

Lipang, Langkuru, Waisika Language Kinship: Lexicostatistics Study in Alor Island

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ABSTRACT---This study aims to determine the language kinship level by determining the pattern of relationships between languages depicted in the genealogy of kinship and finding the type of sound change. The focus of research on language relations in Alor regency is significant to do with sustainability knowing the genealogy of local language Austronesian or Non-Austronesian. Data is in the form of Swadesh vocabulary list. Collected using field scientific research methods direct elicitation, recording, and checking elicitation. Analyzing data was carried out by using the lexicostatistics technique using comparative historical linguistics theory. The results of the quantitative analysis with the lexicostatistics technique. The highest percentage is 68% between Lipang-Langkuru languages, Lipang-Waisika language by 55%, Langkuru-Waisika language 47%, those areas a family group of language and has a close relationship. Therefore languages are hypothesized to originate from the same ancestral language, namely ProtoLipang-Langkuru-Waisika (PLpLnWs).

Keywords---comparative historical linguistics, language grouping, language kinship.

I INTRODUCTION

Alor is located in East Nusa Tenggara Province as a regency in the northeastern part. Alor regency consists of three major islands namely Alor, Pantar, and Pura Islands. Six small islands, namely Ternate, Buaya, Nuha Kepa, Tereweng, Kura, and Kangge Island, which currently have residents. Eleven islands that are not inhabited are Kambing, Rusa, Watu Manu, Batu Bawa, Batu Ille, Batang, Lapang, Ikan Ruing, Sika, Kapas, Nubu island.

Astronomically, Alor Regency in East: 125° - 48° east longitude; West: 123° - 48° east longitude; North: 8° - 6° South latitude; South: 8° - 36° South latitude. Based on the region, the boundaries of Alor Regency East: Maluku Islands; West: Strait of Lomblen Lembata; North: Flores Sea; South: Ombay Strait and Timor Leste. Alor Regency has 17 sub-districts namely Pantar, Pantar Barat, Pantar Timur, Pantar Tengah, Pantar Barat Laut, Alor Barat Daya, Mataru, Alor Selatan, Alor Timur, Alor Timur Laut, Pureman, Teluk Mutiara, Kabola, Alor Barat Laut, Alor Tengah Utara, Lembur, Pura (Badan Pusat Statistik Kabupaten Alor, 2017).

Klamer (2017) mention several languages on Pantar island namely Deing, Blagar, Klamu, Teiwa, Kroku, Reta. In Alor island, there are Kui, Hamap, Kafoa, Wersing, Kiramang, Sawila language. Nitbani (2001) mentions thirteen languages found in Alor Regency. The thirteen languages are Alor/Merica/Baranusa/Pandai, Lamma, Tewa/Deing, Nedebang, Pura/Blagar, Kabola/Hamap, Kafoa, Kelon, Abui, Waisiki, Kui/Kiramau, Kolana/Wersin, Buton/Bajo/Bugis. Adhiti (2015) mentions 18 languages in Alor regency namely Alores/Alurung,

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Kabola/Adang, Abui/A'fui, Hamap, Klon, Kui, Kafoa, Pane, Kamang, Kailesa, Wersin/Kula/Wersina, Tanglapui/Sawila, Blagar/Pura, Retta, Taiwa, Nedebang Bitang/Kalamu, Deing/Diang, Lamma.

Language studies in East Nusa Tenggara and eastern Indonesia have not been fully completed even though language grouping has been carried out, both by Western and Indonesian researcher. Some research referred above includes the work of Collins (1983), Fernandez (1988), La Ino (2013), Adhiti (2015). Collins (1983) revealed the history of related languages in Maluku, Fernandez revealed about proto Flores reconstruction, La Ino research on proto-language Modebur, Kaera, Teiwa, and Adhiti research on Kabola, Hamap and Klon language kinship.

The results of research on the grouping of related languages in Eastern Indonesia including languages in East Nusa Tenggara that have been carried out by experts namely Esser (1938) based on research that groups Polynesian Malay (Austronesian) in Indonesia into 17 groups, one of the group is Sumba language as Bima-Sumba sub-group. Dyen (1965) based on quantitative data grouping Sumba language into Eastern Indonesian. Fox (1983) says that research on languages in East Nusa Tenggara that are existing is still temporary (still on the surface). According to Fox (1983), many things have not revealed about languages in East Nusa Tenggara. In East Nusa Tenggara non-Austronesian languages are found in Timor, Alor, Pantar and Kisar in the Lesser Islands of Sunda and Halmahera in the north of Maluccas. A non-Austronesian language found near the western end of Sumbawa in the Lesser Sunda until the first ten years of the nineteenth century (Blust, 2013; Chemmel & Phillippe, 2018).

