

Quantitative Analysis of Ethnomedicinal Practice and Used by the Banceuy Tribe in Subang Village of Indonesia

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History

- Submission Date: 28-04-2023;
- Review completed: 05-06-2023;
- Accepted Date: 14-06-2023.

DOI : 10.5530/pj.2023.15.134

Article Available online

<http://www.phcogj.com/v15/i4>

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ABSTRACT

Background: The people of Banceuy, Indonesia have used plants for traditional medicine treatment for generation to generation. However, this local knowledge has not been recorded until today. The quantitative approach of ethnomedicinal documented show the usefulness of plant. More application medicinal plant, more pharmacological reported, more drug discovery potential development. This study aims to understanding the utilization of plants for medicinal treatment by the people of Banceuy tribe, Subang village, Indonesia. **Methods:** We conducted semi-structured interviews with a total of 35 informants that representative 10% of the total family units in Banceuy. The data has been analysed within species use value (SUV), family use value (FUV), plant part use (PPU), and the relative frequency of citation that was calculated based on fidelity level (FL). **Result:** We found 91 identified species and 3 unidentified species belonging of 41 group of families to treat 26 types of diseases. Among the recorded, Zingiberaceae and Piperaceae were the most abundant. The plant specieses with the highest SUV were *Abelmoschus manihot* (L.) Medik. (0.74) and *Ageratum conyzoides* L. (0.71). The leaves were found as the most used plant part and decoction was the dominant plants in medicinal administration. There were several unique traditional medicine treatments in Banceuy, such as *tuak* for cough ailment and post-partum treatment by mixed leaves concoction. Finally, all the data documented would be importance for new drug discovery, dried herbal market, as well as improving the society local income.

Key words: Banceuy tribe, Traditional medicine treatment, Species and family use value, Plant part use.

INTRODUCTION

The application of traditional medicine has gained renewed concern for the use of traditional, complementary, or alternative medicine around the world.¹⁻³ Many governments have traditional medicine policy for promoting and rapid developing this medicine treatment. It counted by WHO that 98% of members had have the national policy, compared to 2005 which are only 45 countries. Accordingly, WHO notes that 60% of the world's population relying on traditional medicine and 80% of the population in developing countries depend almost entirely on traditional medical practices for their primary health care.⁴ For instance, 99% cancer patient in China used Traditional Chinese Medicine (TCM) for their treatment.⁵ Thus, societies still believe in the traditional medicine benefit for human life.

In Indonesia, therefore, traditional medicine practice has recognized and used to overuse health problems which has generation to generation exist. According to the Health Ministry of Indonesia (2021), as many as 32% people of Indonesia use traditional medicine⁶ within diverse into three different kind of herbal medicine such us 12.1% for standardized herbal, 6.6% for clinical-tasted herbal (*fitofarmaka*), and the highest one at 39.6% Indonesian herbal and empirical-based herbal used called *jamu*.⁷

Moreover, Indonesia has 80% medicinal plants in the world that placed 4th rank as the main producers of medicinal plants and ranked 19th for medicinal herbs exporting country in the world.⁸ The traditional medicine treatment is not only cure illness by herbal consumption, but also body

treatment for heal and psychological therapy to patients.² The biggest varieties biodiversity diverse and tribe in Indonesia, therefore, contributes to varies the medicinal traditional treatments. In particular, Banceuy Tribe in West Java of Indonesia at highlands has characteristically plants with Sundanese culture also effects on unique plants utilization on medicinal treatment. Sundanese community has been used widely traditional medicine, especially in rural areas. Several research documented more than 100 species of plants in West Java or Sundanese region which have been used for more 90 cases of illness.⁹

The quantitative ethnobotanical research of medicinal plant of Banceuy is still unrecorded. However, the quantitative ethnobotanical was conducted despite the rich plant biodiversity and cultural diversity in the research place area. Particularly, the Banceuy village and its indigenous culture has been published not only for research purposes, also tourism campaign purposes by government. Indeed, this is the first report about the quantitative medicinal plant of Banceuy indigenous village. Despite the richness of indigenous knowledge in the Indonesia, few ethnobotanical studies have been conducted and published, Banceuy people has the unique medicinal treatment. It revealed the importance of this research to publish how the unique traditional medical treatment of them can contribute the science. The more quantitative finding in ethnobotany, the more application in societies, the more ethnopharmacology known, the more increasing demand for drug discovery and development of medicinal plants. It encourages the rising continuously in the last few decades including multivariate analysis.^{10,11}

Cite this article: Gondokesumo ME, Aini SQ, Rahmadani S. Quantitative Analysis of Ethnomedicinal Practice and Used by the Banceuy Tribe in Subang Village of Indonesia. Pharmacogn J. 2023;15(4): 655-667.

METHODS

Study area

Fieldwork was conducted in the Banceuy Village which belongs administratively to Ciater district in Subang region, the province of West Java, Indonesia (6°42'16" EL - 107°42'2" SL). Bordered from the north by Ciwirangga village of Ciater district; from the east by Cipunagara river of Kasomalang district; to the south by Cipadaringan irrigation canal of Ciater district; and the west by Citamiyang irrigation canal of Ciater district. Banceuy village is subdivided into 7 neighbour units, 300 group of families, and roundly 886 people live in 2021. The area of Kampung Banceuy is 157 hectares, of which 47 hectares consist of forests, 78 hectares consist of rice fields, 20 hectares consist of gardens and 12 hectares are used for residential areas. Forests, gardens and rice fields are indeed natural resources in the village of Banceuy. In addition, there are small rivers called solokan ito, solokan cipadaringan, and waterfalls called Curug Bentang, Leuwi Lawang and Raden Suwanda. Whereas, the location from public facilities is quite far, such as traditional market and Community Health Center called *Puskesmas* need 45 minutes on car driving. Most of residents either rely on their medicinal plant that harvested by their own garden or backyard for disease treatment and medication, or go to *Puskesmas* for serious illness.

Sampling and interview

Data collection was undertaken on March 2022. It obtained through semi-structured and structured interviews with informants who knew or used plants as medicine. This technique is commonly used in ethnobotanical studies.¹² Interviews were conducted with selected informants including about 10% of the total heads of family units (35 informants) to determine and explore the traditional knowledge regarding the utilization of medicinal plant species, plant usefulness, the utilized part, mode of preparation, or method of processing the plants.

The interview activities were carried out through semi-structured interview. Informant selection was based on the Snowball Sampling technique, by determining the key person. A key-person is one who possesses strong power within society, with key informants, such as traditional healers, leaders, and council. Others informants consisted randomly as a member of tribe community. Mostly informants are farmer, and the rest are independent shop seller, teacher, and student. The subsequent informants are determined by the direction of the previous respondents. The age of the informants ranged from 17 to more than 70 years, where showed in Figure 1. It was ten were between the ages of 16–35, twelve were ranging from 35–54, and thirteen were between 54–73 years old.

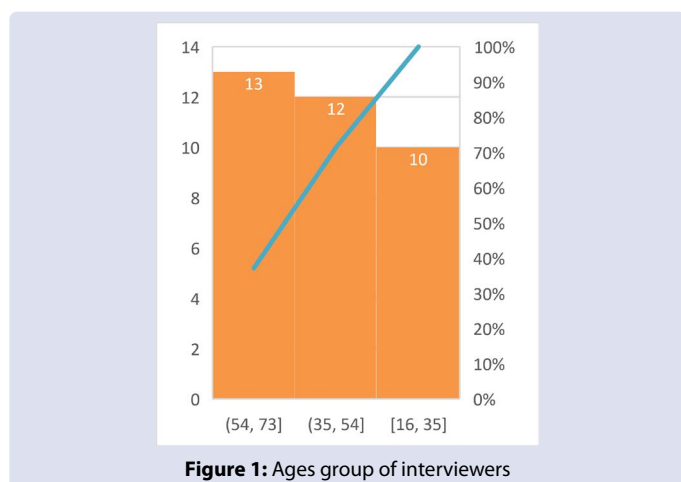


Figure 1: Ages group of interviewers

Taxonomical identification and herbarium

The collection of plant specimens was carried out through guided field walks with the aid of the expert plant gatherers and members within the tribal community. The plant habit, habitat, morphological characteristics, vernacular names, and some indigenous terms of their uses were documented. An herbarium was also prepared to obtain dry specimens supporting the taxonomical identification. Collected herbarium were identified and deposited in Faculty of Pharmacy in University of Surabaya. Plant identification was assisted under the Pharmaceutical Biology and Pharmacology Laboratory and verified using The Plant List, The International Plant Names Index, and Tropicos.

Data analysis

Fidelity Level (FL): The preferably used of plant by people in community against specific ailments was calculated using the fidelity level (FL) formula according to Friedman et al.¹³ and Ouedraogo et al.¹⁴ FL is the percentage of informants about claim certain plant species used for particular healing processes. The percentage reflects the preference of some people for using a specific plant species in a particular medicinal treatment. It was calculated using the following equation:

$$FL (\%) = \frac{Np}{N} \times 100 \quad (1)$$

Np is the number of informants who mentioned the use of plant species for a medicinal treatment. N is the total number of informants who cited the plant species for various kinds of medicinal treatment.

Species Use Value (SUV): SUV is relative importance of a medicinal plant species that used by the people from Banceuy village. It is counted as the sum of the informant species use values ($UVis$) for a particular medicinal species divided by the total number of informants (Ni). The SUV was calculated according to Hoffman and Gallaher¹² as follows:

$$SUV = \frac{\sum UVis}{(ni)} \quad (2)$$

Family Use Value (FUV): FUV is signifying the use value of a plant grouped on given plant family used by the people from Banceuy village as medicine that described by Phillips and Gentry.¹⁵ The calculation follows the below equation:

$$FUV = \frac{\sum UVs}{(ns)} \quad (3)$$

Where $\sum UVs$ is the sum of the use values of specific species belonging to a particular family divided by the total number of species in the same family.

