The ethnobotany of *Ngusaba* ceremonial plant utilization by Tenganan Pegringisngan community in Karangasem, Bali, Indonesia

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**Abstract.** Ratnani DA, Junitha IK, Kriswiyanti E, Dhana IN. 2021. The ethnobotany of *Ngusaba* ceremonial plant utilization by Tenganan Pegringisngan community in Karangasem, Bali, Indonesia. *Biodiversitas* 22: 2078-2087. Tenganan Pegringisngan is an ancient village in Bali, Indonesia, which often performs several ceremonies with high intensity. One of them is the *Ngusaba* ceremony, where many plants are utilized both in species and quantity. Hence, this study aimed to identify the species, family, local names, sources, and parts of plants, used for *Ngusaba* ceremonies by the Tenganan Pegringisngan community including the Index of Cultural Significance (ICS). Data analysis was qualitative and quantitative. Furthermore, the qualitative method was used to obtain data on the plants’ local names, while snowball sampling was applied to select key informants through in-depth interviews and moderate participation. The results showed that the 130 species distributed in 56 families mostly belonging to the purchased source (34.61%). The Poaceae is the largest family, while the most widely used part of the plant is the leaf. Based on the ICS analysis results, a range of 2-114 values was obtained. The highest value is Base (*Piper betle* L.) and kangkung (*Ipomoea batatas* L.) as lowest.

**Keywords:** Ancient villagers, local knowledge, *Ngusaba* plant

**INTRODUCTION**

Bali is one of the tourism destinations in Indonesia has many attractions. Its distinctive feature is a unique blend of humans, nature, and culture, including customs and religious ceremonies where plants play an important role. Plants or their parts are the most important elements in material associated with the *Yadnya* ceremonies (Sujarwo 2020), including the *ngusaba* ceremony. The *Ngusaba* ceremony is a social activity to connect with the all mighty God (Ida Sang Hyang Widi), which also includes banquets and *sabak* village thanksgiving (Arwati 2007). It provides much information about the use of many plants or their parts, including leaves, flowers, fruits, seeds, and tubers (Adiputra 2011).

The utilization of *Ngusaba* by the Tenganan Pegringisngan community has some problems: which include (i) many of the ceremonial ingredients types and quantities needed exceed these plant’s availability in nature; (ii) Only a few people are interested in traditional practices such as agriculture, because most of them rely on tenant farmers; (iii) The existence of plants, especially endemic species become increasingly hard to be found. Besides, plants are an important source of food, medicine, spice, construction materials, etc. in rural areas (Sujarwo et al. 2016; Sujarwo dan Caneva 2016; Sujarwo dan Keim 2017; Navia et al. 2020). They have many cultural sides, namely history, religion, language, art, politics, and social structure (Kakudidi 2004). They also have an important meaning, especially in various religious ceremonies (Helida et al. 2015; Ristanto et al. 2020). Several plants are part of various ritual purposes (Sharma and Pegu 2011; Iskandar and Iskandar 2017) and a source of livelihood for the local people (Suwardi et al. 2020) that believe ritual is one of the most important instruments for understanding local communities and offering, to conserve nature (Geng et al. 2017). The conservation of plant resources is very important to combine with the understanding and awareness of local communities’ cultural practices (Sheyhani et al. 2015; O’Neill et al. 2017).

However, information technology development and modern lifestyle have led to a decline in local communities’ traditional knowledge (Putri et al. 2017) and this condition also affects the Tenganan Pegringisngan community. In addition, the knowledge of ritual plant utilization is diminishing because it is only passed across generations orally and has remained unwritten (Anderson et al. 2011; Surata et al. 2015; Nisyapuri et al. 2018). The loss of local knowledge implicates plant resources’ existence, as well as triggers disease and professional changes (Gomez et al. 2010; Cuadra et al. 2012; Ju et al. 2013; Vásquez et al. 2016; Aswani et al. 2018). The knowledge is very useful to conserve biodiversity, hence it needs to be maintained (Yusro et al. 2014) and documented for good management to halt the menace of biodiversity depletion (Adom 2018). There has been much effort in biodiversity conservation, such as plant preservation and documentation of their utilization through ethnobotany which is the study of utilitarian relationships between humans and plants in natural ecosystems and other social components (Hakim
MATERIALS AND METHODS

Study area

This study was conducted in Tenganan Pegringgisan community of Tenganan Village, Manggis Subdistrict, Karangasem District, Bali, Indonesia, from February to August 2020. The location is at positions 8000°.00' to 8041°.37.8' S and 115035°.9.8' to 115054°.9.9' E, at an altitude of 70-400 m asl. The village's temperatures ranging from 28-31°C.

