

Documentation of ritual plants used among the Aceh tribe in Peureulak, East Aceh District, Indonesia

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Abstract. Sutrisno IH, Akob B, Navia ZI, Nuraini, Suwardi AB. 2020. Documentation of ritual plants used among the Aceh tribe in Peureulak sub-district, East Aceh, Indonesia. *Biodiversitas* 21: 4990-4998. Traditional ceremonies as part of human cultural products at a practical level cannot be separated from the use of natural resources, mainly plants. Concerning the use of plants in traditional ceremonies, the knowledge and use of plants by the community are decreasing. This study aims to document the ritual plants used by the Aceh tribe in the East Aceh district of Indonesia. The study was conducted in Peureulak sub-districts, East Aceh district, Indonesia. A field survey was involved 125 respondents were selected using random sampling. The interview used a questionnaire including plant species, vernacular names, uses, parts use, and ritual tradition. A total of 51 ritual plant species consisting of 47 genera and 34 families was used as ritual ceremonies in the study area. Ninety-two percent were cultivated and 8% were found to be growing wild. Most of the plants used for wedding ceremonies (18 species), followed by birth ceremonies (8 species), funeral ceremonies (5 species), and pregnancy ceremony (3 species). Socio-cultural aspects can be considered as being used for the conservation of ritual plants in the East Aceh region.

Keywords: Ceremonial, East Aceh, Peureulak, peusijeuk, traditional knowledge

INTRODUCTION

The relationship between human beings and their environment is quite adjacent and has been going on for a long time (Hakim 2014). Human population growth associated with land-use change has had a serious impact on nature. Alteration of habitats and related biological changes has affected the existence of important plant species. Plants play a very important role in a larger number of human populations, particularly in rural communities. In the rural area, plants are the important source of food, medicine, condiment, and construction material to build houses (Navia et al. 2015; Suwardi et al. 2018; Navia et al. 2019a; Elfrida et al. 2020; Navia et al. 2020a; Navia et al. 2020b; Suwardi et al. 2020a). In addition, several plants are part of various ritual purposes (Sharma and Pegu 2011; Iskandar and Iskandar 2017), as well as a source of livelihood for the local people (Rajbhandary and Ranjitkar 2006; Navia et al. 2019b; Suwardi et al. 2020b). Plants have many cultural aspects, e.g. language, history, art, religion, politics, and social structure (Kakudidi 2004). Knowledge of the cultural significance of plants and forests can be gathered from ethnobotanical and ethnomedical studies (Suwardi et al. 2019; Navia et al. 2020a; Suwardi et al. 2020c). Conservation of natural resources is very important and effective when expertise is combined with understanding and awareness of the cultural practices of local communities (Sheybani et al. 2015; O'Neill et al. 2017). Ritual beliefs of indigenous peoples are one of the most

important tools for understanding local communities and offering to help to conserve nature (Geng et al. 2017). Many communities maintain their tradition across folklore and adopt ritual beliefs (Sharma and Pegu 2011), which can provide useful information and links to biodiversity conservation. Conserving biodiversity based on culture and religion is more reliable and efficient than legislation or regulation (Liu et al. 2002).

Plants in local Indonesian ethnicity have an important meaning, especially those used in different religious ceremonies (Hulyati et al. 2014; Helida et al. 2015; Anggraini et al. 2018; Ristanto et al. 2020), including in the Aceh tribe. The number of plants used in ceremonials is different and varied and often has symbols that may vary from one species to another (Putri et al. 2014). The role of one species cannot be replaced by other species in ritual ceremonies. Besides the primary purpose related to symbols, this feature is as a path of guidance, peace of mind, comfort in ritual life, so use these plant species believed can trigger disasters for local people (Koentjaraningkrat 2009). Numerous plants have been used in traditional ceremonies, such as *Oryza sativa* L., *Manihot esculenta* Crantz., *Areca catechu* L., *Allium sativum* L., *Kaempferia galanga* L., *Carica papaya* L., *Cocos nucifera* L., *Curcuma longa* L., and *Arenga pinnata* Merr. (Mutaqin et al. 2018). These species have a main function related to symbolism (Supinah 2006; Iskandar and Iskandar 2017).

Technology and information developments are reported to have led to a decline in traditional knowledge of local communities in different regions (Putri et al. 2017; Navia et

al. 2020b; Suwardi et al. 2020c). The condition may also have an impact on the Acehnese tradition in Peureulak, - in particular the use of various plants in ritual ceremonies, given that modernization has influenced the lifestyle of the young generation. In addition, documentation on the use of plants used in traditional ceremonies is limited, and knowledge transfer from generation to generation is mostly conducted orally (Surata et al. 2015). However, traditional knowledge of environmental management is crucial for the conservation of biodiversity (Iskandar and Iskandar 2017). This study aims to document the ritual plants used by the Aceh tribe in the East Aceh district of Indonesia.