Plant Part Value (PPV): The plant part value is presented as the percentage of utilized parts of plants (stem, leaves, root, fruit, bark, and flower) that are used as medicinal ailment. The PPV is calculated according to Gomez-Beloz¹⁶ as follows:

$$PPV (\%) = \frac{\sum RU (\text{plant part})}{\sum RU} \times 100 \quad (4)$$

Where $\sum RU (\text{plant part})$ and $\sum RU$ represent the sum of the cited plant parts and the total number of cited uses for a given plant, respectively.

RESULTS AND DISCUSSION

Plant used by Banceuy indigenous people

The indigenous people of Banceuy have knowledge about medical traditional treatment from their ancestors which inherited and subsequently preserved across generations. It is proved by diverse informant age level, included five informants of teens (16 to 25 years old) as their young generation who have similar familiarity and same awareness of traditional ailment.

In this research, we found 87 plant species that are used in traditional

Table 1: Plant used by Banceuy indigous people.

No	Species Name	Family	Local Name	No. Voucher	Part of Use	Disease	Mode of preparation
1	<i>Abelmoschus manihot</i> (L.) Medik.	Malvaceae	<i>Kimustajam</i>	US32253	Leaves	Fever; urinary disease; constipation	Squeezed, scrubbed, or Decoction; Decoction;
2	<i>Adenantha pavonina</i> L.	Fabaceae	<i>Saga</i>	US32268	Leaves	Cough, sprue	Squeezed
3	<i>Ageratum conyzoides</i> L.	Asteraceae	<i>Babandotan / Jukut Bau</i>	US32204	Leaves	Wound healing; GERD	Pounded; Decoction
4	<i>Albizia chinensis</i> (Osbeck) Merr.	Fabaceae	<i>Jenjing / Albasiah</i>	US32234	Leaves	Urticaria/hives	Pounded and scrubed
5	<i>Allium sativum</i> L.	Amaryllidaceae	<i>Bawang Bodas</i>	US32206	Bulbs	Cough	Eaten raw or Decoction
6	<i>Aloe vera</i> Mill.	Asphodelaceae	<i>Lidah Buaya</i>	US32259	Leaves	Skin burn	Squeeze
7	<i>Alpinia galanga</i> (L.) Willd.	Zingiberaceae	<i>Laja</i>	US32258	Water inside	Cough	Drink directly
8	<i>Ananas comosus</i> (L.) Merr.	Bromeliaceae	<i>Ganas</i>	US32260	Fruit	High cholesterol	Eaten raw
9	<i>Annona muricata</i> L.	Annonaceae	<i>Sirsak</i>	US32278	Leaves	Fever; Constipation; Hemorrhoid	Pounded and scrubed
10	<i>Anredera cordifolia</i> (Ten.) Steenis	Basellaceae	<i>Binahong</i>	US32209	Leaves	Post-partum	Pounded; Decoction
11	<i>Apium graveolens</i> L.	Apiaceae	<i>Saledri</i>	US32271	Leaves	Hypertension	Decoction
12	<i>Archidendron pauciflorum</i> I.C. Nielsen	Fabaceae	<i>Jengkol</i>	US32256	Seed coat	Hypertension	Decoction
13	<i>Areca catechu</i> L.	Arecaceae	<i>Jambe</i>	US32230	Fruit	GERD	Eaten raw
14	<i>Arenga pinnata</i> (Wurmb) Merr.	Arecaceae	<i>Aren</i>	US32203	Fruit	Post-partum	Eaten raw
15	<i>Arenga pinnata</i> (Wurmb) Merr.	Arecaceae	<i>Kawung</i>	US32241	Root	Pain over body / backpain / arthritis	Decoction
16	<i>Averrhoa carambola</i> L.	Oxalidaceae	<i>Belimbing</i>	US32207	Fruit	Eye Irritation; hypertention	Squeezed; Eaten raw
17	<i>Bambusa blumeana</i> Schult.	Poaceae	<i>Cangkore</i>	US32214	Water inside truck or stem	Cough	Drink directly
18	<i>Bambusoideae</i> Luerss.	Poaceae	<i>Bambu</i>	US32205	Water inside culm	Cough	Drink directly
19	<i>Blumea balsamifera</i> (L.) DC.	Asteraceae	<i>Sembung</i>	US32273	Leaves	Backpain; post partum	Decoction
21	<i>Capsicum annuum</i> L.	Solanaceae	<i>Cengek</i>	US32217	Leaves	Fever; diarrhea	Pounded and scrubed
22	<i>Carica papaya</i> L.	Caricaceae	<i>Gedang</i>	US32224	Root - Leaves	Arthritis - Hypertention	Decoction - Eaten raw
23	<i>Centella asiatica</i> Nannf.	Apiaceae	<i>Antanan / Tatapayan</i>	US32202	Leaves	Backpain; Pain over body	Decoction
24	<i>Cinnamomum verum</i> J. Presl	Lauraceae	<i>Kayu Manis</i>	US32242	Bark	Diabetes	Decoction
25	<i>Citrus aurantiifolia</i> (Christm.) Swingle	Rutaceae	<i>Jeruk Nipis</i>	US32235	Fruit	Cough	Squeezed
26	<i>Cocos nucifera</i> L.	Arecaceae	<i>Kelapa</i>	US32244	Fruit	Post-partum	Drink directly
27	<i>Coleus</i> sp.	Lamiaceae	<i>Jawer Kotok</i>	US32233	Leaves	post-partum; Urticaria/hives	Decoction; Scrubed
28	<i>Colocasia esculenta</i> (L.) Schott	Araceae	<i>Taleus</i>	US32280	Gum	Urticaria / hives	Dropped
29	<i>Crassocephalum crepidioides</i> (Benth.) S. Moore	Asteraceae	<i>Sintrong</i>	US32277	Leaves	Hypertension	Eaten raw
30	<i>Cucumis sativus</i> L.	Cucurbitaceae	<i>Bonteng</i>	US32210	Fruit	Fever; hypertension	Scrubed; Decoction
31	<i>Curcuma longa</i> L.	Zingiberaceae	<i>Koneng</i>	US32255	Rhizome	GERD	Pounded and Decoction
33	<i>Curcuma zedoaria</i> Roxb.	Zingiberaceae	<i>Koneng Bodas</i>	US32257	Rhizome	GERD	Decoction
34	<i>Cyclea barbata</i> Miers	Menispermaceae	<i>Cangcau / Cingcau</i>	US32213	Leaves	High cholestrol	Squeezed
35	<i>Cymbopogon citratus</i> (DC.) Stapf	Poaceae	<i>Sereh</i>	US32287	Stem	Respiratory-nose	Steamed
36	<i>Eclipta prostrata</i> (L.) L.	Asteraceae	<i>Urang-Arinng</i>	US32282	Leaves	Hair treatment	Pounded and scrubed
37	<i>Elettaria cardamomum</i> (L.) Maton	Zingiberac	<i>Kapolaga</i>	US32238	Tubers	mouth problem, hypertension	Eaten raw
38	<i>Equisetum ramosissimum</i> var. <i>huegelii</i> (Milde) Christenh. & Husby	Equisetaceae	<i>Kigreges</i>	US32250	Leaves	Arthritis	Decoction or scrubed
40	<i>Eryngium foetidum</i> L.	Apiaceae	<i>Wawalangan</i>	US32283	Roots	Arthritis / pain over body	Decoction
41	<i>Erythrina variegata</i> L.	Fabaceae	<i>Dadap</i>	US32219	Leaves	Fever	Pounded and scrubed

