

# Oral Herbs Based on Serawai Seluma Medicinal Plants

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## ABSTRACT

Local wisdom is a legacy that must be preserved and documented. Using plants as traditional medicine is examples of local wisdom. One of the tribes in Indonesia that called Serawai tribe, are still using the surrounding plants as traditional medicine. Documenting local knowledge in making a drug from medicinal plants is part of the implementation of Nagoya Protocol that has been ratified by Indonesia Government in UU RI number 11 2013. Some medicinal plants are used by mixing more than one species to make it a medicinal herb. These medicinal ingredients are often used orally. Therefore, this study aims to document oral formulations based on medicinal plants used by the Serawai tribe in Seluma, Bengkulu. The research was conducted using the exploring method based on informations obtained through open interviews with several key informants. The explorations were carried out in four districts in Seluma Regency, Bengkulu. This research found at least 28 species of medicinal plants that used as ingredients of traditional medicine which are applied orally. These types of medicinal plants contained of alkaloids, phenol and terpenoids.

**Keywords:** *Ethnobotany, ethnomedicine, medicinal herb, Serawai Tribe, traditional medicine*

## 1. INTRODUCTION

Bengkulu, Indonesia has various ethnic groups in it, one of ethnic group is Serawai tribe who lives in Seluma and Bengkulu Selatan districts. The location of Serawai tribe is directly adjacent to the Bukit Barisan Selatan National Park (TNBBS) which is a lowland forest that has a wealth of biodiversity. The abundance of natural resources around it encourages the people of Serawai to used plants as the main source of food, supplementary food, cooking spices, medicines and others.

Traditional medicine is medicine that is processed with traditional recipes passed down from the ancestors from generation to generation [1]. Traditional medicine is usually applied orally, applied as a rub, and applied as a drop. Oral application of drugs often in practice utilizes one ore more than one type of plant which is processed in such a way as herbal ingredients. Not many studies have revealed the knowledge of the Serawai people

about ways to manage and utilize biological resources in the environment where they live. Especially traditional medicine in the form of ingredients that are applied orally. On the basis of these considerations, it is interesting to be used as a study material to documented the knowledge of the community, especially in relation to the procedures for using medicinal plants as a basis for making traditional medicines.

This documentation is in line with the Nagoya Protocol which was ratified by the government in Law of the Republic of Indonesia number 11 of 2013 which states that natural and intellectual property must be documented so that they can continue to be utilized and studied more deeply. In addition, this empirical experience is useful in relation to ethnopharmacological and ethnomedicine research for the scientific purposes of traditional herbal medicine in Indonesia.

## 2. MATERIALS AND METHODS

Data collection on traditional medicine was carried out through the emik (tribal knowledge) and ethical(science) approaches. The emic approach is carried out to documented people's knowledge, for example the local name of medicinal plants, how they are used, and the parts used as medicine. Meanwhile, the ethical approach is the traceability of the said knowledge based on biology and social anthropology, for example examining the chemical content of medicinal plants so that they can be developed into commercial drugs.

Data collection was carried out using structured interview methods and open-ended interviews involving seven key informants and 232 respondents. Key informants are determined based on their expertise and broad knowledge of medicinal plants, for example traditional healers (hattra) and elders [2]. Respondents were determined based on 30% of the number of family heads. Information from key informants was obtained through participatory observation methods, to obtain data on the types of diseases identified, types of medicinal plants, parts used, and how they were used. Respondents consisted of three age groups, namely 15–25 years old (learning stage), 26–45 years old (maturation stage), and > 45 years old (mature stage) and based on gender. Information from respondents was obtained through structured questionnaires and Focus Group Discussion (FGD).