MATERIALS AND METHODS

Study area

The study was conducted in Peureulak sub-districts (04°80'N, 97°89'E, 50 m a.s.l.), East Aceh district, Indonesia as shown in Figure 1. Peureulak sub-district has an area of 318.02 km² with a total population of 74,697 people, comprising 50.1% men and 49.9% women. These areas have a tropical humid climate with a dry season predominantly occurring from January to July while the rainy season lasts from August to December. The average temperature is around 26°C – 30°C. The topography is generally sloping and the zone is characterized by a cropping system where rice and vegetables make up the primary crops (The Central Bureau of Statistics of East Aceh District 2020).

Data collection

The study was conducted in Peureulak sub-districts, East Aceh district, Indonesia. A field survey was involved 125 respondents were selected using random sampling (Table 1). The interview was conducted face to face and each interview lasted between 30 and 60 minutes. The interview used a questionnaire including plant species, vernacular names, uses, parts use, and ritual tradition.

Plant identification is performed directly on the field. If a species of the unknown scientific name has been recognized in the survey, plant specimens have been collected, local names are recorded and identified in the Biology Laboratory of the Samudra University. Plant identification refers to identification books such as the Flora of Java (Backer and Bakhuizen van den Brink 1980), Key to the families of flowering plants of the world (Hutchinson 1967), and the Indonesian useful plants (Heyne 1987). The botanical names have been updated using The Plant List (www.theplantlist.org), Plants of the World (www.plantsoftheworldonline.org), and the International Plant Name Index (www.ipni.org).

Data analysis

The data were analyzed by determining the Cultural Significance Index (CSI) value using the technique developed by Turner (1988) with the following formula:

$$CSI = \sum_{i=1}^n (q_1 \times i_1 \times e_1) n_1$$

Where: CSI = Cultural Significance Index; q = quality value; i = intensity value; e = exclusivity value.

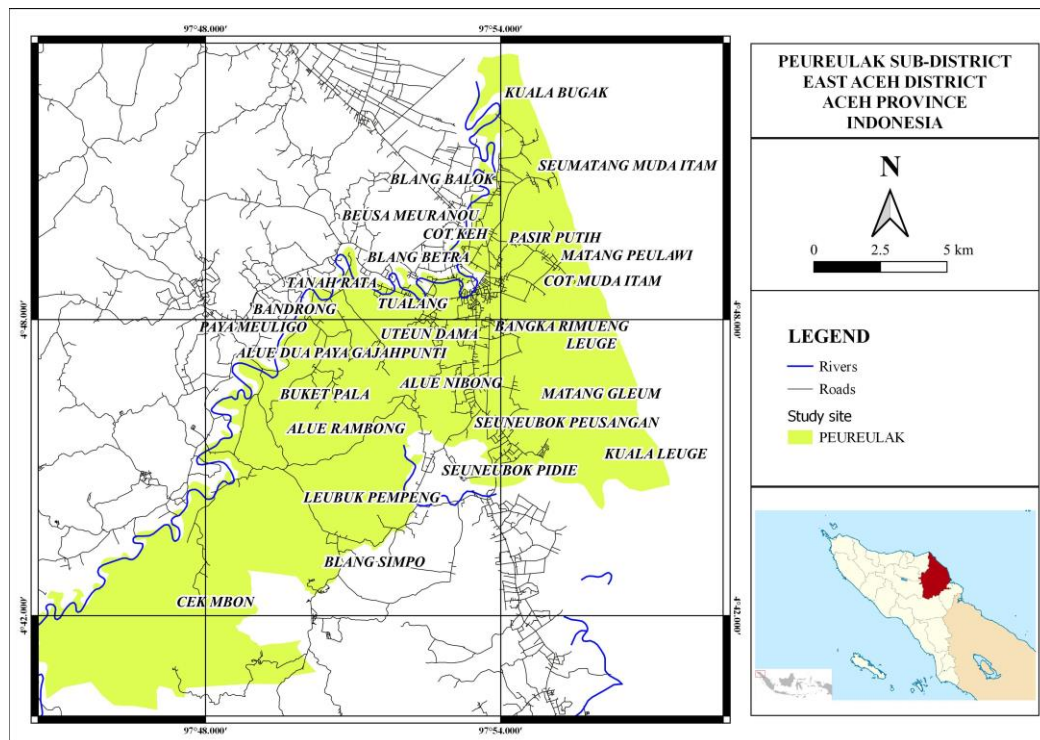


Figure 1. Map of East Aceh District, Aceh Province, Indonesia, showing the study area

Table 1. The demographic structure of respondents

Parameter	Specification	Freq.	Percent.
Gender	Male	52	41.6
	Female	73	58.4
Age	15–25	21	16.8
	26-35	28	22.4
	36-45	26	20.8
	46-55	29	23.2
	56-65	17	13.6
	>65	4	3.2
Education	None	24	19.2
	Elementary School	39	31.2
	Yunior High School	32	25.6
	Senior High School	18	14.4
	University	12	9.6

RESULTS AND DISCUSSION

Floristic composition of ritual plants

The survey results revealed the Aceh tribe possessed of the traditional ritual plants. A total of 51 species consisting of 47 genera and 34 families was used as ritual ceremonies in the study area (Table 2).

