

# Similarity of Medicinal Plants Used by Two Native Communities in Sabah, Malaysia

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**Keywords:** ethnobotany, inventory, traditional knowledge, tropical rain forest

## Abstract

The similarity of medicinal plants used by two different native groups in Sabah, Malaysia namely, Kadazandusun and Murut are presented. Data was obtained from ethnobotanical studies since 1990 and also by referring previously published information. The plants used for medication were compared in terms of similarity of plant species and similarity of medicinal uses. The results show that there are 338 medicinal plants collected. At least 81 plants are being used similarly by ethnic groups and subgroups. The six most similar plant being used by both groups in terms of species and use, namely *Alstonia angustifolia* (Apocynaceae), *Blumea balsamifera* (Compositae), *Bridelia stipularis* (Euphorbiaceae), *Cassia alata* (Leguminosae), *Costus speciosus* (Costaceae) and *Ficus tinctoria* (Moraceae).

## INTRODUCTION

Sabah, formerly known as North Borneo, is located in the northern-most part of Borneo. It is one of the 13 states within Federation of Malaysia and the second largest state with a landmass of approximately 7.4 million hectares. The tropical rain forests in Sabah covers approximately 4.7 million hectares or about 60% of the total area. The climate is marine equatorial with an average temperature of 23-32°C and the annual rainfall is between 250-350 cm.

The population in Sabah as of October 2002 is 2,730,00 million. There are 35 ethnic groups living in Sabah. The population of Kadazandusun ethnic group that has 40 subgroups is 496,700 while the population of Murut ethnic group, which has four subgroups, is 89,200. The definition of Kadazandusun and Murut people adopted here is based on Tombung (1991) and King (1992).

Since time immemorial the native people of Sabah have used and modified plant material for medicine to remedy their ailments. They turn to the forest for their daily medicinal needs and as a source of income. Produce such as medicinal plants, wild vegetables and fruits are gathered and sold in the local weekly markets, or Tamu, for cash.

Farnsworth (1975) asserts that the parallel use of plants by widely separated groups constitutes evidence for rational use of the plants. Thus, the objective of this study is to compare the similarity of plant species and medicinal uses by two different ethnic groups (the Kadazandusuns and the Muruts) that live in different parts of Sabah, Malaysia.

## METHODS

Ethnobotanical study on medicinal plants in Sabah was begun in early 1991 by the Sabah Museum and followed by University Kebangsaan Malaysia, Sabah campus and the Forestry Department of Sabah in 1994.

Native ethnic groups involved in these studies are the Kadazandusuns and the Muruts. Table 1 shows the districts, villages, plant informants and ethnic groups involved in the studies.

Fieldwork was carried out by the staff of the Ethnobotany section of the Forest

Research Centre of the Forestry Department Sabah, Sandakan. Permission from the office of the District Community Development and verbal permission from the village Chief concerned were usually sought before commencing any survey in any villages. This is needed to ensure full cooperation.

Data was gathered by semi-structured interviews. The interviews were conducted in the native language and translators were used. The first part of each interview was carried out in the subject's home. The second phase was carried out outdoors. Interviewers spent at least ten days living within the community during the course of surveys. Usually after a short interview, the plant informants would take us to their backyard gardens, upland agriculture land and into the forest. According to their native Customary Law, a *Pikodou/Pinohus* or kind of compensation must be given to the plant informant(s). The compensations are normally one black hen or a knife and money per species of plant. For this survey a sum of RM20.00 (USD 5) was paid per day to the informants for their kind cooperation. Diseases and symptoms of illness are referred to Roper (1992).

Voucher specimens were deposited at the Ethnobotany office at the Forest Research Centre Sabah, Forest Department Sabah, Sandakan. Specimens that were easily identified in the field were not collected, only noted. Unidentifiable specimens were numbered and taken to the herbarium for further examination.

Previously published information on medicinal plants of Sabah, such as in Akin (2000), Guntavid (1992), Kulip (1996), Kulip et al. (1999) and Kulip (2001), were also utilized.

## RESULTS AND DISCUSSION

Then data of investigations is shown in Table 2. The results show that there are many medicinal plants collected. At least 81 plants are being used similarly between groups and subgroups. There are 68 species similarity intragroup in Kadazandusuns, 10 similarity intragroup in Muruts, 26 similarity intergroup. The six most similar plant that are being used intergroup in terms of species and use are *Alstonia angustifolia* (Apocynaceae), *Blumea blasmifera* (Compositae), *Bridelia stipularis* (Euphorbiaceae), *Cassia alata* (Leguminosae), *Costus speciosus* (Costaceae) and *Ficus tinctoria* (Moraceae).

A high diversity of medicinal plants is used by the Kadazandusuns and Muruts communities in Sabah. This is because these ethnic groups are living mostly in the interior part of Sabah, an area of great botanical diversity. This plays a significant role in the traditional healthcare system because some plants are being used as an alternative source in case of a commonly used plant is not available at the time of treatment. Commonly used medicinal plants between these two groups (inter-group) play a significant role in their daily lives. Every week there will be a tamu or a local market place where natives in Sabah can buy medicinal plants and other products. Exchange of medicinal plants products can be seen taking place at the markets.

