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ETHNOMEDICINE OF BAJO TRIBE COMMUNITY IN BANGKO VILLAGE, MAGINTI DISTRICT, WEST MUNA, SOUTHEAST SULAWESI

Fachruddin*, Musthamin Balumbi, & Dustan

Departement Biology, Faculty of Science and Technology, Institut Teknologi dan Kesehatan Avicenna, Indonesia

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*Corresponding author: E-mail : fachruddin.ifo@gmail.com

Abstract

This study aims to reveal the use of marine and coastal plants, and animals as medicine by Bajo Tribe society in Bangko Village, West Muna. The method used was an exploratory survey. Data were collected using in-depth interviews with 20 traditional healers selected by purposive sampling. The data obtained were analyzed descriptively. The result revealed that there were 39 species of plants and 5 species of animals used as medicine. The most widely used plant families were the Arecaceae and Poaceae, 3 species respectively, while animals from the families of Holothuriidae, Onuphidae, Pinnidae, Syngnathidae, and Tridacnidae, 1 species respectively. The most commonly part of plant used was leaves (50%), while for animal was parts of flesh and whole body were used 40% respectively. The most commonly used preparation and application were boiling and drinking. In conclusion, Bajo people in Bangko Village with their maritime culture use plants and animals in the marine and coastal environment to overcome various diseases and health problems, in addition using "baca-baca" method.

Keywords: Bajo Tribe; Medicinal Plants; Zootheraphy

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INTRODUCTION

Indonesia is known as a mega diversity country, not only because of its high biodiversity, but also because of its rich cultural diversity. As reported on the web page: www.indonesia.go.id (2020) that Indonesia has 1,340 ethnic groups, one of them is Bajo (Bajau) tribe who are associated with Sulawesi region. Bajo tribe is spread across almost all corners of the country, such as in Riau (known as Duano), North Sulawesi, Central Sulawesi, South Sulawesi, Southeast Sulawesi, East Nusa Tenggara, Maluku and North Maluku (Rahim, *et al.*, 2018). In Southeast Sulawesi, Bajo ethnic settlements can be found in the Wakatobi Islands (Suryanegara *et al.*, 2015), Muna and Buton Tengah (Nur, 2015), and Tiworo Muna Barat Strait (Sampeali, 2011).

Unlike most of the other tribes who inhabit the land area, Bajo tribe is unique because they inhabit the sea and coastal areas and build a unique culture known as maritime culture. The historical records stated that originally the Bajo people lived on a boat called Soppe, with this boat they always moved (sea nomads) to make a living. However, at present, along with the times and the influence of socio-political factors, many Bajo people live in the shallow sea zone or on the coast (Nur, 2015).

The Bajo tribe is a tribe that has a very strong emotional relationship with marine and coastal ecosystems. This tribe has unique local wisdom in the use of natural resources for medicinal purposes. Bajo tribe's traditional medical practice is specifically organized by an institution known as *duata* institution. This institution was born from the philosophy of life of the Bajo Tribe, namely "living in harmony with nature". Therefore, the traditional healing procession of Bajo tribe cannot be separated from the sea and coastal resources. The Bajo people believe that every type of marine and coastal ecosystem is guarded by supernatural beings in the form of spirits. They believe that the spirits guarding the marine and coastal ecosystems can cause disease. Therefore, the *duata* will gather when there is a sick man to recognize the spirit of the ecosystem where the disease came (Obie, 2016).

In the traditional medicine practice of Bajo tribe, besides using the method of "baca-baca" (reciting mantras and prayers to God Almighty), it also utilized marine and coastal organisms to overcome the health problems, prevent and cure the diseases, and improve the quality levels. The plants and animals have long been an inseparable part of the long history and culture of an ethnic group, including in terms of medicine. However, in practice,

plants were most widely used given their very large number of species. It is estimated that 9,606 plant species have been used as medicine because they have pharmacological effects (Wiwaha *et al.*, 2012; Aziz *et al.*, 2019).