Alor is the last group of islands on the east of Solor-Alor Islands. The distance is about 65 kilometres from Timor Island. Timor-Timur (Timor Leste) can be seen from the coast of Kolana, Alor Timur. The most inhabited island is Alor, followed by Pantar, Pura, Ternate, Tereweng, Buaya, Kangge, Kepa. Badan Pusat Statistik Kabupaten Alor (2017) states that 190,026 people are living in Alor. The population is 66.30% Christian; the rest is Islam 30.38%, Catholic 3.23%, Hindu / Buddhist 0.074%. Nonetheless, the original beliefs and traditional traditions are still so strongly hold.

One of the researchers who discussed the relationship of languages on Alor Island was La Ino (2013) with a study titled Proto-language Modebur, Kaera, and Teiwa of non-Austronesian in Pantar Island, East Nusa Tenggara. Based on quantitative evidence in this study, Austronesian and non-Austronesian language groups were found which included non-Austronesian groups, namely Modebur, Kaera and Teiwa languages, obtained quantitative evidence relating to the relationship between the average of 56% and lower levels of 71%, qualitative evidence found is phonological innovation and exclusive lexical.

La Ino (2013) and Adhiti (2015) indicates that there is still a lack of language research in Alor Regency. Badan Pusat Statistik Kabupaten Alor (2017) Mentioning Alor Regency consists of inhabited islands and uninhabited islands. The inhabited island consists of large islands and small islands with a total of nine islands. The big island including Alor, Pantar, Pura. Small islands including Ternate, Buaya, Nuha Kepa, Tereweng, Kura, Kangge. The uninhabited island consists of eleven islands including Kambing, Rusa, Watu Manu, Batu Bawa, Batu Ille, Batang, Lapang, Ikan Ruing, Sika, Kapas, Nubu. Based phenomenon above, the author interested in examining three languages, namely the language of Lipang, the language of Langkuru, and the

language of Waisika to reconstruct the proto-language of Lipang, Langkuru, and Waisika. The three languages located on the island of Alor. Lipang language located in the Alor Timur Laut sub-district. Langkuru language is located in Pureman sub-district. The Waisika language is located in Alor Timur Laut sub-district. Until now no one has researched these three languages as scientific papers.

Nothofer (1975) in general, Comparative Linguistics research uses a comparative method, in addition to utilising quantitative data which is also strengthened by qualitative data. Language kinship is deemed necessary to carry out proto-language reconstruction using top-down approach to check the evidence of retention and innovation that occurs in the languages on the proto on it and recheck it by doing the steps bottom-up reconstruction to trace the form of the early stages of these languages. The compilation and classification of kinship languages on the island of Alor are important to know the kinship rank so that the languages studied are analysed based on comparative cognates. Through the lexicostatistics technique that will determine the lineage of Lipang, Langkuru, and Waisika language kindship.

Related to efforts to foster and develop language in the East Nusa Tenggara region, especially in Alor Regency, it is necessary to conduct in-depth research on the language phenomena. Based on data from research experts who conducted grouping and data collection on the number of languages in Alor district, they still did not agree, and the results also differed from one to the other (Sunarti, 2018). This phenomenon involves the collection of genetic language groupings so that the search for languages, patterns of sound changes in the languages of Lipang, Langkuru, and Waisika and proto-phonemes reflections of Proto-Austronesian (PAN) towards three languages studied can contribute to the Language Development and another researcher around the world. The average Alor has about 90% of the Papuan genetic and 10% of the Austronesian genetic. It shows that there are traces of ancient renewal in the population formation of Alor (Sunarti, 2018; Latupeirissa, 2019). Based on this description, the grouping of phonological and lexical linguistic features of languages in East Nusa Tenggara, especially the reconstruction of the languages of Lipang, Langkuru, and Waisika are both quantitative and qualitative seems very important to be studied. It must be done immediately and finding language kinship of those languages. Eventually, languages in Alor entirely successful in reconstruction and could be scientifically accountable.