The similarity of plant use between the geographically separate groups of the Kadazandusuns and the Murut supports the traditional use of these plants. As such, the plants that have similar uses in these two groups merit further studies to identify the acting chemical compounds of the plants.

## ACKNOWLEDGEMENT

This study was funded by the Sabah State Government through Forestry Department Research and Development Division (Vot S16 4900 002 Etnobotani Perhutanan). I am grateful to Mr. George Majawat, Mr. Baraham Buhari, Mr. Lajiman Wasai for help in collecting and curating plant material, and Mr. Leopold Madani for help in identifying specimens in the herbarium. I also would like to recognize the contributions and cooperation of local people involved this study without which this study wouldn't be materialized.

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## Tables

Table 1. District and village involved in the studies.

District	Village	Plant informant (age)	Ethnic group/subgroup
Kalabakan	Ulu Kalabakan	Mr. Mantawasa Baukom (60)	Murut Kalabakan
Keningau		Mrs. Murika Gambun (55)	Murut Keningau
Kota Marudu	Tinogu	Mrs. Randuyuk Enduk (60)	Kadazandusun Kimaragang
Kuala Penyu	Kiambur	Mr. Unci Pagang (70)	Kadazandusun Tatana
	Kiaru	Mr. Joseph Ayim (60) & Mr. Deri Parisin (55)	
Penampang	Sugud Timpango Laut	Mr. Jingtonis (56)	Kadazandusun Penampang
Pitas	Payes	Mrs. Senuginzi Lugawan (45) & Mrs. Rauzan Nongkag (40)	
Ranau	Nalumad	Mr. Giong Madilang (60)	Kadazandusun Ranau
	Giring-Giring	Mr. Sabin Gimbaran (55)	
	Gaul	Mr. Ipeng Gundaat (65)	
Nabawan/ Pensiangan	Nampason	Mr. Balunting Bondial (60)	Murut Paluan
	Melinja	Mr. Lasuan Liaw (45) & Mr. Muskin Bugar (60)	
Tambunan	Bahagia B	Mr. Kumalu (60)	Murut Paluan
	Murni 4 & 6	Mr. Lintong Eman (45)	Murut Tagal
	Sunsuron	Mr. Gundiba (50),	Kadazandusun Tambunan
Timbou	Mr. Nain (55),		
Tenom	Rompon	Mr. Tahi (56)	Murut Timugon
	Melalap	Mrs. Kasium Galawang (62)	

Table 2. Similarity of medicinal plants species used by the Kadazandusun and Murut ethnic groups in Sabah.

SUB-GROUP SPECIES	KADAZANDUSUN						MURUT					
	K	P	RA	RU	TA	TN	KA	KE	P	TA	TI	TL
<i>Acorus calamus</i>				a		b			c, d			
<i>Alphitonia incana</i>		e	s	e, f		g						
<i>Alstonia angustifolia</i>				h, i				h			h	
<i>A. angustiloba</i>		h, i		h, i		j						
<i>Amaranthus spinosus</i>			b4		k	l			m			
<i>Annona muricata</i>					c, n	o, p						
<i>Archiodendron clypearia</i> var. <i>casai</i>		a4, b7	k									
<i>A. ellipticum</i>		b7			q							
<i>Aristolochia papillifolia</i>									s	s		
<i>Baccaurea lanceolata</i>			t, u						c			
<i>Blumea balsamifera</i>				b, v, t	x, v	d			y, h,	y, h,		p, b6, v
<i>Blechnum orientale</i>				g, a	z	l						
<i>Bombax ceiba</i>					x				c5			
<i>Breynia coronata</i>		a9	v									
<i>Bridelia stipularis</i>			d		k, v						k, a1	
<i>Brucea javanica</i>				c, e,		h, c,						
<i>Callicarpa longifolia</i>					a2	c						
<i>Cassia alata</i>	b		A8,		e, s	e		e				e
<i>Centella asiatica</i>		a1, d		d, p,	n, a3							
<i>Clausena excavata</i>		b4		g, a4								t
<i>Cnetis platantha</i>			d, f,	j, x	d, y							
<i>Combretum nigrescens</i>		a			a6						t	
<i>Coix laechrzyma-jobi</i>		d, y		g, y								
<i>Cordyline fruticosa</i>				v							l	
<i>Costus speciosus</i>			d, a8	y, u,,		a8	a8			a8	c, b3	b4
<i>Curculigo latifolia</i>			e, u	a8						t	d	
<i>Cyathula prostrata</i>		g	c1								a	
<i>Dalbergia parvifolia</i>	b	s	v		v							
<i>Decaspermum</i>		p		l	d							
<i>Dillenia excelsa</i>		b3		a9								
<i>Dinochloa tricogona</i>				a7,		a7						
<i>Elephantopus scaber</i>		t	t	a8		t, a3				a9		
<i>E. tomentosus</i>		t		a8		t, a3				a9		
<i>Eleusine indica</i>		v				y			q, u			
<i>Etlingera punicea</i>			x			x						
<i>Eurycoma longifolia</i>		a8		a2, c		c						c4
<i>Fagraea cuspidata</i>		h, b3		s, a1		b3						
<i>Fibraurea chloroleuca</i>						a2					s	
<i>F. tinctoria</i>			s, a2			t			a2, n	a2, n		
<i>Ficus fulva</i>	c			t		t						
<i>F. septica</i>		d	g, v			v, g						
<i>Fissistigma fulgens</i>		x, a4	g									
<i>Flagellaria indica</i>		s									b1	
<i>Gnetum macrostachyum</i>		v, b	v									
<i>Guioa pleuropteris</i>		k, c		L, b								
<i>Hanguana malayana</i>	q		J, x									h
<i>Heliciopsis</i>			a3			b, e						
<i>Hemigraphis</i>		g				b3, b						

