; BPS, 2013). This area is rounded by hills and mountains, and included into the area of KerinciSeblat National Park (Taman NasionalKerinciSeblat/TNKS). The occupation of Lempur society is farmers in common. To earn their living for foods and medicines, this society still depends on plants surrounding them both planted intentionally and growth wildly at the edge of railroad, farming bank, edge of forest.

The result of pre observation proves that Nepenthes has cultural value for Lempur society. The uniqueness of their pouches enchants the villagers for functioning them as decorative plants, exploiting them as bowl/food plates as well. The two activities for having benefits of nepenthes pouches above are the villagers’ hereditary tradition and will be kept alive in the society. The problem occurs that the villagers keep harvesting them intentionally in the wild world.

Based on the above description and due to unavailability of research on ethnobotany Nepenthes in Lempur, this study is then conducted. It is aimed at uncovering the value of ethnobotany Nepenthes and other plants species in its community, including the knowledge on useful potency as well as having villagers’ view on nepenthes conservation. The finding of this research is expected to be a scientific base for biodiversity conservation strategic in the Lempur village in Kerinci.

**RESEARCH METHODOLOGY**

**A. Setting of Place and Time**

The research was done from March to July 2013 to the society of LempurKerinci, by taking Nepenthes sample and plantsin the community of Nepenthes at the slope of the cultural forest ofLingkat lake (1021 mdpl). The making of herbarium and the identification of Nepenthes and plants alike in the community of Nepentheswere done at the herbarium Bogoriense of LIPI (Indonesian Intitute of Science) Cibinong.

**B. Instruments and material**

The instruments used for this research were a set of stationeries, digital camera, GPS, clinometer/agameter to measure the height of slope and tree, plant scissors, little scoop, big knife, soil spoon, soil and water measurer, a concrete wire to measure the depth of land and water, plastic bag, label,
hanging-label, newspaper, plastic ropes, rubber stickers, herbarium label, and identification book. To select the vegetation, the researcher used point intercept sampling framework. The material used was an alcohol of 70% concentrate.

C. Procedures

The data of this research were botany and ethno-botany. The botany data was gathered through ecology research method using the point intercept technique. The ethno-botany was gathered using an approach of Participatory Ethnobotanical Appraisal (PEA) using a semi-structured interview to the informant (Martin 1995; Gerique 2006) to identify plant species which include the local name and their use. Ethically, each unrecognized plant species were then their specimen to be identified in Herbarium Bogoriense at LIPI Bogor.

The result of the interview was then confirmed to other informant with an aim to reveal the significant of the plant species. After that, each recognized plant would be discussed in a Focused-Group Discussion (Sheil 2004). All participants in FGD were 20 people who were selected by using purposive sampling technique based on the criteria of gender and age (> 15 years old and < 60 years old). The researcher involved directly on the daily activities of the society being observed (Yuliati et al., 2009).

The data analysis was done qualitatively and quantitatively. The qualitative analysis was done by describing the society knowledge on the use of plants and the conservation of the natural resources. The quantitative analysis was done by calculating the significance and usage of the plants.

The value of plant significance was calculated by Index Cultural Significance (ICS) (Sheil 2004) using the formula:

\[
ICS = \sum_{i=1}^{n} (q \times i \times e)_{nl}
\]

Notes:
ICS = Index Cultural Significance, the score of significance value of a plant from 1 to certain n, where n shows the last significance of the plant.
q = quality score
i = intensity value, shows score 1 to certain in order
e = exclusivity score

FINDING AND DISCUSSION

A. The knowledge of diversity of plant species in Nepenthes community

Based on the result of interview, observation, and sample collection, 29 species were recognized which consists of 17 families. The family which had most species were Poaceae (5 species), Davalliaceae (3 species) Nepenthaceae (3 species). Those 29 species were Colocasia esculenta, Costus speciosus, Cyclosorusheterocarpus, Davaliarepens, Diplaziumesculentum, Eleocharisdulcis, Ficushispida, Gleichenialinearis, Hydrocotylesibthorpioides, Impatiens platypetala, Imperatacylindrica, Leerseahexandra, Medinillaspeciosa, Melastoma affine, Microsoriumcommutatum, Mussaendacf.frondosa, Nepenthes ampolaria, Nepenthes gracilis, Nepenthes mirabilis, Nephrolepisfalcata, Nephrolepis hirsuta, Paspalumconjugatum, Paspalumlongifolium, Paspalumsp, Rhaphidophora acuminata, Rhododendron javanicum, Scheffleraeliptica, Syzygiumpycnanthum, and Syzygiumzeylanicum.