Poaceae was the largest family of six species, followed by Arecaceae (4 species), Rosaceae, Rutaceae, and Sapindaceae (3 species each), Amaranthaceae, Myrtaceae, and Zingiberaceae (2 species each), while other families contributed as many as 1 species. Ninety-two percent were cultivated and 8% were found to be growing wild. Twenty (39%) species were found growing in the home garden, 15 (29%) species in farmland, and 13 (26%) species occurred in both the home garden and farmland, and 3 (6%) species purchased from the traditional market. The number of species recorded in this study (51 species) was comparable to the 50 ritual plant species reported in Bandung, Indonesia (Iskandar and Iskandar 2017), but lower than that in Bali, Indonesia, i.e., 125 species (Sujarwo et al. 2019)

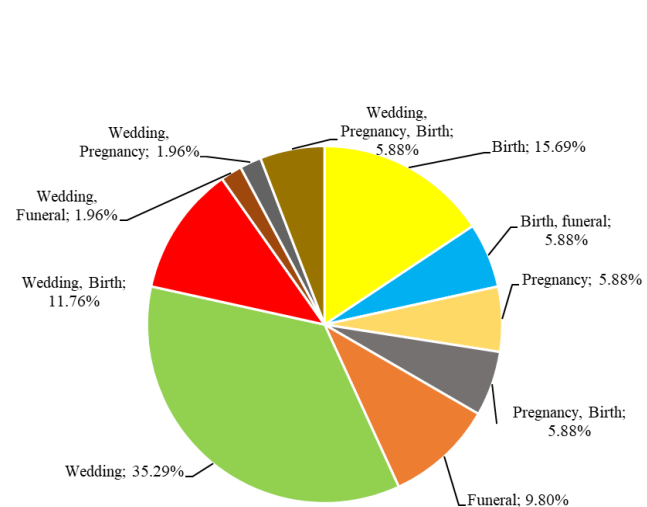


Figure 2. Percentage of plant material for ritual ceremonies

and 60 species in East Nusa Tenggara, Indonesia (Sada and Jumari 2018). However, it was higher than the 36 ritual plant species reported in the Banswara district, India (Rana et al. 2016), in Jambi, Indonesia, i.e., 32 species (Hariyadi and Ticktin 2012), in Yunnan Province, Southwest China, i.e., 32 species (Geng et al. 2017), in Nigeria, i.e. 31 species (Kadiri et al. 2014), and 21 ritual plant species reported in the Pangandaran, Indonesia (Mutaqin et al. 2018). Most of the plants used for wedding ceremonies (36%), followed by birth ceremonies (16%), funeral ceremonies (10%), pregnancy ceremony (6%), and remain plant species have multipurpose (Figure 2). The results showed that the use of fruits was more dominant than other parts of the plant (Figure 3).

According to data analysis, the Cultural Significance Index (CSI) of 51 ritual plant species ranged from 6-60. The highest CSI value was for *Oryza sativa* and *Musa paradisiaca* (60). This species is used at almost all stages of the ceremony, as well as being the main component that is very important and cannot be replaced by other species. While *Artocarpus heterophyllus*, *Averrhoa carambola*, *Carica papaya*, *Citrullus lanatus*, *Citrus maxima*, *Dimocarpus longan*, *Durio zibethinus*, *Malus domestica*, *Manilkara zapota*, *Nephelium lappaceum*, *Phoenix dactylifera*, *Pogostemon cablin*, *Pyrus communis*, *Syzygium aqueum*, and *Vitis vinifera* have the lowest CSI value (6). This indicates that these species may be replaced by other species as a component of the ritual ceremony. Species with low CSI values reveal that these species meet only secondary needs with low preference levels (Mirawati 2014).

Plants in ceremonial of the Aceh tribe

The Aceh tribe has unique traditions, such as wedding, pregnancy, birth, funeral, and others, which are always preserved, and several local plants available are an important part of these rituals. The various plant species used by the Aceh tribe during traditional ceremonies are shown in Table 3.