42	<i>Etilingera elatior</i> (Jack) R.M. Sm.	Zingiberaceae	Honje	US32227	Leaves; stem	Respiratory-nose; cough	Steamed, drink directly
43	<i>Graptophyllum pictum</i> (L.) Nees ex Griff.	Acanthaceae	Handeleum	US32225	Leaves	GERD; hemorrhoid	Decoction
44	<i>Hedychium flavescens</i> Carey ex Roscoe	Zingiberaceae	Parahulu	US32262	Leaves; fruit	Fever; Hypertension	Decoction; eaten raw
45	<i>Imperata cylindrica</i> (L.) P. Beauv.	Poaceae	Eurih	US32223	Root	Arthritis	Decoction
46	<i>Ipomoea biflora</i> (L.) Pers.	Convolvulaceae	Areuy	US32285	Roots	Arthritis / pain over body	Decoction
47	<i>Isotoma longiflora</i> (L.) C. Presl	Campanulac	Kikorejat	US32251	Gum	Eyes Irritation	Dropped
48	<i>Jatropha multifida</i> Linn.	Euphorbiaceae	Betadin	US32208	Gum	Wound healing	Dropped
49	<i>Kaempferia galanga</i> L.	Zingiberaceae	Cikur	US32247	Rhizome	Cough	Eaten raw or Decoction
50	<i>Kalanchoe pinnata</i> (Lam.) Pers.	Crassulaceae	Cocor Bebek	US32218	Leaves	Fever and cough	Pounded and scrubed
51	<i>Leucaena leucocephala</i> (Lam.) de Wit	Fabaceae	Petai Selong	US32265	Leaves	Urticaria/hives	Pounded and scrubed
52	<i>Manihot esculenta</i> Crantz	Euphorbiaceae	Sampeu	US32272	leaves; Gum	Hypertension; Eye Irritation	Eaten raw; Dropped
53	<i>Melastoma affine</i> D. Don	Melastomataceae	Haredong	US32226	Leaves	Wound healing	Pounded
54	<i>Moringa oleifera</i> Lam.	Moringaceae	Kelor	US32245	Leaves	High cholesterol	Decoction
55	<i>Musa sp.</i>	Musaceae	Cau	US32215	Gum	Wound healing	Dropped
56	<i>Nephelium lappaceum</i> Poir.	Sapindaceae	Rambutan	US32267	Water inside truck	Cough	Drink directly
57	<i>Oenanthe javanica</i> DC.	Apiaceae	Tespong	US32281	Leaves	Hypotension	Eaten raw
58	<i>Oryza sativa</i> var. <i>glutinosa</i> Blanco	Poaceae	Ketan Hideung	US32248	Seeds	post-partum; Pain over body	Decoction
59	<i>Paederia foetida</i> L.	Rubiaceae	Kahitutan	US32236	Leaf	Simethicone	Scrubed
60	<i>Pangium edule</i> Reinw.	Achariaceae	Picung	US32266	Leaves	Hair treatment	Scrubed
61	<i>Peperomia pellucida</i> (L.) Kunth	Piperaceae	Bunyur Huut	US32212	Leaves	Hemorrhoid; urinary disease; hypertension	Pounded; Decoction
62	<i>Persea americana</i> Mill.	Lauraceae	Alpukat	US32201	Leaves	Hypertension	Decoction
64	<i>Physalis angulata</i> L.	Solanaceae	Cecenet	US32216	Root	Arthritis	Decoction
65	<i>Piper aduncum</i> L.	Piperaceae	Seureuh Jawa	US32275	Leaves	Constipation, wound healing	Decoction; pounded
67	<i>Piper betle</i> L.	Piperaceae	Seureuh	US32274	leaves - root	post-partum; gout arthritis, urticaria / hives- pain over body	Decoction, scrubed
68	<i>Piper nigrum</i> L.	Piperaceae	Pedes / Merica	US32264	Fruit	Cough	Eaten raw
69	<i>Piper ornatum</i> N.E. Br.	Piperaceae	Seureuh Merah	US32276	Leaves	High cholesterol	Decoction
70	<i>Piper sarmentosum</i> Roxb.	Piperaceae	Karuk	US32239	Leaves	Asthma	Pounded and scrubed
72	<i>Piper sarmentosum</i> Roxb.	Piperaceae	Karuk	US32284	Leaves	Sesak napas	Scrubed
73	<i>Plantago major</i> L.	Plantaginaceae	Kiurat	US32254	Leaves	Sprain	Pounded and Scrubed
74	<i>Psidium guajava</i> L.	Myrtaceae	Jambu Batu	US32231	Leaves	Diarhea	Eaten raw or Decoction
75	<i>Pterocarpus indicus</i> Wall.	Fabaceae	Papagan	US32286	Bark	post-partum	Pounded
76	<i>Punica sp.</i>	Lythraceae	Delima Hutan	US32221	Fruit	Hypertension	Eaten raw
77	<i>Pyrrosia piloselloides</i> (L.) M.G. Price	Polypodiaceae	Duduitan / Pulus	US32222	Leaves	Liver	Decoction
78	<i>Ricinus communis</i> L.	Euphorbiaceae	Jarak	US32232	Gum	Toothache	Dropped
79	<i>Rorippa amphibia</i> (L.) Besser	Brassicaceae	Kamanilan	US32237	Leaves	Diarhea, Diabetes	Pounded and scrubed; Eaten raw or Decoction
80	<i>Rosa sp.</i>	Rosaceae	Kembang Ros	US32246	Flowers	Fever	Pounded and scrubed
81	<i>Salacca zalacca</i> (Gaertn.) Voss	Arecaceae	Salak	US32269	Leaves	Backpain	Decoction
82	<i>Sauropus androgynus</i> (L.) Merr.	Phyllanthaceae	Katuk	US32240	Leaves	Post-partum	Eaten raw
83	<i>Solanum torvum</i> Sw.	Solanaceae	Takokak	US32279	Fruit	Eyes myopi	Eaten raw

84	<i>Solanum tuberosum</i> L.	Solanaceae	Hui Kumeli	US32228	Tubers	Skin ulcer	Pounded and scrubed
85	<i>Spondias dulcis</i> G. Forst.	Anacardiaceae	Kedongdong	US32243	Leaves	Urinary disease	Decoction
86	<i>Strobilanthes crispa</i> T. Anderson	Acanthaceae	Pecah Beling	US32263	Leaves	Urinary disease	Squeezed
87	<i>Syzygium polyanthum</i> Miq.	Myrtaceae	Salam	US32270	Leaves	Hypertension	Decoction
88	<i>Tinospora cordifolia</i> (Willd.) Miers	Menispermaceae	Brata	US32211	Leaves	Hypertension, High cholestrol	Decoction
90	Unknown		Dedih	US32220	Leaves	Post-partum	Pounded and scrubed
91	Unknown		Kibanteli	US32249	Gum	Diarhea	Squeezed
92	Unknown		Kimunding Jalu	US32252	Leaves	Hemorrhage / heavy bleeding	Pounded
93	<i>Zingiber montanum</i> (J. Koenig ex Retz.) Theilade	Zingiberaceae	Panglai	US32261	Leaves	Urticaria/hives	Pounded and scrubed
94	<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Jahe	US32229	Rhizome	Cough; post-menstruation syndrome pain	Decoction; Shredded and decoction

Plant identified 91 species and 3 unidentified species, consist 41 different families with part of plant variation and preparation.

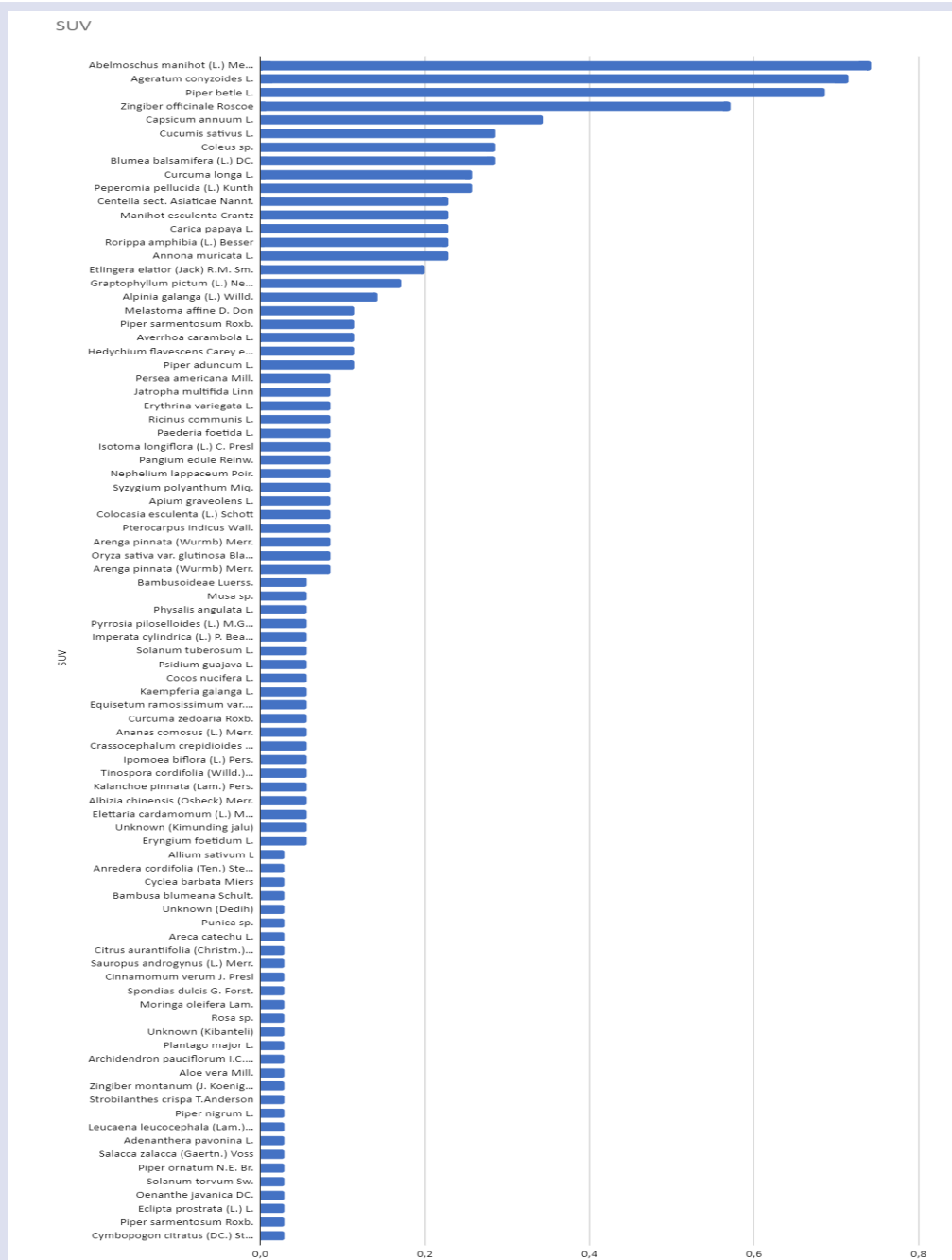


Figure 2: Species Use Value (SUV) of Banceuy Medicinal Plant

medicine with belongs to 41 difference family for 21 disease types treatment. The list of plant that indigenous people of Banceuy presents in Table 1. The highest mentioned species is *Ageratum conyzoides* L. called *babadotan* in local community at 12 cited. It followed by *Curcuma longa* L. or *koneng* as locally name at 9 cited, *Centella* sect. *Asiaticae* Nannf. (*antanan*) and *Abelmoschus manihot* (L.) Medik (*kimustajam*) at 8 cited by people. The most plant used for cough and fever ailment, hypertension, and post-partum treatment. Furthermore, they have traditional typically treatment of cough and post-partum.