The use of other non-plant organisms to maintain health and treat various diseases has yet to be revealed. Although in fact there are some animals that can be used for the medicinal purposes. The Bajo tribe community is presumed to have made use of marine and coastal animals in the traditional medicine, so it is significant to investigate and reveal how marine and coastal plants and animals are used as medicine by the Bajo people. It is important to further enrich the local cultural treasures and to keep the wealth of traditional knowledge as a national cultural asset from being eroded by the times. This study aimed to explore the local knowledge of the Bajo people in utilizing marine and coastal organisms as ingredients for traditional medicine.

MATERIALS AND METHODS

The research was conducted in September 2020. The collection of information on medicinal plants and animals was carried out in Bajo Tribe Village in Bangko Village, Maginti District, West Muna Regency. This study has followed the principles of research ethics

as presented in the ISE (International Society of Ethnobiology) protocol. The method used in this research was an exploratory survey. Data were collected using interview techniques using structured questionnaires and free interviews to explore more in-depth information about traditional knowledge in using plants and animals as medicine, as well as direct observation in the field (Fanie & Nuning, 2018). Inventory of the existence (number and identity) of traditional healers (*hattra*)/informants was carried out with the assistance of a contact person, namely the village head. Informants were determined based on purposive sampling technique (Nisa & Astana, 2018). Informants were *hattras* who have expertise in curing health problems and treating diseases by utilizing medicinal plants and animals recognized by the community (Fanie & Nuning, 2018).

The data determined from the interview results include: *hattra* demographic data, medicinal plant and animal species, parts of plants and animal organs used, preparation method, application method, and names of diseases to be treated. All information was noted and recorded using a sound recorder. Starting from the information from *Hattra*, then all types of plants and animals with medicinal properties were collected for each sample. The sample collection process

was accompanied by hattra. Herbarium samples were made in the form of plants, while samples in the form of animals were made into wet preserves. Preservation was carried out for the purpose of imprinting in the Laboratory of the Department of Biology Education, Halu Oleo University. The names of medicinal plants had been verified using the online database, the Plant of the World (POWO).

RESULTS AND DISCUSSION

Traditional Health Demographics

Based on the results of interviews with 20 hattras in Bangko Village, it was known that most of the hattres were male (80%), aged between 55-64 years (55%), have graduated from elementary school/ equivalent (55%), and have main jobs as fishermen (80%). The demographics of the hattra are shown in Table 1 below.

Table 1. Demographics of Hattra

Hattra Demographics	Amount (N = 20)
Gender	
Male	16
Women	4
Age (years)	
45-54	4
55-64	11
65-74	3
75-84	2
Education	
No school	3
Not completed in primary school	6
Graduated from elementary school / equivalent	11
The main job	
Fisherman	16
Carpenter	1
Private	3

Plants and Animals with Medicinal Benefits in Bajo Tribe in Bangko Village

The results revealed that there were 39 types of plants and 5 types of animals that were used as medicine by the Bajo tribe's hattra in Bangko Village (Table 2). Plants and animals that are used as

medicine have various properties. Some of these types of plants and animals have the same use in terms of the treatment of a particular species diseases or health problems, for example *Holothuria scabra*, *Diopatra sp.*, and *Tridacna sp.* equally useful as vitality-enhancing drugs.