Objectives of this study can be formulated into (a) determining the status of the language and its kinship. (b) providing insight into local languages in Alor regency and comparative history can open opportunities for other researchers to explore research on other languages in East Nusa Tenggara. (c) findings as the preservation of language and culture with its variety. (d) supplementary information about international cultural diversity. Benefits of this research (a) enriching the data and facts of linguistic kinship in the Comparative Historical Linguistic Study. (b) mapping languages data in the archipelago as history and language relations. (c) facilitating the teaching languages outside of Lipang, Langkuru, Waisika in the phonological and lexical differences of the language. (d) contribute to the government's efforts in mapping regional languages in East Nusa Tenggara.

II LITERATURE REVIEW

Comparative historical linguistics conducted by Mbeté (1990), Syamsuddin (1996), Fernandez (1996), Mandala (1999), Budasi (2007), Mandala (2010), La Ino (2013), Adhiti (2015). But only the research of La Ino (2013) and Adhiti (2015) discussed the aspects of language in the Alor regency.

Mbeté (1990) wrote about "Bali-Sasak-Sumbawa Proto-language Reconstruction". The average of three languages, the percentage of similarity is 50%. This percentage is higher than the Javanese and Madura languages which are 41%, Bima and the Manggarai language is only 31%. In the bottom level, Sasak and Sumbawa languages reached 64%. The group dividing innovation in the form losing first consonant (K1) in the consonant series in the middle of the word, nasal assimilation, and changes *R> r in Sasak and Sumbawa languages. In Balinese *R>Ø/#-; *R>Ø/V-V; *R>h/#-. Also found 31 innovative words in Sasak and Sumbawa languages. The findings found that Balinese, Sasak, Sumbawa languages are a separate group that has a close kinship.

Syamsuddin (1996) wrote about "Bima-Sumba language group" in West Nusa Tenggara Province. Quantitative approach used lexicostatistics techniques and glottochronology in finding the percentage of kinship and the split periods of languages. Qualitative found 1755 Sumba proto-language. The theory used is a historical comparative theory with a comparative method. Languages including the Bima-Sumba group are Bima (BM), Komodo (KM), Manggarai (MG), Ngada (Ng), Lio (Li), Sumba (SB), and Sawu (language) languages. SW
Fernandez (1996) wrote about "The Historical Kindship of Flores Language (Historical Comparative Linguistic Study of Nine Languages in Flores)". Quantitative evidence through the lexicostatistical approach found the percentage of cognate at 61.5%. The percentage with the surrounding languages averages 20.5%. Through qualitative evidence with bottom-up approach and top-down approach found innovation together phonologically.

Mandala (1999), conducted research entitled "Genetic Grouping of Karui (K), Waimoa (W), and Nautei (N) in East Timor". The average vocabulary of Swadesh found an average percentage of 56% and the lower level reached 61% based on the lexicostatistics technique. Those languages as non-Austronesian languages. Consist of *i, *u, *e, *o, *a which can be fully distributed, while consist *b, *t, *th3, *d, *D4, *k, *ğ, *g, *G5, *ʔ, *m, *n, *l, *r, *R6, *s, *h, *w which can be distributed at the beginning and in the middle of the word. The reflection of Proto-Austronesian phonemes is evident in Proto-KWN, so the language is used as the Austronesian language.

Budasi (2007) study about "The relationship of Sumba languages: A Comparative Historical Linguistic Study". This research was carried out on the island of Sumba about Kodi, Weweha, Laboya, Kambara, Mamboro, Wanokaka, and Anakalang languages. Results of the research prove the seven languages are closely related. Quantitatively, the relation between them is 58%. Mandala (2010) researched Kisar Island in Southeast Maluku and Timor Leste about the phonological study of Oirata language and its kinship with non-Austronesian languages in Timor Leste. Oirata is closer to Fataluku. Oirata language has been proven to have diachronic phonological evolution. La Ino (2013) study "Proto-language Modebur, Kaera, and Teiwa of Non-Austronesian in Pantar Island, East Nusa Tenggara". The average of quantitative evidence is 56%, and the lower level reached 71%. It found with innovative vocabularies, both in the Modebur-Kaera-Teiwa language group and the Modebur-Kaera language subgroup.

Adhiti (2015) study "Kabola, Hamap, and Klon kinship language in Alor Island". Kabola and Hamap found highly 53%. Hamap and Klon reach 46%. Furthermore, Kabola and Klon reach 36%, which is the lowest percentage. Other research by Historical Comparative Linguistics are Nothofer (1975) Reconstruction of Proto Melayo-Javanic; Sneddon (1978) Phonological Reconstruction Proto-Minahasan; Adelaar (1981) Phonological Reconstruction of Proto Batak; Adelaar (1985) Reconstruction of the Proto-phonology of Malayic; Adelaar (1994) Reconstruction of Phonological Ancient Malayic Language; and Usup (1986) Proto-language Reconstruction of Gorontalo-Mongondow.