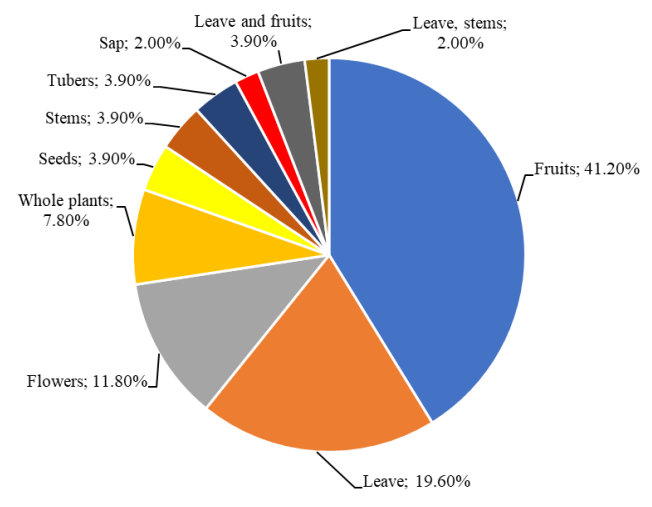


Figure 3. Percentage of plant part used for ritual ceremonies

Table 2. Ritual plants used by the Aceh tribe, East Aceh, Indonesia

Scientific name	Family	Local name	Life form	Location	Status	Part used	Ceremonies	CSI
<i>Acorus calamus</i> L.	Acoraceae	Jerengo	Herb	HG	Wild	Leave	Birth	20
<i>Aerva lanata</i> (L.) Juss. ex Schult	Amaranthaceae	Manek manoe	Herb	HG	Cultivated	Flowers	Wedding, birth	40
<i>Amaranthus hybridus</i> L.	Amaranthaceae	Bayam	Herb	HG, FL	Cultivated	Whole plants	Birth	10
<i>Ananas comosus</i> (L.) Merr	Bromeliaceae	Nanas	Herb	HG, FL	Cultivated	Fruits	Wedding	8
<i>Areca catechu</i> L.	Arecaceae	Pineung	Palm	HG, FL	Cultivated	Leave, seeds	Wedding, birth	40
<i>Artocarpus heterophyllus</i> Lam.	Moraceae	Nangka	Tree	HG	Cultivated	Fruits	Birth	6
<i>Averrhoa carambola</i> L.	Oxalidaceae	Belimbing	Tree	HG	Cultivated	Leave	Funeral	6
<i>Bambusa</i> sp.	Poaceae	Bambu	Shrub	HG, FL	Wild	Stems	Birth	8
<i>Bougainvillea spectabilis</i> Willd.	Nyctaginaceae	Bunga kertas	Shrub	HG	Cultivated	Flowers	Wedding, funeral	32
<i>Bryophyllum pinnatum</i> (Lam.) Oken	Crassulaceae	Cocor bebek	Herb	HG	Cultivated	Leaves	Wedding, birth	32
<i>Cananga odorata</i> (Lam.) Hook.f. & Thomson	Annonaceae	Kenanga	Tree	HG	Cultivated	Flowers	Birth, funeral	40
<i>Carica papaya</i> L.	Caricaceae	Pepaya	Tree	HG, FL	Cultivated	Fruits	Wedding	6
<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai	Cucurbitaceae	Semangka	Vein	FL	Cultivated	Fruits	Wedding	6
<i>Citrus hystrix</i> DC.	Rutaceae	Jeruk purut	Tree	FL	Cultivated	Fruits	Wedding	20
<i>Citrus maxima</i> (Burm.) Merr.	Rutaceae	Jeruk bali	Tree	FL	Cultivated	Fruits	Pregnancy	6
<i>Citrus aurantium</i> L.	Rutaceae	Jeruk	Tree	FL	Cultivated	Fruits	Birth	8
<i>Cocos nucifera</i> L.	Arecaceae	Kelapa	Palm	HG, FL	Cultivated	Leave and fruits	Pregnancy, birth	40
<i>Codiaeum variegatum</i> (L.) Rumph. ex A.Juss.	Euphorbiaceae	Puring	Shrub	HG	Cultivated	Leave, stems	Wedding	8
<i>Colocasia esculenta</i> (L.) Schot	Araceae	Keladi	Herb	HG, FL	Cultivated	Leave	Birth	8
<i>Curcuma longa</i> L.	Zingiberaceae	Kunyit	Herb	HG	Cultivated	Tubers	Wedding	20
<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Naleung samboe	Graminoid	HG	Wild	Whole plants	Wedding, birth	40
<i>Cyrtostachys renda</i> Blume	Arecaceae	Pinang merah	Palm	HG	Cultivated	Seeds	Wedding	10
<i>Dimocarpus longan</i> Lour.	Sapindaceae	Kelengkeng	Tree	HG	Cultivated	Fruits	Wedding	6
<i>Durio zibethinus</i> L.	Malvaceae	Durian	Tree	FL	Cultivated	Fruits	Pregnancy	6
<i>Eleusine indica</i> (L.) Gaertn.	Poaceae	Rumput belulang	Graminoid	HG	Wild	Whole plants	Wedding, birth	40
<i>Jasminum sambac</i> (L.) Aiton	Oleaceae	Melati	Shrub	HG	Cultivated	Flowers	Birth, funeral	40
<i>Kaempferia galanga</i> L.	Zingiberaceae	Cekur	Herb	HG	Cultivated	Tubers	Wedding	20
<i>Lansium parasiticum</i> (Osbeck) K.C.Sahni & Bennet	Sapindaceae	Duku	Tree	FL	Cultivated	Fruits	Wedding, pregnancy	12
<i>Lawsonia inermis</i> L.	Lythraceae	Inai	Herb	HG	Cultivated	Leaves	Wedding, birth	40
<i>Magnolia champaca</i> (L.) Baill. ex Pierre	Magnoliaceae	Cempaka	Tree	HG	Cultivated	Flowers	Funeral	20
<i>Malus domestica</i> Borkh.	Rosaceae	Apel	Tree	MR	Cultivated	Fruits	Wedding	6
<i>Mangifera indica</i> L.	Anacardiaceae	Mangga	Tree	HG, FL	Cultivated	Fruits	Wedding, pregnancy, birth	12
<i>Manilkara zapota</i> (L.) P.Royen	Sapotaceae	Sawo	Tree	HG, FL	Cultivated	Fruits	Pregnancy	6
<i>Musa paradisiaca</i> L.	Musaceae	Pisang	Herb	FL	Cultivated	Leaves and fruits	Wedding, pregnancy, birth	60
<i>Nephelium lappaceum</i> L.	Sapindaceae	Rambutan	Tree	HG, FL	Cultivated	Fruits	Birth	6
<i>Nicotiana tabacum</i> L.	Solanaceae	Tembakau	Shrub	FL	Cultivated	Leave	Wedding	8