Table 2. Plants and animals with medicinal properties in Bangko Village

Family	Species Name / Local Name	Parts Used	Method of Preparation	Method of Application	Uses
Plant					
Anacardiaceae	<i>Anacardium occidentale</i> / Jajambo	Trunk	Boiled	Drink it	Ulcer
Annonaceae	<i>Annona muricata</i> / Sirisak	Leaf	Boiled	Drink it	Diuretic
Araliaceae	<i>Polyscias scutellaria</i> / Mangko	Leaf	Smoothed	Smeared	Facial skin care
Arecaceae	<i>Cocos nucifera</i> / Saloka	Fruit	Shredded; Baked / fried	Drunk; Smeared; Sticked; Dropped	Make labor easier; Postpartum care; Wound; Itchy; Scabies; Poisoning; Kidney disorders; Cough
	<i>Nypa fruticans</i> / Tutuho	Leaf	Pounded	Sticked	Swelling from the bite of a centipede
	<i>Areca catechu</i> / Pinah	Fruit	Pounded	Smeared	Wound
Asteraceae	<i>Eupatorium odoratum</i> / Sheep	Leaf	Smoothed; Pounded	Drunk; Sticked	Internal disease; Diarrhea; Wound
Bromeliaceae	<i>Ananas comosus</i> / Look	Leaf	Shredded	Smeared	Leprosy
Caricaceae	<i>Carica papaya</i> / Katela	Leaf	Boiled	Drink it	Tumor
Convolvulaceae	<i>Ipomoea pes-caprae</i> / Kakatah	Leaf	Boiled	Drink it	Diabetes
Cucurbitaceae	<i>Cucumis sativus</i> / Boyo	Fruit		Be eaten	Hypertension
	<i>Momordica charantia</i> / Paria	Leaf	Boiled	Drink it	Cough
Euphorbiaceae	<i>Phyllanthus niruri</i> / Gutters	Others	Boiled	Drink it	Liver; stomach; tumor
Fabaceae	<i>Arachis hypogaea</i> / Canggoreng	Seed	Fried / baked	Be eaten	Breast milk production accelerator
	<i>Derris elliptica</i> / Tuba	Exudate	-	Dropped	Prevent infection in puncture wounds
Lamiaceae	<i>Pogostemon cablin</i> / Dandila	Leaf	Smoothed	Smeared	Facial skin care
	<i>Orthosiphon aristatus</i> / Cat whiskers	Leaf	Boiled	Drink it	Liver; gastric disorders, tumors
Liliaceae	<i>Allium Cepa</i> / Under mireh	Bulbs	Shredded; Smoothed	Smeared; Sticked	Fever; Tooth ache
	<i>Allium sativum</i> / Under the puteh	Bulbs	Fried / baked	Be eaten	Cough
Loranthaceae	<i>Macrosolen</i> sp. / Balaang	Trunk	Smoothed; Boiled	Smeared; Drink it	Chronic cough Internal disease
Lythraceae	<i>Sonneratia alba</i> / Beropa	Fruit	Shredded	Sticked	Boils, accelerate wound closure

Malvaceae	<i>Kleinhovia hospita/ Lantoghe</i>	Leaf	Boiled	Drink it	Liver, Stomach, Tumors
Moringaceae	<i>Moringa oleifera/ Moringa</i>	Leaf	Smoothed	Dropped	Eye inflammation
Muntingiaceae	<i>Muntingia calabura/ Kersen</i>	Leaf	Boiled	Drink it	Hypertension
Myrtaceae	<i>Psidium guajava/ Jambo Malacca</i>	Leaf	-	Be eaten	Cough
Oxalidaceae	<i>Averrhoa bilimbi/ Balumbi</i>	Leaf	Boiled	Drink it	Hypercholesterol
Piperaceae	<i>Piper betle/ Leko</i>	Leaf	Smoothed	Dropped	Visual disturbances
Poaceae	<i>Zea mays/ Good</i>	Seed	Fried / baked	Drink it	Lowering fever, cough
	<i>Cylindrical imperata/ Rome</i>	Root	Boiled	Drink it	Lowering fever, Improve mood, Antidepressants
	<i>Cymbopogon citratus/ Sere</i>	Trunk	Boiled	Drink it	Hypertension
Rhizophoraceae	<i>Rhizophora apiculata/ Bangko</i>	Trunk	Smoothed	Sticked	Wounds, Itching, Boils, Smallpox
Rubiaceae	<i>Coffea sp./ Coffee</i>	Seed	-	Sticked	Wound
	<i>Uncaria gambier/ Gambir</i>	Leaf	Smoothed	Drink it	Chapter bleeding
Rutaceae	<i>Citrus aurantifolia/ Lime lime</i>	Fruit; Leaf	Pounded; Kneaded	Dropped; Inhaled	Prevent infection; Speed up wound closure; Motion sickness
	<i>Aegle marmelos/ Blade</i>	Fruit	Shredded	Sticked	Heals burns
Solanaceae	<i>Nicotiana tabacum/ Tabako</i>	Leaf	Chopped	Smeared	Itching stings by jellyfish
Verbenaceae	<i>Lantana camara/ Kambea kakuni</i>	Leaf	Smoothed	Sticked	Wounds, boils
Zingiberaceae	<i>Curcuma longa/ Kunye</i>	Rhizome	Smoothed	Smeared	Facial skin care; Itchy
	<i>Costus speciosus/ Cane lance</i>	Trunk	Shredded	Drink it	Kidney disorders, heartburn, Liver
Animal					
Holothuriidae	<i>Holothuria scabra/ Bale popote</i>	Meat	Boiled	Be eaten	Vitality
Onuphidae	<i>Diopatra sp./ Bantunang</i>	Whole body	Boiled	Drink it	Vitality
Pinnidae	<i>Pinna sp./ Bole tenabur</i>	Shell	Burnt, shaved	Smeared	Itchy mouth; Tongue yeast infection (oral thrush)
Syngnathidae	<i>Hippocampus sp./ Tandundo</i>	Whole body	Dried, boiled	Drink it	Bone pain; Internal disease
Tridacnidae	<i>Tridacna sp./ Kima</i>	Meat	Boiled	Be eaten	Vitality