General description of the study sites

Tenganan Pegringgisan is located in Manggis Subdistrict, Karangasem District, with a distance of ± 20 km from the District City, and ± 68 km from Denpasar. It is physiographically surrounded by three-quarters of a circle of hills forming borders in the north as Macang Village (kaja hill), east as Asak Village (kangin hill), and west as Ngis Village (kauh hill), but directly adjacent to Pesedahan Village in the south. According to usage the area includes paddy rice lands covering 255.85 ha, drylands covering 480.89 ha, and Adat forest lands covering 197.32 ha. (Monograph of Tenganan Village 2020). Tenganan Pegringgisan total population is 1022, with the family heads being 338, while the location map is shown in Figure 1.

Informant selection

Key informants were consulted with community leaders and selected using the snowball sampling technique, which was carried out in a chain by questioning those that have been interviewed or contacted previously (Hariyadi and Ticktin 2012). Furthermore, they had much information about the Ngusaba ceremony (Nurdiani 2014), including the offering expert, ceremony officials, and community leaders.

Figure 1. Map of the location of Tenganan Pegringgisan community (●) in Tenganan Village, Manggis Subdistrict, Karangasem District, Bali, Indonesia (Monograph of Tenganan Village 2020)
Data collection

Ethnobotany data were collected through semi-structured interviews and moderate participation in the form of species, family, local names, parts, sources, and the Index of Cultural Significance (ICS) of plants, which were analyzed qualitatively and quantitatively. A descriptive narrative was carried out for qualitative analysis through data reduction, display and analysis (Sugiyanto 2017). The quantitative analysis of the Ngusaba ceremonial plant was carried out through the ICS from Purwanto (2003). The ICS showed the importance values of each useful plant species based on the community's needs, and its calculation results showed each plant’s importance level. The equation provided is to be employed to calculate ICS.

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

Because each species of plant has several uses, the equation is as follows:

\[
ICS = \sum_{i=1}^{n} (q_1 \times i_1 \times e_1) n_1 + (q_2 \times i_2 \times e_2) n_2 + \ldots + (q_n \times i_n \times e_n) n_i
\]

Where:

ICS = the number of calculations the utilization of a plant species from 1 to n,
q = quality value calculated by giving a score or value on the quality value of a plant species: 3 = the main Ngusaba ceremony ingredient; 2 = additional Ngusaba ceremony materials + primary materials, 1 = other Ngusaba ceremony materials + secondary materials + primary materials
i = intensity value describes the intensity of utilization of useful plant species by giving values: value 3 = high intensity; 2 = moderate intensity; 1 = low intensity.
e = exclusivity value: value 2 = most important, is the first choice and is second to none; 1 = possibility of being a choice of secondary materials (Turner 1998; Purwanto 2003; modification of researchers).

The plants were collected with the informants and then identified by matching with the herbarium specimen of the Bali Botanical Garden, the picture on the flora book, and images on plantNet. Their scientific names were verified using online sources (e.g. The PlantList 2019).

RESULTS AND DISCUSSION

Types of plants utilized for Ngusaba ceremony

The results showed 11 types of Ngusaba ceremonies carried out by the Tenganan Pegingsingan community, including Ngusaba Kasa, Karo, Ketiga, Kelima (sambah), Kenem, Kepitu, Kaulu, Kesanga, Kedasa, Desta, and Sada. The ceremonies are held almost monthly every year, and each lasts for three days, except for sambah which lasts for one month. The Ngusaba plants in Tenganan Pegingsingan Village have a high diversity of 130 species belonging to 56 families among which the largest is Poaceae (16 species), followed by Fabaceae (9) and Musaceae (8). The percentage of the ngusaba plant families utilized by the community is shown in figure 2. The various species were collected from various habitats, mainly wild vegetation in the forest, roadsides, in front of the house, home gardens and drylands. The growth form indicated that the most widely used ngusaba are obtained from herbs (57 species or 43.84%), followed by trees (38 species or 29.23%), and shrubs (34 species or 26.15%) (Table 1).