We also observed that some plant use for more than one disease ailment, such as *Abelmoschus manihot* (L.) Medik. called *kimustajam* or “the most efficacious” in English translated of its local name is used for health problems by digestion, urinary, and fever treatment. Most of indigenous people of Banceuy claim that *A. manihot* could treat all health problems, especially for internal medical diseases. Moreover, three others plant also identified applying on three difference disease; such as *Annona muricata* L. overcome fever, haemorrhoid, and post-partum treatment; *Peperomia pellucida* (L.) Kunth used for haemorrhoid, hypertension, and urinary disease; and *Piper betle* L. treat of urticaria / hives, arthritis / pain over body, and post-partum treatment.

Species and family use value

Use Value is an index to demonstrate the relative importance of useful plants.¹⁷ This information is important for ethnobotanical research due to illustrate the greatest harvesting pressure and inform new drug discovery. The use value could effectively evaluate most useful of particular species or family group of herbal plant to a particular group of people, as well as consider of potential uses within specific group.¹⁸ Our result revealed that the Species Use Value (SUV) of the identified plants varied from 0.02 to 0.7 (Figure 2). The highest SUV placed by *Abelmoschus manihot* (L.) Medik. at 0.74 for overcoming fever, urinary disease, and constipation, followed by *Ageratum conyzoides* L., *Piper betle* L., *Zingiber officinale* Roscoe, and *Capsicum annum* L. at 0.71, 0.68, 0.57, and 0.34, respectively.

Zingiber officinale Roscoe is majority medical plant used in several provinces in Indonesia according many previous research, such as in Aceh¹⁹, West Java⁹, Papua.²⁰ However, the highest SUV in this research is *Abelmoschus manihot* (L.) Medik. that commonly used in China for many internal disease problems²¹, in Africa for rheumatic, fever, headache, and hemorrhoids; in Nigeria used in tumor treatment, conjunctivitis, and abscess²²; in India for diarrhoea dysentery and intestinal colic ailment.²³ This plant has well-known for abundant of phytochemicals such as alkaloid, coumarins, flavonoids, benzofurans, sterols and terpenoids, and quercetin.²⁴ Likewise, *Ageratum conyzoides* L. as a wild herb has been known for medicinal treatment in Indonesia with still low use value (under 0.3) in many places around Indonesia^{19,25,26}, but high use value (0.97) in East Aceh for treatment stomach-ache, fever, flu.²⁷ In West African and some region of Asia and South America, this plant use for wound dressing, overcome various skin diseases, ophthalmic, colic, ulcers treatment, as purgative and febrifuge.²⁸

Totally, 94 medical plant species have been recorded in this study, with 3 of total are unidentified species. All belong to 41 different families, with the highest family use value (FUV) placed by Zingiberaceae (0.22), followed by Piperaceae (0.17), Arecaceae and Fabaceae at 0.15 (shown in Table 2.). Zingiberaceae was the most representative medicinal plant families in our study. This finding relates with previous ethnomedicinal plant research in various tribe in Indonesia, such as Sundanese in West Java⁹, Tengger tribe in East Java^{19,29}, Tribal people from Papua²⁰, and the most abundant ingredient of *Jamu* as the most famous and biggest herbal product of Indonesia.³⁰ Several *Jamu* also contents some Piperaceae. Beside the high bioactive compound, the primary use of

Zingiberaceae is probably due to its high diversity and abundance in tropical countries, as well as has been used in widely purposes like spices, dyes, and parfum. Those factors might be placed Zingiberaceae becoming highly known and potential believe among societies.³¹

Fidelity level

Fidelity Level (FL) is the percentage about plant mentioned by respondent to treat a particular ailment in this research. The FL illustrate a quantify the importance of the species for a given purpose.³² The lower percentage, the more usefulness of plant that might related with more biological activities possessed. While, the high percentage give the information to be considered for further conservation program bioassays and phytopharmacological investigation.³³

In this research, we found that the highest FL (Table 3.) is 100% for *Ricinus communis* L. for toothache, *Zingiber officinale* for post-partum treatment, *Elettaria cardamomum* (L.) Maton for mouth wash, *Pyrrosia piloselloides* (L.) M.G. Price for liver disease ailment, *Solanum torvum* Sw. for eyes myopy treatment, and *Piper sarmentosum* Roxb. for asthma ailment. Those plant mentioned need further analysis for their medical usefulness within this place research.

The medical application of *R. communis* for toothache claim not only in Banceuy indigenous people, but also several tribe in Africa.^{34,35} Nevertheless, the administrative of plant is difference which is Banceuy people use the gum with drop directly into toothache, Africa tribe use root of *R. communis* for the treatment. The research about the responsible of *R. communis* bioactive compound and action on toothache treatment is not to be the concern. The effect might be done by antibacterial effect and analgesic activity of root bark.³⁶ Furthermore, others bioactive and pharmaceutical effect have been evaluate such as *Zingiber officinale* for post-partum treatment^{31,37}, *Elettaria cardamomum* (L.) Maton for mouth wash, *Pyrrosia piloselloides* (L.) M.G. Price for liver disease ailment³⁸, *Solanum torvum* Sw. for eyes myopy treatment³⁹, and *Piper sarmentosum* Roxb. for asthma ailment.⁴⁰

In addition, the diseases mentioned is 26 type difference with the most medicinal plant purposes for hypertension at 13 species plant, cough and fever at 10 and 8 difference plant used, and post-partum treatment at 10 kind plant. It relates with the distinctive traditional medical practice among cough and post-partum ailment of Banceuy. The local people have unique medical treatment for cough and post-partum. Overcoming cough within kids or adult commonly use treatment called “*Tuak*” which collect water inside trees like as guava trees or herbs like as ginger herbs. They claim that this medical method is effective for chronic cough, as well as in cough affected by COVID-19 symptoms. Whereas, the post-partum treatment has been practiced with mix the leaves from 3 – 6 difference species.

Plant part use and mode of preparation

In this research, the most plant part use is leaves with more than a half of data collection from Banceuy people that is at 56.8%, followed by fruit, root, and gum at 10.8%, 5.4%, and 6.4% respectively, and the others part such as seed, tubers, bark, and water inside plant were just no more than 2%. It correlates with several ethnobotanical research and found that the most plant part use is leaves in Indonesia or others countries.

Leaves are a common and popular ingredient for preparing medical procedures (shown in Figure 3.) because of their ease of use and sustainability. Removal of leaf biomass, within reason, does not affect plant life compared to collecting stems, roots, or whole plants, which can endanger plant life.⁴¹ In addition, many reports have shown that leaves contain various phytochemicals.⁴² No data on the use of flowers as medicinal materials were collected in this study. This may provide another perspective for further investigation. Furthermore, our data

Table 2: Family Use Value (FUV) of Banceuy medicinal plant

No	Family Name	Species Name	Local Name	Number of Species	FUV
1	Acanthaceae	<i>Graptophyllum pictum</i> (L.) Nees ex Griff. <i>Strobilanthes crisper</i> T. Anderson	Handeleum Pecah Beling	2	0,05
2	Achariaceae	<i>Pangium edule</i> Reinw.	Picung	1	0,02
3	Amaryllidaceae	<i>Allium sativum</i> L.	Bawang Bodas	1	0,02
4	Anacardiaceae	<i>Spondias dulcis</i> G. Forst.	Kedongdong	1	0,02
5	Annonaceae	<i>Annona muricata</i> L. <i>Centella</i> sect. <i>Asiaticae</i> Nannf.	Sirsak Antanan / Tatapayan	1	0,02
6	Apiaceae	<i>Apium graveolens</i> L. <i>Oenanthe javanica</i> DC. <i>Eryngium foetidum</i> L. <i>Colocasia esculenta</i> (L.) Schott <i>Arenga pinnata</i> (Wurmb) Merr.	Saledri Tespong Wawalangan Taleus Aren	4	0,10
7	Arecaceae	<i>Areca catechu</i> L. <i>Arenga pinnata</i> (Wurmb) Merr. <i>Cocos nucifera</i> L. <i>Salacca zalacca</i> (Gaertn.) Voss	Jambe Kawung Kelapa Salak	6	0,15
8	Asphodelaceae	<i>Aloe vera</i> Mill. <i>Ageratum conyzoides</i> L.	Lidah Buaya Babandotan / Jukut Bau	1	0,02
9	Asteraceae	<i>Blumea balsamifera</i> (L.) DC. <i>Crassocephalum crepidioides</i> (Benth.) S. Moore <i>Eclipta prostrata</i> (L.) L.	Sembung Sintrong Urang-Arinng	4	0,10
10	Basellaceae	<i>Anredera cordifolia</i> (Ten.) Steenis	Binahong	1	0,02
11	Brassicaceae	<i>Rorippa amphibia</i> (L.) Besser	Kamanilan	1	0,02
12	Bromeliaceae	<i>Ananas comosus</i> (L.) Merr.	Ganas	1	0,02
13	Campanulaceae	<i>Isotoma longiflora</i> (L.) C. Presl	Kikorejat	1	0,02
14	Caricaceae	<i>Carica papaya</i> L.	Gedang	1	0,02
15	Convolvulaceae	<i>Ipomoea biflora</i> (L.) Pers.	Areuy	1	0,02
16	Crassulaceae	<i>Kalanchoe pinnata</i> (Lam.) Pers.	Cocor Bebek	1	0,02
17	Cucurbitaceae	<i>Cucumis sativus</i> L.	Bonteng	1	0,02
18	Equisetaceae	<i>Equisetum ramosissimum</i> var. <i>huegelii</i> (Milde) Christenh. & Husby <i>Jatropha multifida</i> Linn	Kigreges Betadin	1	0,02
19	Euphorbiaceae	<i>Manihot esculenta</i> Crantz <i>Ricinus communis</i> L. <i>Erythrina variegata</i> L. <i>Albizia chinensis</i> (Osbeck) Merr.	Sampeu Jarak Dadap Jenjing / Albasiah	3	0,07
20	Fabaceae	<i>Archidendron pauciflorum</i> I.C. Nielsen <i>Leucaena leucocephala</i> (Lam.) de Wit <i>Adenanthera pavonina</i> L. <i>Pterocarpus indicus</i> Wall.	Jengkol Petai Selong Saga Papagan	6	0,15
21	Lamiaceae	<i>Coleus</i> sp. <i>Persea americana</i> Mill.	Jawer Kotok Alpukat	1	0,02
22	Lauraceae	<i>Cinnamomum verum</i> J. Presl	Kayu Manis	2	0,05
23	Lythraceae	<i>Punica</i> sp.	Delima Hutan	1	0,02
24	Malvaceae	<i>Abelmoschus manihot</i> (L.) Medik.	Kimustajam	1	0,02
25	Melastomataceae	<i>Melastoma affine</i> D. Don <i>Tinospora cordifolia</i> (Willd.) Miers	Haredong Brata	1	0,02
26	Menispermaceae	<i>Cyclea barbata</i> Miers	Cangcau / Cingcau	2	0,05
27	Moringaceae	<i>Moringa oleifera</i> Lam.	Kelor	1	0,02
28	Musaceae	<i>Musa</i> sp.	Cau	1	0,02
29	Myrtaceae	<i>Psidium guajava</i> L. <i>Syzygium polyanthum</i> Miq.	Jambu Batu Salam	2	0,05
30	Oxalidaceae	<i>Averrhoa carambola</i> L.	Belimbing	1	0,02
31	Phyllanthaceae	<i>Sauropus androgynus</i> (L.) Merr.	Katuk	1	0,02