However, there are also several types of plants and animals that have medicinal properties for more than one type of disease, such as *Cocos nucifera* (saloka) which was used to facilitate childbirth, postpartum care, deep tearing, itching, scabies, poisoning, kidney disorders, and cough. Things that were not much different can also be found in Bajo tribe in Torosiaje Village, Gorontalo Province who also used several types of plants for the same types of disease and one type of plant to overcome more than one type of disease or health problem that appears (Utina & Katili, 2016).

The Family of Plants and Animals Used as Medicine by Bajo Tribe in Bangko Village

Taxonomically, the organisms used as medicinal substances by Bajo tribe came from 27 plant families and 5 animal families. The most common plant families were Arecaceae and Poaceae, each of them consisted of 3 types of plants, namely *Cocos nucifera* (saloka), *Nypa fruticans* (tutuho), and *Areca catechu* (pinah) for the Arecaceae and *Zea mays* (jago), *Imperata cylindrica* (roma), and *Cymbopogon citratus* (sere) for the Poaceae family. The second most abundant families were Cucurbitaceae, Fabaceae, Lamiaceae, Liliaceae, Rubiaceae, and Zingiberaceae which each of them consisted of 2 types of plants, while the other 18 families and the 5 animal families each of them only consisted of 1 type (Figure 1).

Figure 1. Family of Medicinal Plants and Animals

The Bajo tribe community used a lot of plants from the *Arecaceae* family because this plant family grew well around their places of residence, namely in coastal

areas so that they can be easily obtained. In addition, scientifically, plants such as *Cocos nucifera* (saloka), *Areca catechu* (pinah), and *Nypa fruticans* (tutuho) were revealed

to have a chemical constitution that was useful for the normal functioning of the human body. *Cocos nucifera* (saloka) fruit, for example, is reported to have medicinal properties as antibacterial, antifungal, antidermatophytic, hypoglycemic, hepatoprotective, immunostimulant (Debmandal & Mandal, 2011) anti diabetic, cardio protective effect, and anti-atherosclerosis (Venugopal *et al.*, 2017), while *Areca catechu* (pinah) has the potential to overcome parasitic diseases, digestive dysfunction, and anti depressants (Peng *et al.*, 2015). Meanwhile, *Nypa fruticans* (tutuho) is known to contain

phenol and flavonoid compounds which are good as natural antioxidants (Prasad *et al.*, 2013; Lubis *et al.*, 2017).