This result is higher than 26 species representing 17 families found to be commonly used for performing the six main traditional rituals of the Karangwangi people (Erawan et al. 2018). The Baduy community uses 50 species representing 28 families for nine stages of their pure agricultural activity (Iskandar and Iskandar 2017), while the Aceh tribe in Peureulak uses 51 species consisting of 47 genera and 34 families (Sutrisno et al. 2020). Moreover, Bali Aga village uses 125 plant species for all the Panca yadnya ceremony (Sujarwo 2020) and based on these, cultural diversity shows biodiversity. The diversity of plants used for Ngusaba ceremonial offerings is an expression of the region’s uniqueness which is a mountainous area surrounded by hills. A region’s uniqueness determines biodiversity, including plants in a specific ecosystem. Each ethnic group grows according to regional uniqueness, culture, and natural resources’ availability (Suryadarma 2017). Almost all the Poaceae family plants used for Ngusaba ceremonies are edible, staple foodstuffs, and the main agricultural product.

Plant parts utilized for Ngusaba ceremony by Tenganan Pegingsingan community

The plant parts used are in the form of leaf, stem, flower, fruit, seeds, tuber, and rhizome as presented in Figure 3. The most widely used are leaves, while the rhizome is the lowest.

The most utilized parts reported were leaves (45.52%), followed by fruits (38.80 %) and flowers (17.91%). Other studies such as Mesfin et al. (2013), Riadi et al. (2019), and Ristanto et al. (2020) also reported that leaves were the most commonly used. The high utilization of Ngusaba leaves appears to be associated with several advantages such as higher number or productivity of leaves that are easier to obtain than the other parts (Handayani 2015). Piper betle L. leaves are mostly utilized in all types of Ngusaba ceremonies. These are made in various forms that differentiate their names and are also irreplaceable (exclusive) and a must have in every offering. Furthermore, banana shoots are used almost equally as Piper betle L. and those having leaves that are useful to local people are included in a taste of sepia banana group, where the most widely used is Musa acuminata L. (biyu keladi).
| Family/scientific name | Local name | Plants part | Habitus | ICS value | Category |
|------------------------|------------|-------------|---------|-----------|----------|
| Acanthaceae            |            |             |         |           |          |
| Asystasia gangetica L. |            | Leaf        | Herb    | 6         | Low      |
| Gnetum pictum L.       |            | Leaf        | Shrub   | 24        | Moderate |
| Justicia adhatoda L.   |            | Leaf        | Shrub   | 102       | Very high|
| Thunbergia erecta Benth|            | Flower      | Shrub   | 4         | Very low |
| Achariaceae            | Pangium edule Reinw. | Seed | Tree | 20 | Moderate |
| Agavaceae              | Dracaena marginata Lam. | Leaf | Tree | 24 | Moderate |
| Amaranthaceae          | Kenywaan   | Flower      | Herb    | 6         | Low      |
| Amaranthaceae          | Kesuna     | Tuber       | Herb    | 42        | Moderate |
| Allium cepa L.         | Bawang     | Tuber       | Herb    | 30        | Moderate |
| Anacardiaceae          | Mangifera caesia Jack. | Fruit | Tree | 12 | Low |
| Annonaceae             |            |             |         |           |          |
| Annonaceae             | Mangifera indica L. | Fruit | Tree | 12 | Low |