32	Piperaceae	<i>Peperomia pellucida</i> (L.) Kunth	Bunyur Huut	7	0,17
		<i>Piper sarmentosum</i> Roxb.	Karuk		
		<i>Piper nigrum</i> L.	Pedes/Merica		
		<i>Piper betle</i> L.	Seureuh		
		<i>Piper aduncum</i> L.	Seureuh Jawa		
33	Plantaginaceae	<i>Piper ornatum</i> N.E. Br.	Seureuh Merah	1	0,02
		<i>Piper sarmentosum</i> Roxb.	Karuk		
		<i>Plantago major</i> L.	Kiurat		
34	Poaceae	Bambusoideae Luerss.	Bambu	5	0,12
		<i>Bambusa blumeana</i> Schult.	Cangkore		
		<i>Imperata cylindrica</i> (L.) P. Beauv.	Eurih*		
35	Polypodiaceae	<i>Oryza sativa</i> var. <i>glutinosa</i> Blanco	Ketan Hideung	1	0,02
		<i>Cymbopogon citratus</i> (DC.) Stapf	Sereh		
36	Rosaceae	<i>Pyrrosia piloselloides</i> (L.) M.G. Price	Duduitan / Pulus	1	0,02
37	Rubiaceae	<i>Rosa</i> sp.	Kembang Ros	1	0,02
38	Rutaceae	<i>Paederia foetida</i> L.	Kahitutan	1	0,02
39	Sapindaceae	<i>Citrus aurantiifolia</i> (Christm.) Swingle	Jeruk Nipis	1	0,02
40	Solanaceae	<i>Nephelium lappaceum</i> Poir.	Rambutan	4	0,10
		<i>Physalis angulata</i> L.	Cecenet		
		<i>Capsicum annuum</i> L.	Cengek		
		<i>Solanum tuberosum</i> L.	Hui Kumeli		
		<i>Solanum torvum</i> Sw.	Takokak		
41	Zingiberaceae	<i>Zingiber officinale</i> Roscoe	Jahe	9	0,22
		<i>Etlingera elatior</i> (Jack) R.M. Sm.	Honje		
		<i>Elettaria cardamomum</i> (L.) Maton	Kapolaga		
		<i>Kaempferia galanga</i> L.	Cikur		
		<i>Curcuma longa</i> L.	Koneng		
		<i>Curcuma zedoaria</i> Roxb.	Koneng Bodas		
42	Unknown	<i>Alpinia galanga</i> (L.) Willd.	Laja	-	-
		<i>Zingiber montanum</i> (J. Koenig ex Retz.) Theilade	Panglai		
43	Unknown	<i>Hedychium flavescens</i> Carey ex Roscoe	Parahulu	-	-
			Dedih*		
44	Unknown		Kibanteli*	-	-
			Kimunding Jalu*	-	-

The range of FUV is 0.02 – 0.22. The highest value was Zingiberaceae (0.22) and Piperaceae (0.17).