<i>Oryza sativa</i> L.	Poaceae	Padi	Graminoid	FL	Cultivated	Fruits	Wedding, pregnancy, birth	60
<i>Oryza sativa</i> var. <i>glutinosa</i>	Poaceae	Ketan	Graminoid	FL	Cultivated	Fruits	Pregnancy, birth	40
<i>Pandanus amaryllifolius</i> Roxb. ex Lindl.	Pandanaceae	Pandan	Palm	HG	Cultivated	Leave	Funeral	20
<i>Phoenix dactylifera</i> L.	Arecaceae	Kurma	Palm	HG, FL	Cultivated	Fruits	Birth	6
<i>Piper betle</i> L.	Piperaceae	Sirih	Vine	HG	Cultivated	Leave	Wedding	20
<i>Pogostemon cablin</i> (Blanco) Benth.	Lamiaceae	Nilam	Shrub	FL	Cultivated	Leave	Wedding	6
<i>Pyrus communis</i> L.	Rosaceae	Pir	Tree	MR	Cultivated	Fruits	Wedding	6
<i>Rosa chinensis</i> Jacq.	Rosaceae	Mawar	Shrub	HG	Cultivated	Fruits	Birth, funeral	40
<i>Saccharum officinarum</i> L.	Poaceae	Tebu	Graminoid	FL	Cultivated	Whole plants	Pregnancy, birth	40
<i>Salix tetrasperma</i> Roxb.	Salicaceae	Jaleoh	Tree	HG, FL	Cultivated	Leave	Funeral	20
<i>Santalum album</i> L.	Santalaceae	Cendana	Shrub	FL	Cultivated	Stems	Funeral	16
<i>Syzygium aqueum</i> (Burm.f.) Alston	Myrtaceae	Jambu	Tree	HG, FL	Cultivated	Fruits	Wedding	6
<i>Syzygium aromaticum</i> (L.) Merr. & L.M.Perry	Myrtaceae	Cengkeh	Tree	FL	Cultivated	Flowers	Wedding	8
<i>Uncaria gambir</i> (W. Hunter) Roxb.	Rubiaceae	Gambir	Shrub	FL	Cultivated	Sap	Wedding	20
<i>Vitis vinifera</i> L.	Vitaceae	Anggur	Vine	MR	Cultivated	Fruits	Wedding	6

Note: Habitat: HG: Home garden; FL: Farmland; MR: Market

Wedding ceremony

Meulakee

Meulakee is a tradition that has been passed down through generations in Peureulak when a man is proposing to a woman. *Meulakee* must be with the intermediary *Seulangke* (people who represent the family of the prospective groom) because the parents of both men and women must not come face to face in this event. Respondent state that, in *Meulakee*, the *Seulangke* incorporates various kinds of fruit, for example, *S. aqueum*, *C. lanatus*, *M. paradisiaca*, *C. papaya*, *Ananas comosus*, *M. indica*, *M. domestica*, *Lansium parasiticum*, *P. communis*, *V. vinifera*, *D. longan*, as souvenirs.

Kong haba

Kong haba is a tradition of engagement for the Aceh tribe with the primary purpose of declaring that a man is serious concerning marrying a woman (Roslaili 2019). Family prospective grooms (*linto baro*) carrying *Piper betle* leaf which has been prepared (*ranub dong*) and decorated with *Areca catechu* seed and other fittings, such as lime and *Uncaria gambir* (Yuni 2019). The *A. catechu* represents exaltation, while the *U. gambir* symbolizes courage (Rahimah et al. 2018). During the discussion, respondents argued that the *P. betle* is a symbol of "love," that is, a prospective groom who gives a *P. betle* to a prospective bride, which means a prospective groom gives "love" to a prospective bride. They also bring souvenirs (*bungong jarou*) containing cloth, makeup, cake (*penajoh*), gold ring (*jeunamae*), *Oriza sativa*, and *Curcuma longa* (Yuni 2019). *O. sativa* symbolises hardness, while *C. longa* symbolizes prosperity. In Aceh, a girl is considered to have legally become a candidate for a man's wife after being handed over to her home by the man's family.