Percentage of Plant and Animal Body Parts Used as Medicine by Bajo Tribe in Bangko Village

The Bajo people in Bangko Village generally used the leaves of plants (50%) as medicine, followed by the fruits (15%) and the stems (12%). Meanwhile, the use of animals as medicine came from the flesh (40%), the whole body (40%), and the shell (20%) (Figure 2).

Figure 2. Percentage of Body Parts (A) Plants and (B) Animals which are Used as Medicine

The higher percentage of leaf organ use compared to other plant organs in Bajo tribe can actually be found in other tribes as reported in many ethnomedicine studies. There were several reasons that make leaf as a plant organ that was most often used as medicine compared to other organs, including easy access, adequate supply and unlimited time, processing is

relatively simple, physiologically contains many organic substances, and is ecologically more environmentally. According to (Fanie & Nuning, 2018), leaf organ is obtained, cleaned and processed easily. In addition, leaf as an organ where photosynthate accumulation is considered to be more effective in treating diseases because they contain many organic

substances that have pharmacological effects (Roudatuljannah & Azizah, 2019). On the other hand, the leaf was considered more profitable ecologically because their extraction did not cause damage to the plant body which can threaten its survival. Leaves have rapid regeneration when harvested or picked (Namukobe *et al.*, 2011), so they can be used continuously and sustainably.

In animals, the part that was used as a medicinal ingredient, namely most parts of the flesh and the whole body. Animals that were used their whole bodies as medicine had characteristics of small body sizes, so that it was easier to use all of their bodies than having to remove or dispose of other body parts. The use of the flesh part was mainly due to the ease of processing, as well as the relatively pleasant application of the drug because the user was not

bothered by the unpleasant smell and taste of animals (Akhsa *et al.*, 2015).

Percentage of Plant and Animal Preparation Methods Used as Medicine by Bajo Tribe in Bangko Village

The processing of medicinal substances was basically aimed at increasing the efficacy and or reducing the effect of its toxicity (Heinrich & Jager, 2015). The method of preparation of medicinal plants and animals by Bajo tribe in Bangko Village consisted of several methods, such as chopping, mashing, grating, boiling, and others. However, the most widely applied method of both plant and animal preparation was by boiling 36% and 60%, respectively. Other methods also widely used were mashing (29%) and grating (12%) (Figure 3).

Figure 3. Percentage of (A) Plants and (B) Animals Preparation Methods which is Used as Medicine

The choice of preparation method was closely related to the plant or animal material and the type of disease being treated. Using the roots and stems, for example, the most common preparation method was boiling. Likewise with internal applications and for internal diseases, usually the method of preparation of drug samples was by boiling (Wildayati *et al.*, 2016). The way of boiling was considered more effective because of the compounds contained in many medicinal ingredients which are extracted in heated water, it was also more efficient because the boiling method can be done repeatedly.

Percentage of Plant and Animal Application Methods Used as Medicine by Bajo Tribe in Bangko Village

The Bajo people in Bangko Village practiced six ways of applying prepared medicinal substances, namely inhaling, eating, drinking, smearing, sticking, and dropping. For plants, the most widely used way of application was by drinking (39%), then smearing and sticking by 21% and 20%, respectively. Whereas for animals, the application method was drinking and eating (40%) and smearing (20%) (Figure 4).

Figure 4. Percentage of Application Method (A) Plants and (B) Animals which is Used as Medicine

The choice of application method regarded as the method of preparation and the type of disease to be treated. The application by drinking was directly proportional to the high percentage of the boiling method in the preparation of medicinal substances. In addition, the way it was taken was generally used to treat types of internal diseases, such as hypertension, indigestion, kidney, liver problems, and so on.

CONCLUSION

The Bajo tribe community in Bangko Muna Barat Village with their maritime culture used plants and animals found in the marine and coastal environment to overcome various diseases and health problems, in addition to using the "baca-baca" method. There were 39 types of plants and 5 types of animals that were identified as medicinal ingredients, with plant leaves and meat and animal organs

being the most widely used. The processing and application of medicinal substances derived from plants and animals was mostly done by boiling and drinking.

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