Based on the informant, those species were categorized based on the usage, as follows:

<table>
<thead>
<tr>
<th>No.</th>
<th>Usage Category</th>
<th>Number of Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vegetables to consume</td>
<td>4</td>
</tr>
</tbody>
</table>
B. Ethno-botany *Nepenthes* by the Society of Lempur Kerinci

*Nepenthes* is known by the people of Lempur in the shape of pocket. Generally the nepenthes is categorized into two types: piukberuk and kancungberuk. Piukberuk is a *Nepenthes* which has a pocket looks like a barrel as in *Nepenthes ampularia*. On the other hand, kancungberuk is a *Nepenthes* which has a cylinder shape as in *Nepenthes gracilis*. As stated by the informant, there are two versions in naming those species, firstly because the pocket looks like monkey’s abdomen, secondly because it was noticed that monkeys used to drinking from the plants’ pocket.

*Nepenthes* which was found at the cultural forest of Lingkat lake were three species, those are *Nepenthes ampularia* (piukberuk), *Nepenthes gracilis* (kancungberuk), and *Nepenthes mirabilis* (kancungberuk). Generally, the villagers of Lempur have the same knowledge about *Nepenthes*. *Nepenthes* spesies are used for ornament plants, food wraps/plates, medicines, and ropes.

*Nepenthes mirabilis* and *N. gracilis* are known as their function as eye-drops and treatment for stomachache. The root of *N. mirabilis* and *N. Gracilisc* an be boiled to treat stomachache. Water from the closed-pocket of *N. Gracilisis* believed to cure eye-irritation. *N. mirabilis* can be a treatment for cough. Pocket of which water can be a medicine is that which is well-closed. The water can be drunk as to release thirst in the forest. The people of Lempur Kerinci do not really know the function of pocket to cure a child who is still bedwetting at night, as experienced by the people of Ambon (Heyne 1987b) dan Kalanguyain Luzon Filipina (Balangcod & Balangcod 2011).

The people of Kerinci also know that the species *Nepenthes* as the main material for making ropes. The stem of three species is found to be useful for making ropes. Earlier Handayani (2001) had noted that in West Sumatra the stem of *N. gracilis* were used as a tighter. Heyne (1987b) explained that in Bangka, the upfront-stem of *N. ampularia* has longer endurance that it was chosen to tighten fence and to lift heavy stuff.

The variety of *Nepenthes* spp usage made this plant earned the highest ICS score from other species. The species of *Nepenthes* has value in the culture of Kerinci people. The people of Kerinci use the pocket of *Nepenthes* as food plates in cultural events and Islamic Holy days, such as *kenduriSko*, two of Eid Mubarak, and women competitions all over districts and sub-district. However, the use of *Nepenthes* pocket as a plate is not compulsory except in *kenduriSko* ceremony. *KenduriSko* is a kind of thanksgiving party which was held by the villagers after harvest season. In the past, this party was held twice in a year, yet recently (5 years to now) it was only held once in a year.

*KenduriSko* is held after the landlord with the help on their big families harvest the paddy. The landlord will invite all villagers as the gratitude to God for the success of the farming, the numbers of the harvest while praying that the next harvest will be better. The main course of *KenduriSko* is *lamang* and *sarikayo. Lamang* is a meal made from sticky
rice and cooked with coconut-milk. Whereas, sarikayo is made from the mixture of coconut-milk, duck eggs, fennel, and palm-sugar. Lamang at kendursko are cooked in two different wraps: first, bamboo with banana-leaf and second using the pocket of Nepenthes. Lamangat bamboo is grilled while using the pocket of Nepenthes is steamed.

The Informant did not tell specifically which lamang was the best. In fact, each lamang had specific taste as caused by different wrapping and cooking methods. However, the survey revealed among 50 respondents, 31 villagers likes lamang which was wrapped with the pocket of Nepenthes whereas 19 others preferred bamboo-lamang.

The pocket of Nepenthes is taken directly from their habitat by mature-males. Yet, when the families do not want to go to forest, they can have other villagers take them by paying IDR100 for each pocket. After being taken, that pocket will be used by the ladies to wrap the lamang. Before filling the sticky rice inside, Nepenthes will be cleaned earlier by tearing the lid and its edge, cleaned all water and any organism there, and finally cleaned by water.