| Annonaceae             | Mangifera indica L. | Fruit | Tree | 12 | Low |
| Annonaceae             | Mangifera odorata Griff. | Leaf | Tree | 6 | Low |
| Apocynaceae            | Cananga odorata Lamk. | Flower | Tree | 12 | Low |
| Araliaceae             |            |             |         |           |          |
| Araliaceae             | Plumeria alba L. | Flower | Tree | 24 | Moderate |
| Araliaceae             | Plumeria alba L. | Flower | Tree | 4 | Very low |
| Araliaceae             | Plumeria acuminata L. | Flower | Tree | 4 | Very low |
| Araliaceae             | Allamanda cathartica L. | Flower | Shrub | 4 | Very low |
| Arecaceae              | Colocasia esculenta Schott. | Leaf, tuber | Herb | 12 | Low |
| Arecaceae              | Schefflera elliptica (Blume) Harms. | Leaf | Shrub | 20 | Moderate |
| Arecaceae              | Arenga pinnata Merr | Midrib, leaf, fruit | Tree | 66 | High |
| Arecaceae              | Areca catechu | Fruit, flower | Tree | 66 | High |
| Arecaceae              | Cocos nucifera L | Midrib, leaf, fruit | Tree | 84 | High |
| Arecaceae              | Cocos nucifera L | Midrib, leaf, fruit | Tree | 84 | High |
| Arecaceae              | Salacca zalacca L | Fruit | Tree | 12 | Low |
| Asclepiadaceae         | Hoys australis R.Br.ex.Trail. | Leaf | Herb | 6 | Low |
| Asteraceae             | Tagetes erecta L. |  |  | | |
| Asteraceae             | Tithonia aristata Oerst. | Flower | Herb | 6 | Low |
| Asterales              | Diplazium esculentum (Retz.) Sw. | Leaf | Herb | 24 | Moderate |
| Bromeliaceae           | Ananas comusus Mer. | Fruit | Herb | 12 | Low |
| Cactaceae              | Hylocereus polyrhizus Britton&Rose | Fruit | Herb | 26 | Moderate |
| Clusiaceae             | Calopogon inophyllum L | Leaf | Tree | 6 | Low |
| Clusiaceae             | Mesua ferrea L. | Leaf | Shrub | 6 | Low |
| Clusiaceae             | Garcinia mangostana L. | Fruit | Tree | 12 | Low |
| Combretaceae           | Lumnitzera littorea Jack. | Leaf | Tree | 6 | Low |
| Convolvulaceae         | Ipomoea aquatica Forsk. | Stem, leaf | Herb | 2 | Very low |
| Convolvulaceae         | Citrus lanatus (Thunb.) | Fruit | Herb | 24 | Moderate |
| Convolvulaceae         | Cucumis sativus L. | Fruit | Herb | 30 | Moderate |
| Dioscoreaceae          | Dioscorea bulbifera L. | Tuber | Herb | 6 | Low |
| Family               | Species                                      | Common Name 1 | Common Name 2 | Common Name 3 | Type       | Length | Rank  |
|---------------------|---------------------------------------------|---------------|---------------|---------------|------------|--------|-------|
| Nyctaginaceae       | Musa acuminata L.                           | Biyu Gedang Saba | Leaf, fruit   | Herb         | Tree       | 30     | Moderate  |
| Fabaceae            | Psidium guajava L.                          | Nyambo Kristal | Fruit         | Shrub        | 4          | Very low |
| Fabaceae            | Syzygium polyanthum Walp.                   | Don Juwet     | Leaf          | Tree         | 4          | Very low |
| Nyctaginaceae       | Bougainvillea spectabilis L.                | Bunga Kertas  | Flower        | Shrub        | 4          | Very low |
| Nyctaginaceae       | Pisonia alba L.                             | Dagdag Sec    | Leaf          | Shrub        | 6          | Low     |
| Oleaceae            | Nyctanthes arboristis L.                   | Srigading     | Flower        | Shrub        | 102       | Very high |