Based on the literature review above, it has similarities and differences in this study. Research conducted by Mbete, Syamsuddin, Fernandez, Mandala, Budasi, La Ino, Adhiti, Nothofer, Sneddon, Adelaar, and Usup are both historical comparative linguistics studies. Whereas, Esser geographically categorises Malay-Polynesian languages which are still related to the object of this research. The analysis using quantitative and qualitative techniques. The difference in the object of research and analysis. The study examined the pattern of change using the structural phonological approach, whereas, in this study, the pattern of sound change was analysed with the current approach using the generative phonological. Generative Phonological Theory according to King (1969) there are three main types of change, namely (a) rule addition, (b) rule loss, and (c) rule reordering. In this study the generative question about linguistic change which is changes accompanied by the appearance or loss of sound. Schane (1992) argues phonological changes expressed in a formal notation that is suitable to be used in expressing the types of processes that occur in phonology, namely (a) character rules, (b) obstruction and insertion rules, (c) permutation rules, (d) combinations and variable rules.

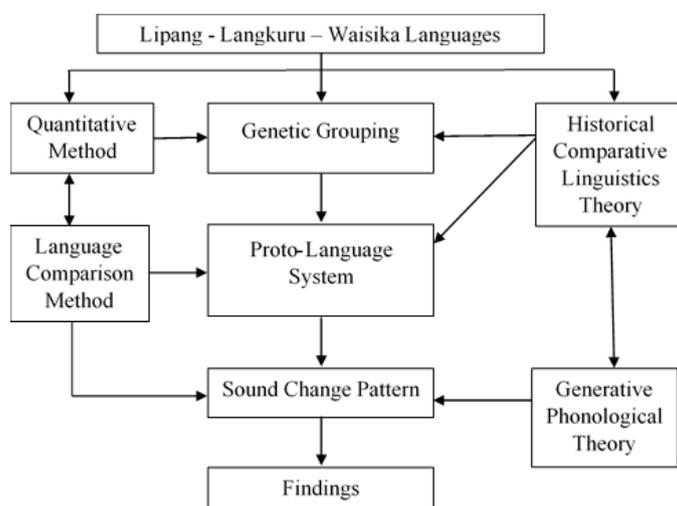


Figure 1: The research model or the way of work in this study uses several stages

Lipang, Langkuru, Waisika languages are the source of data from this study. Research data includes 200 Swadesh word list. There are three main problems in this study, namely genetic grouping and Proto-Language System. The two formulations of the problem were analysed using comparative linguistic theory to answer the formulation of the first and second problems. To solve the problem in genetic grouping also supported by generative phonology theory. Quantitative method is used to find answers to the genetic grouping problem.

Language comparison method is applied to find answers to the proto-language system problem so that the purpose of this research can be achieved with several findings on the problem statement.

III METHODS

The methods used to apply this research aligned with the theoretical framework used in historical-comparative linguistics studies. This research used quantitative method. The method is used to classify the island of Alor relationships and find out the ranking of the kinship. Quantitative language kinship data facilitates the steps in conducting qualitative research.

Language kinship can be divided into two groups, namely language which is in one group (group unifier) and languages outside the group (group separator). The language data collected in the field is designed quantitatively, getting from the bottom-up technique or through top-down technique. The technique of producing from the bottom-up will produce proto-language by data collected from the field through the validation process generative phonological theory and historical comparative linguistics theory. The top-down technique to examine the representation of results based on the level of subgrouping from evidence through bottom-up determination. Both in the form of unifying evidence and exclusive group dividing evidence in exclusively shares innovations obtained from studies from the bottom-up after being equipped with complete evidence provided from top-bottom. It can provide significant evidence for the grouping of languages in the Alor archipelago.

In this study the location determined by the relic, its mobility is low, and the area of its language usage is very diverse, the conditions for determining location are taken from the opinion of Mahsun (2011). The regional government is in Kalabahi, the only city in the Alor Islands. All major commercial and administrative activities are taking place in Kalabahi. In 2017 11,109 families were living in Kalabahi and its surroundings, Alor Regency consists of 17 Districts and 175 villages (Badan Pusat Statistik Kabupaten Alor, 2017). Research data divided into two types, namely primary data and secondary data. Primary data in the form of oral data are taken from research. This research conducted on the languages of Lipang, Langkuru and Waisika. From each group of speakers that were taken as sample informants. Every informant who will be chosen must be fulfilled and determined by Samarin (1967). The method used is the sampling method, which is not all people who speak mother tongue from the languages studied are used as informants. Technique used is purposive sampling technique.