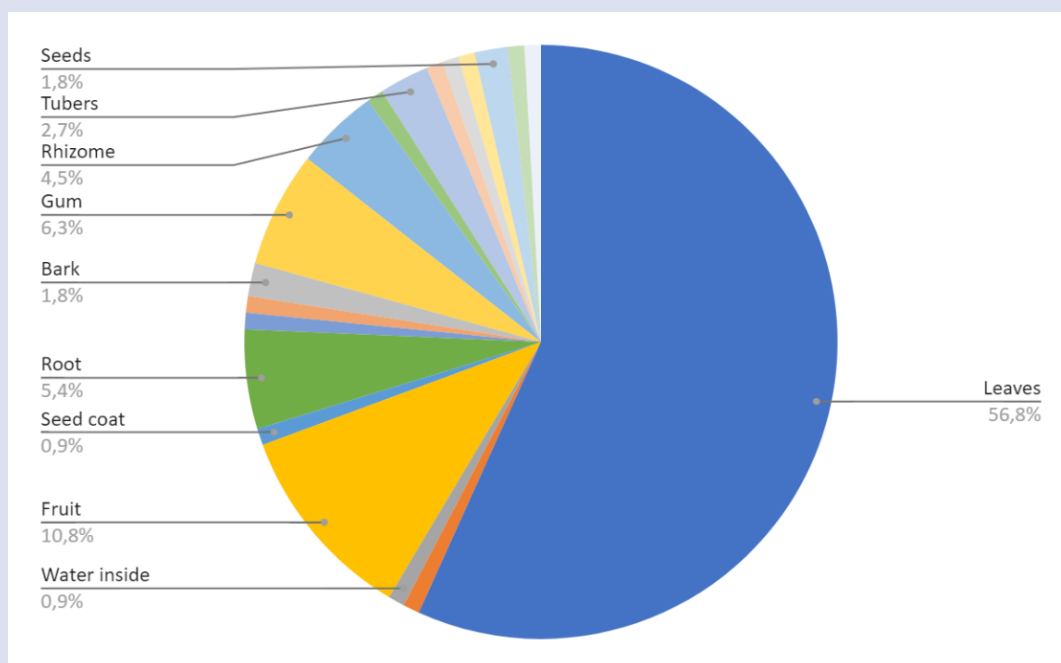


Figure 3: Part of Plant Value (PPV) Used by people indigenous of Banceuy

Table 3: Fidelity Level (FL) of Banceuy Medicinal Plants

No	Disease	Species Name	Part of Use	Mode of Preparation	FL (%)
1	Arthritis / pain over body	<i>Physalis angulata</i> L.	Roots	Decoction	18,18
		<i>Imperata cylindrica</i> (L.) P. Beauv.	Roots	Decoction	18,18
		<i>Carica papaya</i> L.	Roots	Decoction	9,09
		<i>Equisetum ramosissimum</i> var. <i>huegelii</i> (Milde) Christenh. & Husby	Leaves	Decoction or scrubbed	18,18
		<i>Eryngium foetidum</i> L.	Roots	Decoction	9,09
		<i>Oryza sativa</i> var. <i>glutinosa</i> Blanco	Seeds	Decoction	18,18
2	Backpain	<i>Arenga pinnata</i> (Wurmb) Merr.	Roots	Decoction	9,09
		<i>Salacca zalacca</i> (Gaertn.) Voss	Leaves	Decoction	7,69
		<i>Blumea balsamifera</i> (L.) DC.	Leaves	Decoction	23,33
3	Asthma	<i>Centella</i> sect. <i>Asiaticae</i> Nannf.	Leaves	Decoction	53,33
		<i>Piper sarmentosum</i> Roxb.	Leaves	Pounded and scrubbed	100,00
4	Constipation	<i>Abelmoschus manihot</i> (L.) Medik.	Leaves	Decoction or squeezed	13,33
		<i>Piper aduncum</i> L.	Leaves	Decoction	12,50
5	Cough	<i>Annona muricata</i> L.	Leaves	Pounded and scrubbed	25,00
		<i>Bambusoideae</i> Luerss.	Water inside culm	Drink directly	9,52
		<i>Allium sativum</i> L.	Bulbs	Eaten raw or Decoction	5,00
		<i>Bambusa blumeana</i> Schult.	Water inside truck or stem	Drink directly	4,76
		<i>Etilingera elatior</i> (Jack) R.M. Sm.	Stem	Drink directly	4,55
		<i>Zingiber officinale</i> Roscoe	Rhizome	Decoction	17,39
		<i>Citrus aurantiifolia</i> (Christm.) Swingle	Fruits	Squeezed	5,00
		<i>Kaempferia galanga</i> L.	Rhizome	Eaten raw or Decoction	9,52
		<i>Alpinia galanga</i> (L.) Willd.	Water inside	Drink directly	23,81
		<i>Piper nigrum</i> L.	Fruits	Eaten raw	5,88
6	Diabetes	<i>Nephelium lappaceum</i> Poir.	Water inside truck	Drink directly	15,79
		<i>Cinnamomum verum</i> J. Presl	Bark	Decoction	33,33
		<i>Rorippa amphibia</i> (L.) Besser	Leaves	Eaten raw or Decoction	66,67
7	Diarhea	<i>Capsicum annuum</i> L.	Leaves	Pounded and scrubbed	28,57
		<i>Psidium guajava</i> L.	Leaves	Eaten raw or Decoction	28,57
8	Eye Irritation	Kibanteli (Unknown species)	Gum	Squeezed	14,29
		<i>Rorippa amphibia</i> (L.) Besser	Leaves	Pounded and scrubbed	28,57
		<i>Manihot esculenta</i> Crantz	Gum	Dropped	33,33
9	Eyes myopi	<i>Averrhoa carambola</i> L.	Fruits	Squeezed	16,67
		<i>Isotoma longiflora</i> (L.) C. Presl	Gum	Dropped	50,00
10	Fever	<i>Solanum torvum</i> Sw.	Fruits	Eaten raw	100,00
		<i>Cucumis sativus</i> L.	Fruits	Scrubbed	14,29
		<i>Capsicum annuum</i> L.	Leaves	Pounded and scrubbed	19,05
		<i>Kalanchoe pinnata</i> (Lam.) Pers.	Leaves	Pounded and scrubbed	4,76
		<i>Erythrina variegata</i> L.	Leaves	Pounded and scrubbed	15,00
		<i>Rosa</i> sp.	Flowers	Pounded and scrubbed	4,76
11	GERD	<i>Abelmoschus manihot</i> (L.) Medik.	Leaves	Squeezed	19,05
		<i>Hedychium flavescens</i> Carey ex Roscoe	Leaves	Decoction	4,76
		<i>Annona muricata</i> L.	Leaves	Pounded and scrubbed	19,05
		<i>Ageratum conyzoides</i> L.	Leaves	Decoction	22,22
		<i>Graptophyllum pictum</i> (L.) Nees ex Griff.	Leaves	Decoction	11,11
		<i>Areca catechu</i> L.	Fruits	Eaten raw	5,56
		<i>Curcuma longa</i> L.	Rhizome	Pounded and Decoction	50,00
12	Hair treatment	<i>Curcuma zedoaria</i> Roxb.	Rhizome	Decoction	11,11
		<i>Pangium edule</i> Reinw.	Leaves	Scrubbed	37,50
13	Hemorrhage / heavy bleeding	<i>Eclipta prostrata</i> (L.) L.	Leaves	Pounded and scrubbed	12,50
		Kimunding jalu (Unknown Species)	Leaves	Pounded	12,50
		<i>Peperomia pellucida</i> (L.) Kunth	Leaves	Pounded	12,50
13	Hemorrhage / heavy bleeding	<i>Graptophyllum pictum</i> (L.) Nees ex Griff.	Leaves	Decoction	12,50
		<i>Annona muricata</i> L.	Leaves	Pounded and scrubbed	12,50

14	High cholesterol	<i>Moringa oleifera</i> Lam.	Leaves	Decoction	20,00		
		<i>Ananas comosus</i> (L.) Merr.	Fruits	Eaten raw	40,00		
		<i>Piper ornatum</i> N.E. Br.	Leaves	Decoction	20,00		
		<i>Cyclea barbata</i> Miers	Leaves	Squeezed	20,00		
		<i>Persea americana</i> Mill.	Leaves	Decoction	13,04		
		<i>Cucumis sativus</i> L.	Fruit	Decoction	8,70		
		<i>Peperomia pellucida</i> (L.) Kunth	Leaves	Decoction	4,35		
		<i>Punica</i> sp.	Fruits	Eaten raw	4,35		
		<i>Elettaria cardamomum</i> (L.) Maton	Tubers	Eaten raw	4,35		
		<i>Archidendron pauciflorum</i> I.C. Nielsen	Seed coat	Decoction	4,35		
15	Hypertension	<i>Hedychium flavescens</i> Carey ex Roscoe	Fruit	Eaten raw	4,35		
		<i>Syzygium polyanthum</i> Miq.	Leaves	Decoction	13,04		
		<i>Apium graveolens</i> L.	Leaves	Decoction	13,04		
		<i>Carica papaya</i> L.	Leaves	Eaten raw	13,04		
		<i>Crassocephalum crepidioides</i> (Benth.) S. Moore	Leaves	Eaten raw	8,70		
		<i>Tinospora cordifolia</i> (Willd.) Miers	Leaves	Decoction	4,35		
		<i>Averrhoa carambola</i> L.	Fruit	Eaten raw	4,35		
		<i>Manihot esculenta</i> Crantz	Leaves	Eaten raw	83,33		
		<i>Oenanthe javanica</i> DC.	Leaves	Eaten raw	16,67		
		<i>Pyrrosia piloselloides</i> (L.) M.G. Price	Leaves	Decoction	100,00		
17	Liver	<i>Elettaria cardamomum</i> (L.) Maton	Rhizome	Eaten raw	100,00		
18	Mouth Wash						
19	Post-menstruation syndrome pain	<i>Zingiber officinale</i> Roscoe	Rhizome	Decoction	100,00		
		<i>Blumea balsamifera</i> (L.) DC.	Leaves	Decoction	6,25		
		<i>Arenga pinnata</i> (Wurmb) Merr.	Fruits	Eaten raw	12,50		
		<i>Anredera cordifolia</i> (Ten.) Steenis	Leaves	Pounded or decoction	6,25		
		Dedih (Unknown Species)	Leaves	Pounded and scrubbed	6,25		
		<i>Coleus</i> sp.	Leaves	Decoction	18,75		
		<i>Sauropus androgynus</i> (L.) Merr.	Leaves	Eaten raw	6,25		
		<i>Cocos nucifera</i> L.	Fruits	Drink directly	12,50		
		<i>Oryza sativa</i> var. <i>glutinosa</i> Blanco	Seeds	Decoction	6,25		
		<i>Piper betle</i> L.	Leaves	Decoction	6,25		
20	Post-partum	<i>Pterocarpus indicus</i> Wall.	Bark	Pounded	18,75		
		<i>Etilingera elatior</i> (Jack) R.M. Sm.	Leaves	Steamed	66,67		
		<i>Cymbopogon citratus</i> (DC.) Stapf	Leaves	Steamed	33,33		
		<i>Paederia foetida</i> L.	Leaves	Scrubbed	37,50		
		<i>Aloe vera</i> Mill.	Leaves	Squeezed	12,50		
		<i>Solanum tuberosum</i> L.	Tubers	Pounded and scrubbed	25,00		
		<i>Plantago major</i> L.	Leaves	Pounded and scrubbed	12,50		
		<i>Adenanthera pavonina</i> L.	Leaves	Squeezed	12,50		
		<i>Ricinus communis</i> L.	Gum	Dropped	100,00		
		<i>Peperomia pellucida</i> (L.) Kunth	Leaves	Pounded	20,00		
21	Respiratory-nose	<i>Spondias dulcis</i> G. Forst.	Leaves	Decoction	20,00		
		<i>Abelmoschus manihot</i> (L.) Medik.	Leaves	Scrubbed or Decoction	40,00		
		<i>Strobilanthes crispata</i> T.Anderson	Leaves	Squeezed	20,00		
		<i>Albizia chinensis</i> (Osbeck) Merr.	Leaves	Pounded and scrubbed	10,00		
		<i>Piper betle</i> L.	Leaves	Scrubbed	20,00		
		<i>Colocasia esculenta</i> (L.) Schott	Gum	Dropped	30,00		
		<i>Coleus</i> sp.	Leaves	Scrubbed	20,00		
		<i>Zingiber montanum</i> (J. Koenig ex Retz.) Theilade	Leaves	Pounded and scrubbed	10,00		
		<i>Leucaena leucocephala</i> (Lam.) de Wit	Leaves	Pounded and scrubbed	10,00		
		<i>Ageratum conyzoides</i> L.	Leaves	Pounded	44,44		
22	Toothache	<i>Jatropha multifida</i> Linn	Gum	Dropped	16,67		
		<i>Musa</i> sp.	Gum	Dropped	11,11		
		<i>Melastoma affine</i> D. Don	Leaves	Pounded	22,22		
		<i>Piper aduncum</i> L.	Leaves	Pounded	5,56		
		23	Ulterioria/hives				
24	Urinary disease						
25	Wound healing						

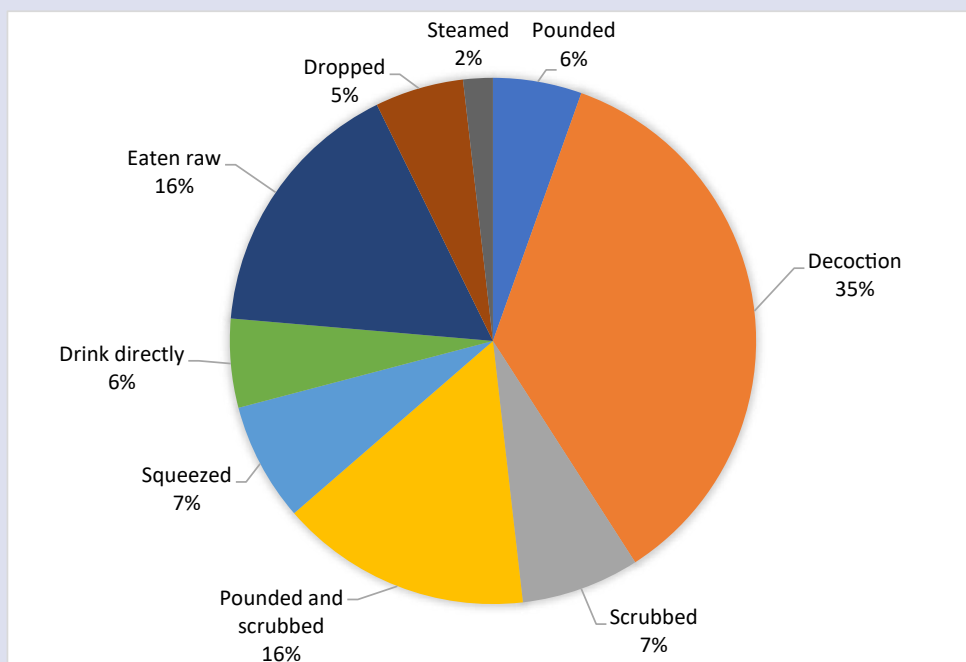


Figure 4: Mode of preparation of ethnomedicinal plants used by people indigenous of Banceuy

also demonstrated the use of multiple plant parts from the same plant species. For example, *Hedychium flavescens* Carey ex Roscoe leaves and fruit have been used to treat fever and hypertension, respectively.