Meugaca

The *Meugaca* ceremony is a tradition of decorating certain body parts of the bride, such as the nails of the hands and the legs and the palms of the hands, with different traditional patterns using henna (*Lawsonia inermis*) (Putri et al. 2017). *Meugaca* takes place before the wedding party. Based on the interviews with respondents indicated that the use of *L. inermis* in the *Meugaca* ceremony was commonly used by the bride in Peureulak and as a symbol that the bride is ready for marriage. At the *Meugaca* ceremony, the *L. inermis* leaves will be placed on a large plate and then crushed and placed on the finger of the prospective bride (Putri et al. 2017). This activity is carried out for three nights.

Meukeureuja

Meukeureuja is a wedding reception performed by the Aceh tribe, as is commonly practiced by other tribes in Indonesia. In this procession, the tribe of Aceh will perform the ceremony of the *Peusejuik Dara Baro*. *Peusijuek* is among the traditions of the Aceh tribe that has been going on for generations. *Peusijuek* as a symbol of praying for safety, peace, and happiness in daily life (Riezal et al. 2018). *Peusijuek* is an acculturation of the culture of Acehnese with Islam. According to the historical record, *Peusijuek* is a form of Hindu cultural heritage in Aceh, however, several parts that have been changed in *Peusijuek* Aceh, for example, certain prayers or mantras previously used in the *Peusijuek* procession have been replaced by prayers in Islam (Riezal et al. 2018). This tradition is often performed in all traditional and cultural activities of Aceh, such as weddings, and other traditional ceremonies (Ismail 2003).

Table 3. Plant species used in traditional ceremonies

Categories	Ceremonial	Species
Wedding	<i>Meulakee</i>	<i>Syzygium aqueum</i> , <i>Citrullus lanatus</i> , <i>Musa paradisiaca</i> , <i>Carica papaya</i> , <i>Ananas comosus</i> , <i>Mangifera indica</i> , <i>Malus domestica</i> , <i>Lansium parasiticum</i> , <i>Pyrus communis</i> , <i>Vitis vinifera</i> , <i>Dimocarpus longan</i>
	<i>Kong haba</i>	<i>Piper betle</i> , <i>Areca catechu</i> , <i>Uncaria gambir</i> , <i>Oriza sativa</i> , <i>Curcuma longa</i>
	<i>Meugaca</i>	<i>Lawsonia inermis</i>
	<i>Peusejuik Dara Baro</i>	<i>Cynodon dactylon</i> , <i>Bryophyllum pinnatum</i> , <i>Aerva lanata</i> , <i>Areca catechu</i> , <i>Eleusine indica</i> , <i>Lawsonia inermis</i>
Pregnancy	<i>Ba Boh Kayee</i>	<i>Manilkara zapota</i> , <i>Durio zibethinus</i> , <i>Lansium parasiticum</i> , <i>Mangifera indica</i> , <i>Citrus maxima</i> , <i>Saccharum officinarum</i> , <i>Cocos nucifera</i>
	<i>Me Bu</i>	<i>Oryza sativa</i> , <i>Musa paradisiaca</i> , <i>Oryza sativa var glutinosa</i>
Birth	<i>Koh Pusat</i>	<i>Bambusa</i> sp, <i>Piper betle</i> , <i>Areca catechu</i> , <i>Uncaria gambir</i> , <i>Acorus calamus</i> , <i>Kaempferia galanga</i>
	<i>Peucicap</i>	<i>Amaranthus hybridus</i> , <i>Manilkara zapota</i> , <i>Mangifera indica</i> , <i>Musa paradisiaca</i> , <i>Nephelium lappaceum</i> , <i>Artocarpus heterophyllus</i> , <i>Saccharum officinarum</i>
	<i>Cuko Ōk</i>	<i>Oryza sativa var glutinosa</i> , <i>Oryza sativa</i> , <i>Cocos nucifera</i>
	<i>Peutron Aneuk</i>	<i>Aerva lanata</i> , <i>Areca catechu</i> , <i>Bryophyllum pinnatum</i> , <i>Cocos nucifera</i> , <i>Cynodon dactylon</i> , <i>Eleusine indica</i> , <i>Lawsonia inermis</i> , <i>Musa paradisiaca</i> , <i>Saccharum officinarum</i>
Funeral	<i>Funeral ritual</i>	<i>Citrus hystrix</i> , <i>Magnolia champaca</i> , <i>Cananga odorata</i> , <i>Jasminum sambac</i> , <i>Rosa chinensis</i> , <i>Bougainvillea spectabilis</i> , <i>Pandanus amaryllifolius</i> , <i>Averrhoa carambola</i>

Aceh tribe has been using various plants in traditional ceremonies, including *peusijek Dara Baro*. During the discussion, the respondent stated that there were 5 (five) main species used in the *Peusijek* procession, including *Cynodon dactylon*, *Bryophyllum pinnatum*, *Aerva lanata*, *A. catechu*, *Eleusine indica*, and *L. inermis*. *C. dactylon* is believed to be a symbol of solidity and ethics, both in religious and social life, because of these plants that are strong and difficult to uplift. *B. pinnatum* leaves are used as a symbol of the coolness of the heart, both in happiness and pain. *A. lanata* has white flowers spread across branches (like beads) that symbolize prosperity and well-being.