The number of informants in each language is referring to Djajasudarma (1993). The number of informants is different from the choice of the information itself and the phenomenon of the desired language. If the selection of informants is right on a subject, it can reveal all linguistic phenomena with all aspects and is considered adequate. Other information does not need to be tracked through other informants. All three informants will be able to represent all users of each language, one person as the main informant and two people as the secondary informants (Djajasudarma, 1993). Important to control the correctness of the data provided by the main informants because it is possible that the information provided by the main informant is merely pleasing to the researcher. In the selection of informants, researchers avoid informants who are patronising (Djajasudarma, 1993; Brandberg & Amzel, 2017).

In the selection of informants must meet the requirements for selection and determination of further research informants regarding the coverage of opinions expressed by Samarin (1967), namely: 1) native speakers, 2) minimum 25-year-old, 3) smart, 4) not too long leaving his place of residence, 5) physically and mentally healthy and communicative, 6) have sufficient time, 7) patience, open-minded, friendly and not emotional 8) having normal organ of speech, 9) having strong memory, not shy, talkative, 10) having pride in their own local language and agriculture. Informants will have their character and literacy. Character is influenced by factors such as architectural feature, materials and traditions, relationship of buildings to landscape, history and economy (Musaab, Shuhana, & Nahith, 2018; Smith *et al.*, 2018). A person's literacy was socially situated as they were controlled by factors such as history, time, space, and the culture where it was acquired (Pakimathan & Kepol, 2018).

The number of Lipang language informants, Langkuru and Waisika language each used three informants. One informant as the key informant in each language. The informants represented three age groups, ages 50-60 years old, ages 30-40 years old, and ages 20-25 years old. Informants who are selected are following existing requirements to obtain valid data. The cognitive component also an important part in deciding informants. The cognitive component is represented by the awareness of belonging to a nation, representations about people, state, its history, merits and defeats, cultural traditions, and symbols (Maximova, Omelchenko, & Noyanzina, 2018).

The research instrument consisted of word list of 200 basic Swadesh vocabulary words. The selection of Swadesh vocabulary list based on a prescribed list of words that approved for local language research. Besides the four vocabulary lists, a recorder is also used to record the speech of each informant. The instrument in the form of a recording device is needed to facilitate re-checking of data that has been collected when the researcher returns from field studies. In collecting data used field methods by (Ayatrohaedi, 1979). The researcher immediately goes through the field to obtain data. The method that is considered to be a higher degree of knowledge. Researchers also can directly ask for things that are considered important (Ayatrohaedi, 1979).

In the data collection method used is the field linguistic research method proposed by Mithun (2001), namely (1) direct elicitation method, (2) recording method, and (3) elicitation checking method. Mithun explained that the direct elicitation method was the primary method in field linguistic research. This method works by collecting language data which begins with preparing a list of questions. In this case, in the form of a Swadesh vocabulary list. The second method is the recording method. This method works by recording speech related to the research using a recording tool. This method can be carried out as much as possible so that speeches will be carried out on daily conversations naturally. There will be a variety of conversations. The third method is the elicitation check method. This type of method is used to check some phonemes that are still in doubt. The researcher makes some similarities sound, so that accurate information obtained.

A comparative method is applied to the research data in the data analysis stage proposed by Blust (1974). The comparative method is the method of work that identifies and codifies the similarities between the languages that are studied. The application of this method is using lexicostatistics techniques. This study is supported by the method of syncomparative analysis and comparative (Lass, 1969; Vowel *et al.*, 2017). Sinkomparative methods

are applied before using a comparative method with the intention of analysing kinship language data that is being studied in syncomparative. The lexicostatistic technique is a technique in classifying languages by prioritising the recording of words (lexicons) statistically by using research instruments in the form of a list of 200 Swadesh vocabulary words. Furthermore, the researchers will determine the grouping of the languages Lipang, Langkuru, and Waisika based on quantitative data in the form of a percentage of similarities and differences in a language with other languages which are studied. With this technique, the percentage of cognates of each language will be obtained (Crowley, 1987; Woods, 2018). This study uses historical comparative linguistic theory as a theoretical framework — this theory developed by Lehman (1973), Hock (1988), Bynon (1979). The level of kinship relationships can be known by using the lexicostatistics calculation as follows.