## 3. RESULT AND DISCUSSION

It was found that 28 medicinal plants were used as traditional medicinal ingredients which were applied orally. Oral medicine is a medicine in the form of a herb that is taken to treat diseases such as urolithiasis, dysentery, flu, ulcers, constipation, tumors and cancer. Oral drugs according to the operational definition issued by the BBPPOT–Tawangmangu of the Ministry of Health in the Ristoja research [3] are commonly used to treat non-smooth urination, runny bowel movements more often than usual accompanied by blood/ mucus, inflammation of the channels Respiratory symptoms which are characterized by nasal congestion, runny nose, discomfort including feeling full or full quickly, pain, sore in the upper middle abdomen, bowel movements are not smooth and abnormal lumps on the body, can be malignant or benign. Traditional medicinal ingredients that are used orally are generally intended to treat internal diseases.

In general, the types of traditional medicines used by the Serawai people are in the form of single medicine and concoctions. Single medicine uses one basic ingredient from one type of plant as ingredients for traditional medicine. Meanwhile, concoctions are made by utilizing various other types of plants. The Serawai people take advantage of both types of traditional medicine.

Medicinal plants that are used as basic ingredients for making traditional medicines are single medicine and concoctions. Some examples of single medicine used by the Serawai people are the rhizome of *Acorus calamus* as an ulcer medicine by washing the rhizome of *A. calamus* then slicing it to be boiled and drinking. *Arenga pinnata* (“kolang–kaling”) seeds are used to treat gout by boiling them first for consumption.

In addition to utilizing a single drug as a health solution, the people of Serawai also use more concoctions derived from a mixture of various types of plants. Traditional concoctions used by the people of Serawai to treat ulcers such as drinking suspensions from all parts of *Ageratum conyzoides* and *Curcuma longa* rhizomes. Boiled water from the root of *Coix lacryma–jobi* mixed with the root of *Nicotiana tabacum* is used as a remedy for gout. Another herb in the form of boiled water from the root of *Orthosiphon aristatis* with *Physalis angulata* which is taken three times a day is believed to cure urolithiasis (Table 1).

Each of Serawai medicinal plants has a specificity and the same type of metabolite. At least 19 of the 28 species of traditional medicinal plants of the Serawai tribe contain secondary metabolites of phenol, 12 types contain terpenoids, 11 types contain alkaloids and 4 types contain all types of metabolites. Some of the secondary metabolites of traditional medicinal plants of the Serawai tribe are only owned by one plant species, for example canavalin in *Canavalia ensiformis*, coixol in *Coix lacryma–jobi*, or sabbaretin in *Hibiscus sabdariffa*. While other types of metabolites are owned by several types of medicinal plants, such as quercetin in *Psidium guajava* and *Urena lobata*, caffeine in *Coffea arabica* and *Coffea canephora* or catechins in *Musa acuminata* and *Uncaria gambir* (Table 2).

Secondary metabolites are non-essential metabolites which for humans can be used as ingredients of medicinal value. Most plants that produce secondary metabolites use these ingredients to defend themselves and compete with other living things around them. Plants can produce secondary metabolites that make other plants unable to grow