Note: The table lists plant species, their common names in various languages, their types (e.g., tree, shrub, herb), and their ranks (e.g., low, moderate, high) based on their biodiversity importance.
| Family          | Species/Genus                  | Common Name | Part Used | Mode | Frequency |
|-----------------|--------------------------------|-------------|-----------|------|-----------|
| Oxalidaceae     | Averrhoa carambola L.           | Belimbing Sayur | Leaf, fruit | Tree | 6         | Low       |
| Pandanaceae     | Pandanus amaryllifolius Roxb.  | Pandan Arum | Leaf      | Shrub| 8         | Low       |
|                 | Pandanus tectorius Parkinson ex Du Roi | Pandan Duri | Leaf      | Shrub| 12        | Low       |
| Pinaceae        | Pinus merkusii Jungh. & de Vriese | Cemara     | Leaf      | Tree | 6         | Low       |
| Piperaceae      | Piper betle L. var.nigra        | Base Bali   | Leaf      | Herb | 24        | Moderate  |
|                 | Piper betle L.                  | Base biasa  | Leaf      | Herb | 114       | Very high |
|                 | Piper retrofRACTum Vahl.        | Tabia Bun   | Fruit     | Herb | 24        | Moderate  |
| Poaceae         | Brachiaria mutica (Forsk.) Stapf. | Padang Guwun | Stem+leaf | Herb | 18        | Low       |
|                 | Coix lacryma jobi L.            | Jali-Jali   | Fruit     | Herb | 6         | Low       |
|                 | Cymbopogon citratus DC         | See         | Stem      | Herb | 4         | Very low  |
|                 | Gigantochloa apus (Schult.) Kurz | Tiying Tali | Stem      | Tree | 8         | Low       |
|                 | Hordeum scalarium Schreb.      | Ikuh bojog  | Flower    | Herb | 12        | Low       |
|                 | Imperata cylindrica L.         | Ambengan    | Leaf      | Herb | 18        | Low       |
|                 | Oryza sativa L.                | Beras       | Seed      | Herb | 108       | Very high |
|                 | Oryza nivara L.                | Beras merah | Fruit, seed | Herb | 39        | Moderate  |
|                 | Oryza sativa L. var. glutinosa | Ketan Putih | Fruit, seed | Herb | 70        | High      |
|                 | Oryza sativa L. var. glutinosa | Ketan barak | Fruit, seed | Herb | 75        | High      |
|                 | Oryza sativa L. var. glutinosa | Injin       | Fruit, seed | Herb | 75        | High      |
|                 | Oryza sativa L.                | Padi Gaga   | Fruit     | Herb | 12        | Low       |
|                 | Oryza sativa L.                | Padi Bali   | Fruit, seed | Herb | 18        | Low       |
|                 | Saccharum officinarum L.       | Tebu Guwak  | Stem      | Herb | 6         | Low       |
|                 | Sorghum bicolor L.             | Jagung Beleleng | Seed | Herb | 6         | Low       |
|                 | Zea mays L.                    | Jagung      | Seed      | Herb | 6         | Low       |
| Pteridaceae     | Adiantum pedatum L.            | Paku condong | Leaf     | Herb | 6         | Low       |
| Rubiaceae       | Gardenia jasminoides J.Ellis   | Jempling    | Flower    | Shrub| 4         | Very low  |
|                 | Ixora coccinea L.              | Jaum-Jaum   | Flower    | Shrub| 6         | Low       |
|                 | Psychotria micrantha Kunth.   | Wisnu       | Leaf      | Shrub| 6         | Low       |
| Rosaceae        | Malus domestica Borkh.         | Apel        | Fruit     | Tree | 20        | Moderate  |
|                 | Pyrus communis L.              | Pir         | Fruit     | Tree | 22        | Moderate  |
| Rutaceae        | Citrus amblycarpa Hassk        | Limo        | Fruit, leaf | Shrub| 4         | Very low  |
|                 | Citrus grandis L.              | Jerungga    | Fruit     | Tree | 12        | Low       |
|                 | Citrus reticulata Blanco       | Sumaga      | Fruit     | Shrub| 24        | Moderate  |
|                 | Citrus sinensis L.             | Juuk        | Fruit     | Tree | 24        | Moderate  |
|                 | Murraya paniculata L.          | Kemoning    | Leaf      | Shrub| 24        | Moderate  |
| Santalaceae     | Santalum album L.              | Cenana      | Stem      | Tree | 6         | Low       |
| Sapindaceae     | Cardiospermum halicacabum Linn.| Kesanum Jai | Leaf      | Herb | 6         | Low       |
|                 | Nephelium lappaceum L.         | Buluan      | Fruit     | Tree | 18        | Low       |
| Sapotaceae      | Manilkara zapota L.            | Sabo        | Fruit     | Tree | 4         | Very low  |
| Solanaceae      | Solanum melongena L.           | Tuwung      | Fruit     | Shrub| 6         | Low       |
| Urticaceae      | Laportea stimulans             | Lateng Kebo | Leaf      | Herb | 6         | Low       |
| Vitaceae        | Vitis vinifera L.              | Anggur      | Fruit     | Shrub| 4         | Very low  |
| Zingiberaceae   | Alpinia galanga L.             | Langkuas    | Rhizome   | Herb | 57        | High      |
|                 | Curcuma longa Linn.            | Kunyit      | Rhizome   | Herb | 18        | Low       |
|                 | Zingiber officinale Rosc.      | Jahe        | Rhizome   | Herb | 30        | Moderate  |
Figure 2. *Ngusaba* ceremony plant family used by Tenganan Pegingsingan community, Karangasem District, Bali, Indonesia
Source of Ngusaba ceremonial plants

Ngusaba sources include the home gardens, in front of the house (telajakan), drylands, forests, roadsides, temples, other villages, and from purchase (Figure 4).