Most villagers prefer the piukberuk as Nepenthes amplementias since its pocket is thicker and wider. Differently, kancungberuk (Nepenthes gracilis dan Nepenthes mirabilis) is less used because of it is thin. Also, when being steamed the color of N. gracilis dan N. mirabilis pockets change as to mix with the ingredients of lamang. It is generally known that in West Sumatera that N. ampilariapockets are used as the wrap of lamang, as in the district of Payakumbuh dan BonjolPasaman West Sumatera (Handayani 2001).

Harvesting Nepenthes in the wild habitat still exists recently. Yet, the villagers admit that the pocket of Nepenthes is more difficult to look for in a big number. That fact brings about the lessen frequency in doing the KenduriSkoparty. The farmer should look for Nepenthes pocket till imbo (forest) causing more time needed. Kancungberukas Nepenthes gracilis become the substitute material for the decrease of piukberuk (Nepenthes amplementia) harvesting. However, IUCN considered Nepenthes gracilisas the least concern category in the Redlist of IUCN (IUCN 2014).

C. The Cultural Value of the diversity of Nepenthes Species

The villagers of Lempur recognized 29 plant species of 17 families in the sample location. A species of non-Nepenthes earned the highest ICS is Costusspeciosus(score 20), Imperatacylindrica (score 19), Impatiens platypetala (score 16), Ficushispida (score 12) dan Nephrolepisghertinusa(score 12). Costusspeciosus is used to cure fever because it has side-effect as anti-pyretic (sweat-decay) (Wijayakusuma 1993). The stem of C. Speciosus is crushed and squeezed to produce water which then given to one who is sick or having fever. In other district, as in KubangRaok village in West Sumatera (Arden 2000) and Mengkadai Village in Sarolangun in Jambi (Hidayat 2013), C. Speciosus mixed with Kalanchoepinnata, Enhydrafluctuans, and Sacciolepseinterupta to treat fever. Not only to treat fever, but Costusspeciosus also known to cure eye-irritation by the people of MalayatRaja Park at TanjungJabung Barat, Jambi (Walujo&Rahayu 2011).

Imperatacylindrica (the weed) earned high ICS score as its various functions. Not only as cattle’s food, I. cylindrica is also used to treat backache. Besides I. cylindrica, there are other three plant species which can be used for cattle’s food, for instance: Paspalumconjugatum (elephant grass), Paspalumlongifolium (australian grass), and Paspalum sp. (elephant grass).
Paspalum longifolium is also categorized as the Least concern in the Redlist of IUCN (Mani 2011). Impatiens platypetala (bitter-leaf) also earned a high ICS score at Danau Lingkat village because that species is always benefited to color the skin at wedding ceremony.

There are four plant species which can be consumed, for instance: Colocasia esculenta, Diplazium esculentum, Nephrolepis falcata, and Nephrolepis hirsuta. Those four are also consumed in Pauh Tinggi village, Sungai Deras village, and Selampaungin Kerinciregion (Sari 2011).

At one of the sample sites, the researcher found that four plant species are considered as useless; among others are Rhaphidophora acuminata, Hydrocotyles ibithorpioides (semanggigunung). Heyne (1987c) stated that those plants can be used as medicines for cough by mixing them with sugar and cinnamon (Cinnamomum spp.).

CONCLUSION

The people of Lempur village are able to recognize 29 plant species in Nepenthes community, 27 species are considered as useful and 2 species useles. Based on ICS analysis, Nepenthes spp is a plant species which has the most important ICS because of its varieties in daily life of the society. The usages of Nepenthes spp among others are food-plates, eye-drop, and medicine for stomachache, ornament plant, and ropes. For the people of Kerinci, Nepenthes spp has the main usage as food-wrap.

The analysis of ICS described that the decrease of Nepenthes usage is caused by the consumption pattern and practical usage of the villagers which lessen their needs upon wild plants. However, Nepenthes spp is still significant for cultural even such in kenduri Skotradition. Therefore, it can be concluded that the existence of Nepenthes community and that its habitat can be maintained if Kenduri Skoceremony is still held. In that case, Nepenthes spp. can be flagship species through which other plant species can live harmoniously in their community.

REFERENCES