**Table 1.** Oral herbs preparation

No	Species	Local Name	Diseased	Plant Parts	Preparation
1	<i>Acorus calamus</i>	Jegangau	Ulcer	Rhizome	Washed, sliced, boiled, drunked
2	<i>Ageratum conyzoides</i>	Rumput angit	Constipation	All parts	Washed, crushed with <i>Curcuma longa</i> , rhizome, suspension drunked
3	<i>Aleurites moluccana</i>	Miling mentiak	Protuberance (children <5 years)	Seeds	Washed, mixed with <i>Averrhoa bilimbi</i> and <i>Psidium guajava</i> , barks, shredded, added water, filtered, suspension drunked
4	<i>Annona muricata</i>	Srikayo	Uric Acid inflammation	Leaves	Washed (odd number), Boiled with 3 glasses water to 1 glass water, drunked
5	<i>Arenga pinnata</i>	Beluluak	Uric acid inflammation	Seeds	Washed, Boiled, eat as snack
		Gulo aren	Maag	Flowers	Mixed with <i>Tamarindus indica</i> fruits and <i>Curcuma xanthorrhiza</i> rhizome, boiled, drunked
			Stamina	Flowers	Mixed with <i>Zingiber officinale</i> rhizome and honey, boiled, rest, added free-range chicken egg, drunked
6	<i>Averrhoa bilimbi</i>	Belimbing besi	Protuberance (children <5 years)	Barks	Look <i>Aleurites moluccana</i>
			Tumor	Barks	Washed, mixed with <i>Ficus hispida</i> barks, crushed, boiled, drunked
7	<i>Bambusa vulgaris</i>	Bambu	Malaria	Stems	Bamboo stem water rest overnight, drunked
8	<i>Camoensia maxima</i>	Segikan	Vomit	Sap	Drunked once a day
9	<i>Carica papaya</i>	Sengsilo	Herpes zoster	Leaves	Heated above fire, crushed, mixed with spell water, drunked
10	<i>Clausena excavata</i>	Semansat	Allergic itching	Leaves	Washed, sliced, boiled, drunked
11	<i>Coix lacryma-jobi</i>	Nyelai batu	Uric acid inflammation	Roots	Washed, mixed with <i>Nicotiana tabacum</i> roots, boiled, drunked
12	<i>Curcuma longa</i>	Kunyit	Constipation	Rhizome	Look <i>Ageratum conyzoides</i>
13	<i>Curcuma xanthorrhiza</i>	Kunyit putih	Ulcer	Rhizome	Look <i>Arenga pinnata</i>
14	<i>Elephantopus scaber</i>	Tuku bumi	Flatulence	Leaves	Washed, Squeezed, boiled with 3 glasses water to 1 glass water, drunked
15	<i>Ficus septica</i>	Nenguringan	Tumor	Barks	Look <i>Averrhoa bilimbi</i>
16	<i>Hibiscus sabdariffa</i>	Rosela	Stamina	Flowers	Washed 3 of roselle flowers, sliced, boiled with 2 glasses water to 1 glass water, drunked
17	<i>Jatropha curcas</i>	Jarak pagar	Dysentery	Barks	Washed, Dried, mix with <i>Uncaria gambir simplicia</i> , brewed with boiled water, drunked once or twice a day
18	<i>Lansium domesticum</i>	Duku	Hemorrhoid	Leaves	Washed, squeezed, boilde, drunked
19	<i>Nicotiana tabacum</i>	Mako	Uric acid inflammation	Roots	Look <i>Coix lacryma-jobi</i>
20	<i>Orthosiphon aristatus</i>	Kumis kucing	Urolithiasis	Roots	Washed, mixed with <i>Physalis angulata</i> roots, stems, and leaves, boiled, drunked three times a day
21	<i>Physalis angulata</i>	Ceplukan	Urolithiasis	Roots, Leaves	Look <i>Orthosiphon aristatus</i>
22	<i>Psidium guajava</i>	Jambu biji	Protuberance (children <5 years)	Barks	Look <i>Aleurites moluccana</i>
23	<i>Scleria lithosperma</i>	Beliding	Flu	Stems	Washed, boiled, drunked
24	<i>Sphagneticola trilobata</i>	Rumput bungo kuning	Overweight	Leaves	Washed 5 leaves, boiled with 2 glasses water to 1 glass water, drunked once a day
25	<i>Tamarindus indica</i>	Asam Jawa	Ulcer	Fruits	Look <i>Arenga pinnata</i>
26	<i>Uncaria gambir</i>	Gambir	Dysentery	Stems, Leaves	Look <i>Jatropha curcas</i>
27	<i>Uraria crinita</i>	Ekor anjing	Gingivitis	Roots	Washed, Boiled, used it as mouthwash
28	<i>Zingiber officinale</i>	Jahe	Stamina	Rhizome	Look <i>Arenga pinnata</i>