Thus, the purchase is the highest source (34.61%), followed by forest (16.92%) and telajakan (16.92%), and most of them are wild. This is in line with Sujarwo (2020) stated that most of the Panca Yadnya ceremonial plants in Bali Aga Village come from Balinese wild ethnoflora (Constant et al. 2018), and they are mostly distributed in various habitats. Their availability varies from one place to another among species. The majority used were harvested from the wild (35.38%), followed by semi-wild (23.84%), and cultivated (7.69%). The community’s efforts by planting in the settlements’ vicinity including telajakan, drylands, and home gardens. However, there are many types and quantities of ceremonial ingredients needed that exceed this plant’s availability in nature. Some of them have not been found in the Tenganan Pegringingsingan Village, such as Musa acuminata L. (biyu kunti), Musa acuminata L. (biyu kayu), Oryza nivara, Oryza sativa var. glutinosa (red and black), Citrus grandis L., and Hordeum scalthum Schreb.

Index of Cultural Significance of useful plants (ICS)

The ICS calculation results showed various values with a range of 2-114. Piper betle L. has the highest (114), while the lowest value is noted for Ipomoea aquatica Forssk, and the ICS value categories (Figure 5).

The highest ICS value is noted for the plant species widely used by the Tenganan Pegringingsingan community, especially those with high exclusivity and intensity levels. In fact, the intensity value is high because it is used in all Ngusaba ceremonies as a staple ingredient and is irreplaceable. Plants with more benefits often have a higher ICS value, which means to be more valuable and more exclusive (Hager 2008). The people of Tenganan Pegringingsingan placed Base (Piper betle L.) plants at the highest level and as the most useful and valuable.

This result showed that the Tenganan Pegringingsingan community has the most interaction with the Piper betle L., meaning that this plant species will be used continuously as much as it is in line with the local community’s cultural development. The variety of beneficial plants to a community group highly determines the conservation efforts made. The ICS results of Useful Plants as a quantitative ethnobotany analysis showed each useful plant species importance based on community needs (Munawaroh et al. 2011), hence determining the ones to be preserved (Supiandi 2019). The ICS plants’ high index indicates a conservation stimulus, such as nature, benefits, and community willingness towards making efforts to develop it. The Tenganan Pegringingsingan community tends to provide species that are often conserved as they are typical and cannot be replaced by other plants. In the beginning, local village communities made use of their natural resources and environment primarily based on local knowledge and/or beliefs embedded in their culture (Iskandar 2016). Therefore, human culture can be understood as the knowledge that contains several sets of models used effectively to interpret, understand, and guide behavior in adapting to the environment (Ahimsa-Putra 2012). This situation requires thoughts and efforts on plant...
reintroduction, which the community continuously utilizes by creating a *Ngasaba* ceremonial plants’ garden.

In conclusion, we indicated that Tenganan Pegringsingan people utilize a large number of plant species (130) named and explained for *Ngasaba* ceremonies. The plant’s largest family (16) is Poaceae, while the most widely used part is the leaf, and the highest proportion was obtained by purchasing. Even though most of them are harvested from the wild vegetation, areas such as roadsides, forests, and dry lands are exposed to many threats. The Index of Cultural Significance of the *Ngasaba* in Tenganan Pegringsingan Village ranges from 2 to 114, and *Piper betle* L. has the highest value (114). There is an imbalance between their existence and the use of plants by the community. Many of them become increasingly hard to be found and some have not been found in Tenganan Pegringsingan, such as *Musa acuminate L.* (biyu kantii), *Musa acuminate L.*(biyu kaya), *Oryza nivara*, *Oryza sativa* var. glutinosa (red and black), *Citrus grandis L.*, *Limnocharis flava L.*, *Pinus merkusii L.*, and *Hordceum scalignum* Schreib. Therefore, urgent efforts on plant reintroduction are needed to be continuously utilized by the community by creating a *Ngasaba* ceremonial plants’ garden.

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