Pregnancy ceremony

Ba Boh Kayee

Boh Kayee is a tradition of *Mak Tuan* (mother-in-law) visiting *Dara Baro* (daughter-in-law) who is 3 months pregnant. The in-laws were accompanied by several women who were close relatives. During the visit, they brought various fruits as souvenirs such as *Manilkara zapota*, *Durio zibethinus*, *L. parasiticum*, *M. indica*, *Citrus maxima*, *Saccharum officinarum*, and *Cocos nucifera* (Samad 2015). At the age of 3 months of pregnancy, women usually like fruit that tastes sour. According to the respondent, when this desire is not fulfilled, they believe that the child that is born would become greedy or often drool.

Me Bu

The *Me Bu* ceremony is a tradition of *Mak Tuan* (mother-in-law) visiting *Dara Baro* (daughter-in-law) who is 7-8 months pregnant and bringing *Bu Kulah* (Samad 2015). *Bu Kulah* is rice (*O. sativa*) wrapped in *M. paradisiaca* leaves, shaped like a pyramid (Hoesin 1970). Other than *Bu Kulah*, her husband also brought a meal, glutinous rice (*Oryza sativa* var *glutinosa*), and cakes that had been put in a tray (Sufi 2002). According to the respondents, the *Me Bu* ceremony aims to ensure that *Dara Baro* receives adequate nutrition and motivates her to face childbirth.

Birth ceremony

Koh Pusat

Koh Pusat is a traditional ritual of cutting a newborn's placenta (Samad 2015). Traditionally, the placenta is cut using a bamboo knife (*Bambusa* sp) (Fuadi 2015). The water consisting of a mixture of chewed *P. betle*, charcoal, and *C. longa* is then placed on the baby's navel. This method is intended to make the remaining placenta dry quickly and separated from the baby's navel. During the discussion, the respondent states that *C. longa*, which is yellow, is a symbol of glory. Then the baby is bathed in warm water, then sprayed with *P. betle* water mixed with *A. catechu*, lime, *U. gambir*, *Acorus calamus*, and *Kaempferia galanga*. This procession is believed to provide strength and avoid interference from the devil, and to be a substitute for the powder to prevent colds (Samad 2015).

Peucicap

The *Peucicap* ritual is a procession to introduce the taste of food to the baby. Respondents state that the materials used in this ceremony were honey bees, *M. zapota*, *M. indica*, *Nephelium lappaceum*, *M. paradisiaca*, *Artocarpus heterophyllus*, and *S. officinarum*. These fruits are squeezed to drink water, then rubbed with honey on the baby's lips. In addition, *Amaranthus hybridus* is often added to the water. All these materials were prepared by the woman who gave birth (Sufi 2002). The *peucicap* is carried out by *Tengku* (people with a high level of religious knowledge), admired and of good character, hoping that the child will become pious and have good morals in the future.

Cuko Ōk

The *cuko ōk* is a ritual to shave off the hair of a baby after 1 month of age. This ritual is not usually accompanied by a celebration. Sometimes only two or three neighbors are invited to celebrate this event. Base on the interview, the respondent state that the materials required for this ritual were *O. sativa* var *glutinosa*, *O. sativa*, *C. nucifera*, and chicken. *C. nucifera* fruit was carved into their shape. These materials are prepared by the child's father or grandma. The shaved hair was put in the *C. nucifera* fruit and then buried in the back of the house near the *M. paradisiaca* plant. According to the respondents, this activity is a symbol for the child to be able to face all problems patiently in the future.

Peutron Aneuk

The *peutron aneuk* ritual is the first time a child has stepped on the ground (Nurfajri et al. 2016). This ritual is a symbol to introduce children to the environment. The *peutron aneuk* begins with a *peusijek* procession led by the *Tengku*. *C. dactylon*, *B. pinnatum*, *A. lanata*, *A. catechu*, *E. indica*, and *L. inermis* have been used in this procession. After that, the child is taken out of the house to perform the *plah boh u* procession. During the procession, the child is held by male *Teungku* (for the male child) or female *Teungku* (for the female child). Moreover, when the *Teungku* held the baby, the person standing near the *Teungku*, split the fruit of the *C. nucifera* over the head of the child as a symbol for a brave child. The respondents state that especially for male babies, the stems of *M. paradisiaca* and *S. officinarum* have also been cut as a symbol for babies who are expected to be brave enough to fight backward.