Table 2 (Continued). Similarity of medicinal plants species used by the Kadazandusun and Murut ethnic groups in Sabah.

SUB-GROUP SPECIES	KADAZANDUSUN						MURUT					
	K	P	RA	RU	TA	TN	KA	KE	P	TA	TI	TL
<i>Homalanthus populneus</i>	b		g,d	u,g,								
<i>Homalomena</i>				a						d		
<i>Imperata cylindrica</i>						b9,d	t					d
<i>Justicia gendarussa</i>			g	g		a3,y	c					
<i>Kalanchoe pinnata</i>				g								t
<i>Leea indica</i>			j	x,g							j	
<i>Litsea odorifera</i>			c,p	e		x,u			c,h			
<i>Macaranga gigantifolia</i>		p					k					
<i>Melastoma</i>	q	c,p	c			t						
<i>Merremia gracilis</i>		X	a8			p,s						
<i>M. peltata</i>			p,t		a9						v	
<i>Mimosa pudica</i>							c	c				
<i>Morinda citrifolia</i>			h,s		h,s							
<i>Octomeles sumatrana</i>				t,b3		u						
<i>Oroxylum indicum</i>			t	u,j		o,e					b4	
<i>Phyllanthus amarus</i>		d,p,a1	a9,p									
<i>P. urinaria</i>			a9,p			a1					a3	
<i>Piper betle</i>		e	a	l,b5								
<i>Poikilospermum</i>	x		x			x,t					v	
<i>Polyalthia insignis</i>	k	a3	k									
<i>Polygala paniculata</i>			d			h						
<i>Schefflera petiolosa</i>		e,v,a8	t									
<i>Sida rhombifolia</i>			d		d,z	e			q			
<i>Stachytarpheta</i>	p		J,q			e						
<i>Stenochlaena palustris</i>			v	e								
<i>Tetrastigma</i>			j								b3	
<i>T. leucostophyllum</i>			d			x,s					b3	
<i>Thyسانolaena maxima</i>		g				d						
<i>Tinospora crispa</i>		c3		a7,a			a2					
<i>Uncaria cordata</i>		d,j	X	g,a9								
<i>Urena lobata</i>		l			h	e					k	
<i>Uvaria grandiflora</i>			c3	s,x	c						c	
<i>Vitex pubescens</i>		w		d								

**1. Abbreviation for ethnic groups:**

**Kadazandusuns:** K = Kinaragang group, Kota Marudu district, P = Penampang group, Penampang district, RA = Ranau group, Ranau district, RU = Rungus group, Pitas district, TA = Tatana group, Kuala Penyu district, TN = Tambunan group, Tambunan district

**Muruts:** KA = Kalabakan group, Kalabakan district, KE = Keningau group, Keningau district, PA = Paluon group, Nabawan district, TA = Tagal group, Pensiangan district, TI = Timugon group, Tenom district, TL = Tangala group, Kinabatangan district

**2. Abbreviation for medicinal uses:** a. = Sting (by caterpillar, bees, etc.), b. = Tonic, c. = Stomach ache, d = Fever, e = Skin disease, f = Measels, g = Headache, h = Gastritis, i = Pus, j = Sprain/dislocation of muscle, k = Thrush, l = Flatulence, m = Epileptic seizures, n = Hypertension, o = Vomit, p = Diarrhea, q = Antidote, r = Faint, s = Yellowish body/Inflammation of pancreas, t = Wound/Cuts, u = Boneache, v = Post-Partum, w = Beri-Beri, x = Fatigue, y = Runny nose/flu, z = Abscess

a1 = Diabetis, a2 = Malaria, a3 = Cough, a4 = Toothache, a5 = Polyp, a6 = Nail, a7 = Eyesore, a8 = Asthma, a9 = Bloody stool, b1 = Paralysis/stroke, b3 = Chest pain, b4 = Swelling, b5 = Bloody nose, b6 = Laxative for constipation, b7 = Anti-dandruff, b8 = Protective, b9 = Rheumatism, c1 = Colic, c2 = Menorrhagia, c3 = Intestinal worms, c4 = Aphrodisiac, c5 = Vomit blood