**Table 2.** Types of metabolites by species

No	Species	Metabolites	Types of Metabolites			References
			A	F	T	
1	<i>Acorus calamus</i>	$\beta$ -asaron, fenilpropan, monoterpen, dan sesquiterpenoid		√	√	[5]
2	<i>Ageratum conyzoides</i>	Nobiletin		√		[6]
3	<i>Aleurites moluccana</i>	Saponin	√		√	[7]
4	<i>Annona muricata</i>	Alkaloid, saponin, tanin, annonacin, isoanonacin	√	√	√	[8]
5	<i>Arenga pinnata</i>	Alkaloid, triterpenoid, tanin	√	√	√	[9]
6	<i>Averrhoa bilimbi</i>	Saponin, flavonoid, triterpenoid dan tannin	√	√	√	[10]
7	<i>Bambusa vulgaris</i>	Lignin		√		[11]
8	<i>Camoensia maxima</i>	Kuinolizidin alkaloid	√			[12]
9	<i>Carica papaya</i>	Flavonoid papain, carpain		√		[13]
10	<i>Clausena excavata</i>	b-kariofilen, b-phellandren, germacrene B, carbazol alkaloid	√		√	[14]
11	<i>Coix lacryma-jobi</i>	Coixol	√			[15]
12	<i>Curcuma longa</i>	Curcumin, monoterpen, sesquiterpen		√	√	[16]
13	<i>Curcuma xanthorrhiza</i>	Xantorizol			√	[17]
14	<i>Elephantopus scaber</i>	Isodeoksielefantopin		√		[17]
15	<i>Ficus septica</i>	n-triacontanol, b-amyirin, gluanol		√	√	[18]
16	<i>Hibiscus sabdariffa</i>	Gossypetin, hibiscetin, sabdaretin, hibiscin, antosianin		√		[19]
17	<i>Jatropha curcas</i>	Curcacyclin A, B	√			[20]
18	<i>Lansium domesticum</i>	a-kubeben			√	[21]
19	<i>Nicotiana tabacum</i>	Nikotin	√			[22]
20	<i>Orthosiphon aristatus</i>	Sinensetin		√		[17]
21	<i>Physalis angulata</i>	Fisalin A			√	[17]
22	<i>Psidium guajava</i>	Kuersetin		√		[17]
23	<i>Scleria lithosperma</i>	Proantosianidin		√		[23]
24	<i>Sphagneticola trilobata</i>	Kuersetin, rhamnazin		√		[24]
25	<i>Tamarindus indica</i>	Flavonoid, alkaloid, triterpenoid, tanin, antraquinon	√	√	√	[25]
26	<i>Uncaria gambir</i>	Tanin, katekin, indol alkaloid	√	√		[26]
27	<i>Uraria crinita</i>	Apigenin		√		[27]
28	<i>Zingiber officinale</i>	Shogaol		√		[17]

Annotation: A=Alkaloids, F=Phenol, T=Terpenoids

around them which is known as allelopathy. Various secondary metabolite compounds have been used as medicine, for example aspirin which is made based on salicylic acid which is naturally found in certain plants. Broadly speaking, secondary metabolites can be divided into three types, namely alkaloids or compounds containing N (nitrogen), phenols such as flavonoids and tannins, and terpenoids. Alkaloids, phenols and terpenoids are known to be used as antimicrobial, antiviral and anticancer compounds for humans. All of the types of secondary metabolites contained in these plants or one of the types of metabolite groups can be found in a species of plant (specified), this is because each plant has its own defences against the environment, where secondary metabolites are the compounds, it needs to survive from environmental influences [4]. From the primary

and secondary data that have been obtained, it needs to be tested again pharmacologically for the benefit of scientific herbal medicine in Indonesia.

#### 4. CONCLUSION

The people of Serawai utilize as many as 28 types of medicinal plants which are used as single medicines or as concoctions and are applied orally. All of the plants that are used contain secondary metabolites which are useful as medicine and need to be tested again pharmacologically for the benefit of scientific herbal medicine in Indonesia.

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