People in Banceuy village use many methods to prepare plant parts (illustrated in Figure 4.) before applied in their traditional ailment. Decoction (30.6%) is the most dominant plant administration, followed by eaten raw (12.6%). Eaten raw is correlation with Sundanese culture which like to eaten raw some of leaves not only for medicinal treatment, but also the eating culture. This culture called “ngalalab” like as traditional salad. For instance, leave of *Manihot esculenta* often eaten with rice and others side dishes with mixed *Carica papaya* L. leaves for neutralization pharmaceutical effect on blood pressured.

Tuak in some Indonesia region known as alcoholic drink as traditional palm wine, otherwise in Banceuy tribe *Tuak* is no alcoholic drink.^{49,50} *Tuak* is drink producing method from plant that collects the dropped water from cutting plant’s bark or curve herbs. The water collected believes could be cough ailment, as well as COVID symptom disease. This is the most interesting found of traditional medicinal treatment of Banceuy tribe, while the further analysis and research are necessary.

CONCLUSION

Our result revealed a total of 91 identified species and 3 unidentified species of medicinal plants were recorded. They belong to 41 different families within Zingiberaceae and Piperaceae placed the most representative families. A high number of plant species were used for treating fever and cough, hypertension and high cholesterol, body pain / rheumatic, and post-partum treatment. Traditional cough medicine has unique treatment called *tuak* which collect the inside water of trees’ truck or herb’s stem. The post-partum treatment also was unique with some mixed leaved concoction. Furthermore, leaves were the most popular plant part used and decoction was the most familiar method of preparation. The species use, family use value, and fidelity level presented may be used to further plant conservation and pharmacological studies for new drug discovery. Finally, the information of this medicinal plant

could be valuable for develop market, dried herbal products, which then substantially improving the revenue of the local society.

ACKNOWLEDGMENT

We would like to thank to all people from Banceuy tribe in this study participating and information sharing. This research also could be completed thanks to Faculty of Pharmacy, University of Surabaya, Medicine Faculty of Bandung Islamic University, and Faculty of Matematics and Science Education Indonesia, University of Education.

CONFLICTS OF INTEREST

We declare no conflicts of interest.

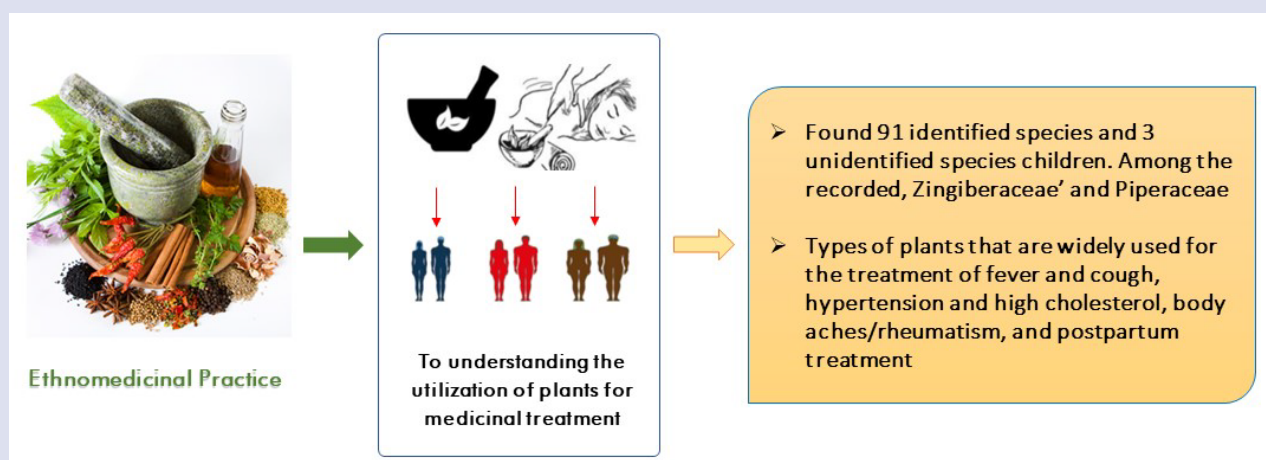
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GRAPHICAL ABSTRACT



Cite this article: Gondokesumo ME, Aini SQ, Rahmadani S. Quantitative Analysis of Ethnomedicinal Practice and Used by the Banceuy Tribe in Subang Village of Indonesia. *Pharmacogn J.* 2023;15(4): 655-667.

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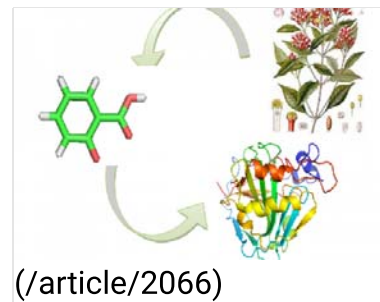
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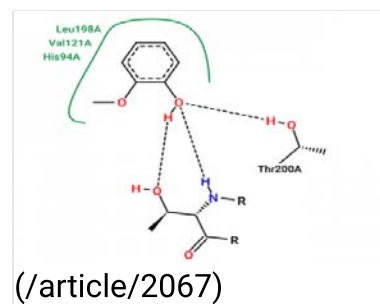
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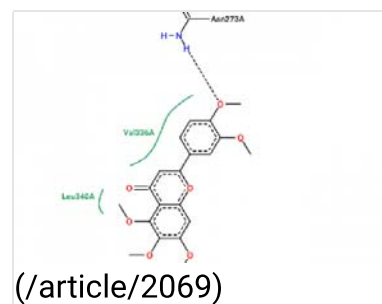
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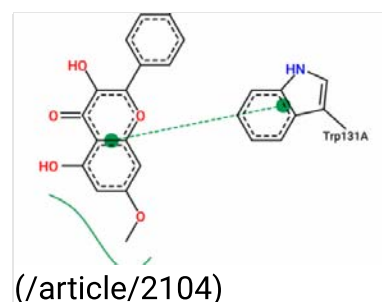
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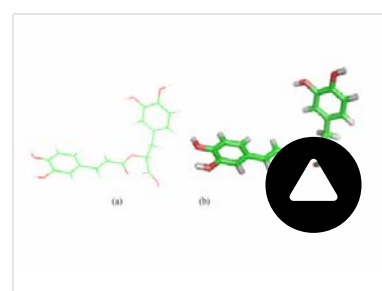
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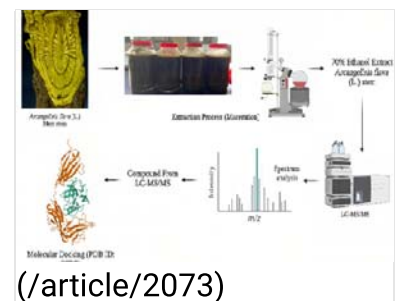
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Phytochemical Compounds Identification From 70% Ethanol Extract of Arcangelesia Flava (L.) Merr Stems Using LC-MS/MS and In-Silico Molecular Docking Approach as Inhibitor Interleukin-1 β (/article/2073)

Rizki Rahmadi Pratama,Irawati Sholikhah, ,Ram Kumar Sahu,Retno Widyowati



(/article/2073)

Pharmacognosy Journal,15(4):528-534

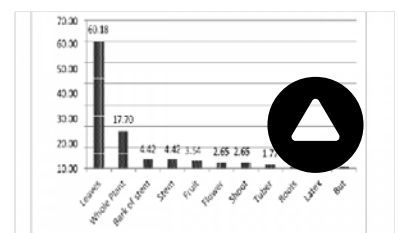
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Diversity of Types of Medicinal Plants and Local Wisdom of the Kaili Tribe in Processing Medicinal Plants Around the Forest Areas of Central Sulawesi, Indonesia (/article/2074)



Abdul Hapid,Ariyanti Ariyanti,Erniwati Erniwati,Ni Made Dharm Suena,Ketut Agus Adrianta,Karnita Yuniarti,Muthmainnah Muthmainnah

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Pharmacognosy Journal,15(4):535-540

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Aedes Sp. Mosquito Resistance and the Effectiveness of Biolarvicides on Dengue Vector Mortality (/article/2075)

Bambang Dwicahya,Arsunan Arsin,Hasanuddin Ishak,Firdaus Hamid,Anwar Mallongi



Pharmacognosy Journal,15(4):541-546

DOI: 10.5530/pj.2023.15.116

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Original Article

Analysis of Determinants of Midwife Performance in Antenatal Care Services in Allang Care Health Centers Central Maluku District (/article/2076)

Josina Hattu, ,Amran Razak,Sukri Palutturi,Anwar Mallongi,Syamsiar S. Russeng

No	Determinant	Frequency (%)	Percentage (%)
1	Age < 30 year	2	8,7
	≥ 30 year	21	91,3
2	< D3 Midwives	4	17,4
	≥ D3 Midwives	19	82,6
3	Non-permanent worker	1	4,3
	Civil servant	22	95,7
4	≤ 5 year	3	13,0
	> 5 year	20	87,0
5	Less knowledge	5	21,7
	good knowledge	18	78,3
6	Negative attitude	7	30,4
	Positive attitude	15	69,6