Funeral ceremonies

The funeral is a series of rituals that take place from death to burial, generally involving more people and having a characteristic of gathering and praying (Aufa and Phill 2017). In East Aceh, the use of plants is commonly used, particularly in the procession of bathing the corpse. In East Aceh, plants are commonly used in the procession of bathing the corpse in the form of a water concoction called *Air Sembilan*. According to the respondents, *Air Sembilan* is a water concoction containing various plant

species such as *Citrus hystrix*, *Magnolia champaca*, *Cananga odorata*, *Jasminum sambac*, *Rosa chinensis*, *Bougainvillea spectabilis*, *Salix tetrasperma*, *Santalum album*, and *Pandanus amaryllifolius*. Air Sembilan splashed nine times on the body during the procession of the bathing corpse. After the procession of the bathing corpse is completed, the body corpse is given a shroud. The shroud is made up of clothes, pants, and waistcloth, then three pillows filled with *Averrhoa carambola* leaves are added. The pillow is placed on the head, the waist, and the knees of the corpse. The pillow is used as a holder so that the corpse does not shake or turn around. After the corpse has finished being wrapped in a shroud, the corpse is then placed in a *keureunda* and covered with a long batik cloth, and then taken to the *Meunasah* or Mosque for prayer. After being prayed, the corpse was taken to the burial site for burial.

Transfer traditional knowledge among the Aceh tribe

Culture plays a critical role in rural tribal livelihood, especially for the use of various ritual plants (Samad 2015; Nurfajri et al. 2016; Geng et al. 2017). The ritual ceremony for the use of various plant species in Peureulak has been passed down from generation to generation. The results showed that 68% of respondents were aware of the use of plants in traditional ceremonies. The intensity of use and knowledge of the plants was reported to be a function of a characteristic of the used plants and people way of life in terms of their social, cultural, religious, and economical domains (Shrestha and Dhillion 2006; Pardo-deSantayana et al. 2007; Suresh et al. 2014; Navia et al. 2020b). However, this study found a tendency to decrease traditional knowledge in the use of ritual plants. The percentage of species identified by each age group of the respondent ranged from 8% (15–25 years of age) to 100% (> 65 years of age). During the discussion, the respondents stated that, in the *Meugaca* procession, most of the younger generation preferred modern motifs, such as those originating in India, North America, or Arabia, compared to Acehnese motifs. In addition, instant hena, which is widely produced and sold, has reduced the use of plants (*L. inermis*) as a material in the *Meugaca* procession. The study is consistent with reports by Putri et al. (2017) in the Montasik sub-district of Aceh Besar.

Culture and traditions must continue to be developed and preserved. Cultural development is essentially aimed at improving the quality of human life, both materials, ethics, and aesthetics. Cultural development is part of the effort to confront globalization and anticipate the future with all its problems and challenges. The culture and traditions of the past are already important and meaningful, but new values must be added creatively and adapted to the relevance of the times.

Conservation of ritual plants

Traditional knowledge of the community can be used as an effort to promote the conservation of natural resources, including ritual plants in the Peureulak sub-district of East

Aceh district. The local community in the Peureulak sub-district has preserved their cultural values from generation to generation. Most traditional ceremonies rely on different plant species. During the discussion, the respondents stated that the role and importance of each plant in traditional ceremonies cannot be replaced by other species of plants. This study is consistent with that reported by Sada and Jumari (2018) in the province of East Nusa Tenggara. The gathering of plant species is performed in accordance with appropriate customary procedures so that the essence of their sacred values is not lost.

Local communities that practice and preserve their traditional ceremonies, either directly or indirectly, can maintain genetic resources, particularly related to the use of various plants in traditional ceremonies (Mutaqin et al. 2018). The Aceh tribe in Peureulak cultivating various ritual plants in their home garden, farmland, or on the side of the roads around the village, in order to maintain the availability of ritual materials and the effort of ritual plant conservation. In addition, this plant is also multipurpose, besides being used in traditional ceremonies as well as food, spices, medicines, building materials, handicrafts, animal feed, and other necessities. For example, besides being used for wedding ceremonies, *K. galanga* is also used as a spice. In addition, *C. esculenta* and *A. hybridus* are used as vegetables. As a result, the community cultivates plant species around their home garden or farmland. However, several plant species, such as *C. dactylon*, grow naturally along the village roads. Cultivating various plants with multiple purposes, either consciously or unconsciously, can preserve the existence of these plants in nature. Comparable studies suggest that indigenous peoples are making effective contributions to the conservation of natural resources using their indigenous knowledge (Anthwal et al. 2006; Gandile et al. 2017).

Traditional communities that already maintain traditional culture and social norms are very useful in the conservation of natural resources (Sada and Jumari 2018). Most indigenous people have been consciously or unconsciously controlling most of the natural resources through their traditions, with a strong ethic of conservation (Advice 2009). Ceremonies based on traditional knowledge and belief and in the terms of cultural biodiversity have been strongly practiced by the Aceh tribe. This can be indicated that a variety of ritual plant species would be conserved since these species were necessary for the performance of rituals. In essence, socio-cultural aspects must be considered as being used for the conservation of ritual plants in the East Aceh region.

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