(/article/2076)

Pharmacognosy Journal,15(4):547-552

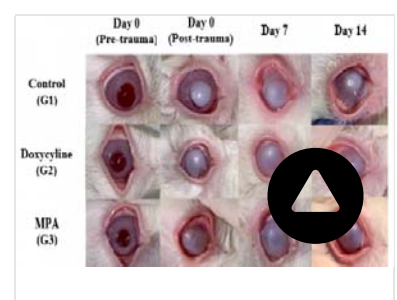
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Expressions of Matrix Metalloproteinase-3 and Tissue Inhibitor Metalloproteinase-1 in Corneal Tissue Post Alkali Burn Treated with Topical Medroxyprogesterone Acetate and Doxycycline (/article/2077)



Daya Banyu Bening, Reni Prastyani, Evelyn Komaratih, Ismi Zuhria, Hari Basuki Notobroto, Dyah Fauziah, Chrismawan Ardianto

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Pharmacognosy Journal, 15(4):553-557

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Risk Analysis of Microplastic Exposure Through Consumption of Anadara Granosa at Coastal Area [\(/article/2078\)](#)

Nurhayati Namira, Anwar Daud, Anwar Mallongi, Hasnawati Amqam, Atjo Wahyu,



Pharmacognosy Journal, 15(4):558-562

DOI: 10.5530/pj.2023.15.119

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Effect of Naphthaleneacetic Acid (NAA) and 6-Benzylamino Purine (BAP) on In-Vitro Propagation of "Mashua" (Tropaeolum tuberosum Ruiz & Pavón) Morphotypes from Peru [\(/article/2079\)](#)

Gilmar Peña-Rojas, Luz Quispe-Calle, Vidalina Andía-Ayme, Alex Pereda-Medina, Rolando Estrada Jimenez, Josefa Bertha Pari-Olarte, Elizabeth Julia Melgar-Merino, José Santiago Almeida-Galindo, Oscar Herrera-Calderon



Pharmacognosy Journal, 15(4):563-568

DOI: 10.5530/pj.2023.15.120

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The Effectiveness of the Si-DBD Application in Increasing the Number of Households in Conducting Periodic Larvae Examination at the



Health Center in Bantaeng Regency (/article/2080)

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Muhammad Firdaus, Ida Leida Maria, Andi Zulkifli, Nurhaedar Jafar, Shanti Riskiyani, Anwar Mallongi

Pharmacognosy Journal, 15(4):569-574

DOI: 10.5530/pj.2023.15.121

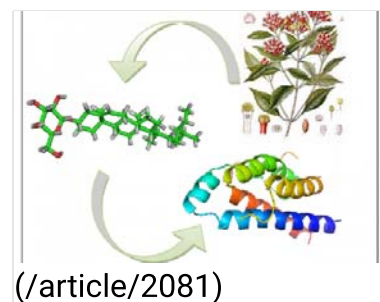
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In Silico Study on the Inhibition of Sitogluside from Clove Plant (*Syzygium aromaticum*) on Interleukin 2 in B and T Cell Proliferation (/article/2081)

Linda Rosalina, Devi Purnamasari, Rismi Verawati, Okta Suryani, Muhammad Arya Ghifari, Amalia Putri Lubis, Rahadian Zainul, Riso Sari Mandeli, Viol Dhea Kharisma, Vikash Jakhmola, Maksim Rebezov, ANM Ansori



Pharmacognosy Journal, 15(4):575-580

DOI: 10.5530/pj.2023.15.122

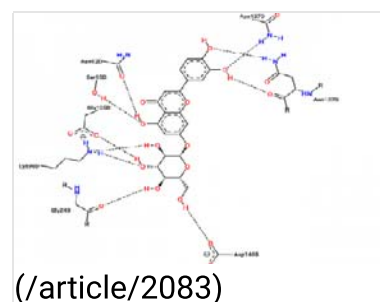
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Interaction of Cynaroside from Orthosiphon Aristatus Plant Extract on TNF Alpha as a Stimulant in Malaria and Asthma (/article/2083)

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Stimulation of Emodin from Aloe Vera on Protein Kinase PIM1 in the Central Nervous System Through In Silico Analysis (/article/2084)

Rahadian Zainul,Rismi Verawati,Ritbey Ruga,Muhammad Arya Ghifari,Devi Purnamasari,Putri Azhari,Viol Dhea Kharisma,Vikash Jakhmola,Maksim Rebezov,ANM Ansori

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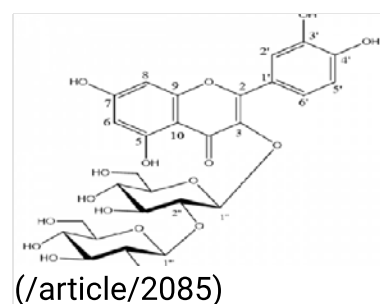
Noufou Ouédraogo,Leila Marie Esth Belem-Kabré,A.M. Emmanuel Thiombiano,Tata Kadiatou Traoré,Lazare Belemnaba,Moussa Ouédraogo,Innocent Pierre Guissou

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Sri Wahyu Ning Munthe,Riskianto Riskianto,Denny Juvi,Jessica Novia

Pharmacognosy Journal,15(4):599-605

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Published: Wed, 16-Aug-2023

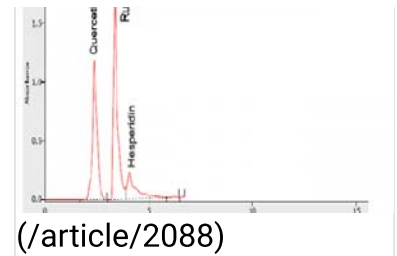
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Ali Mohammed Z. Al-Jaberi, Sabaa Ali Mohamm Al-Fadal, Thukaa Zuhair Abdul-Jalil, Haider Al-Wafi



Pharmacognosy Journal, 15(4):606-611

DOI: 10.5530/pj.2023.15.127

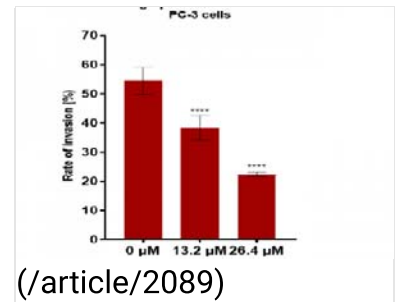
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Janany Manimaran, Daruliza Kernain Mo Azman



Pharmacognosy Journal, 15(4):612-621

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Community Empowerment with Independent Larva Monitor in Reducing the Dengue Hemorrhagic Fever Incidence, in Sidrap Regency (/article/2091)

Arsunan Arsin, Ridwan Amiruddin, Dian Saputra Marzuki, Rezki Elisafitri, Anwar Mallongi, Ahmad Yani



Pharmacognosy Journal, 15(4):622-625

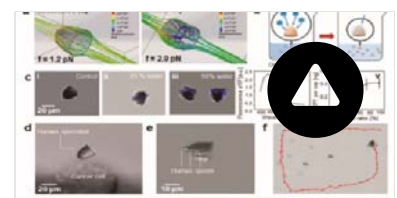
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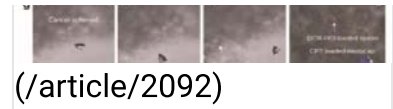
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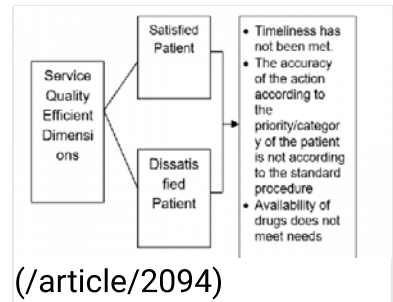
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Pharmacognosy Journal,15(4):633-640

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Sally Pobas,Balqis Nazaruddin,Sukri Palutturi, ,Syamsiar S. Russeng,Anwar Mallongi



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Pharmacognosy Journal,15(4):641-649

DOI: 10.5530/pj.2023.15.132

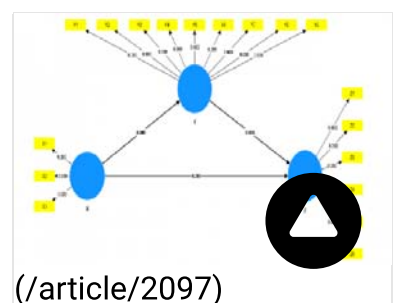
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Nurfhadila Utami Husain,Syahrir A. Pasinringi,Fridawaty



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Pharmacognosy Journal, 15(4):650-654

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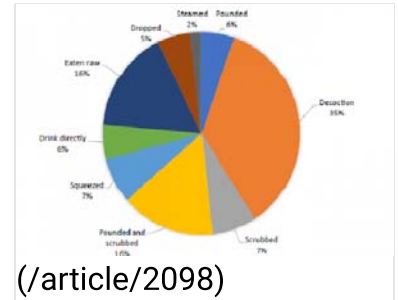
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Marisca Evalina Gondokesumo, Silmi Qurrotu Aini, Siti Rahmadani



Pharmacognosy Journal, 15(4):655-667

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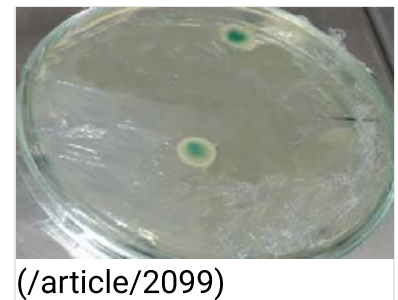
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Tatik Hernawati, Tita Damayanti Lestari, Suzanita Utama,



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