$$H = \frac{J}{G} \times 100 \%$$

- J : number of cognates words
G : number of words compared
H : kinship percentage

Table 1: Different levels of subgrouping are given specific names by lexicostatistic Crowley (1992)

Level of subgrouping	Shared cognate percentage in core vocabulary
dialects of a language	81-100
language of family	36-81
families of a stock	12-36
stocks of a microphylum	4-12
microphyla of a mesophylum	1-4
mesophyla of a macrophylum	0-1

Based on the table above, the calculation of Lexicostatistics of the level of subgrouping between 81%-100% is a dialect of a language. The percentage 36%-81% is language of family, and if the percentage of 12%-36%, then the language is families of a stock. The percentage of 4%-12% the language is stocks of a microphylum, if the percentage 1%-4% is microphyla of a mesophylum, and if the percentage 0%-1%, the language is mesophyla of a macrophylum.

IV RESULT AND DISCUSSIONS

Before the lexicostatistic calculation of Lipang, Langkuru and Waisika language. The cognate numbers in each area in that languages need to be done. Calculation of cognate number between languages in Alor regency. Following the procedure proposed by Keraf (1996). Kinship Analysis Lipang, Langkuru, and Waisika Language quantitatively. The results of the lexicostatistic calculation based on Swadesh vocabulary list Blust revision

prove the language of Lipang (Lp), Langkuru (Ln), and Waisika (Ws) in one line of kinship. Therefore, obtained evidence of the main vocabulary between Lipang (Lp), Langkuru (Ln), and Waisika (Ws) languages.

Data of Lipang, Langkuru and Waisika languages in the form Swadesh word list. The basic words are compared to other languages. Lipang (Lp), Langkuru (Ln), and Waisika (Ws) languages are three kinship languages which are closely related if compared to other languages outside the sub-group. Quantitative analysis carried out with lexicostatistics in applying kinship between the languages which are compared in this study. This stage regulates the percentage of kinship between languages subgroups of languages in Alor regency. Before calculating languages in Alor regency by lexicostatistics, the number of cognates in each observation area in that language, needs to be done. By following the procedure proposed by Keraf (1996). The number of cognates calculated can be seen in the following Table 2.

Table 2: Calculation of cognates languages in Alor Regency.

No	Glos	1:2	1:3	2:3	3:6	4:5	1:6	2:6	2:5	2:4	3:4	4:6	1:5	1:4	3:5	5:6
1	ashes	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
2	water	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+
3	root	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
4	child (young)	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
5	wind (breeze)	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
6	dog	-	-	+	-	+	-	-	+	-	-	-	-	-	+	-
7	what	+	+	+	-	-	-	-	-	-	-	+	-	-	-	-
8	fire	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-
9	smoke	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	roof	+	+	+	-	-	-	-	-	-	-	-	-	-	+	-
11	cloud	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
12	chicken	+	+	+	-	-	-	+	-	-	-	-	-	-	-	-
13	how	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	shoulder	+	-	-	+	-	-	-	+	-	-	-	-	-	-	-
15	good	+	-	-	-	-	-	+	-	-	-	+	-	-	-	-
16	father	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
17	new	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-
18	wet	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	stick (of wood)	+	-	-	-	-	+	+	-	-	-	-	-	-	-	-
20	stone	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
21	work	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	to turn (veer)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	right (correct)	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	to swell	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	heavy	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-

26	to lie (on side)	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-
27	to hunt	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-
28	to stand	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
29	to swim	+	+	+	+	-	+	+	-	-	-	-	-	-	-	-
30	to walk	+	-	+	-	+	-	-	-	-	-	-	-	-	-	-
31	to speak	-	+	-	+	-	+	-	-	-	-	-	-	-	-	-
32	to dream	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-
33	to breathe	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
34	to think	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
35	grow	+	+	+	+	-	+	+	-	-	-	-	-	-	-	-
36	big	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
37	star	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
38	fruit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	moon	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
40	feather	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
41	flower	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
42	bird	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
43	rotten	+	-	+	-	-	-	+	-	-	-	-	-	-	-	-
44	worm	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
45	meat (flesh)	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	and	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
47	lake	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	blood	+	+	+	+	+	+	-	+	+	+	-	+	+	+	-
49	to come	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
50	leaf	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	dust	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
52	near	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-
53	at	-	-	+	-	-	-	-	-	+	+	+	-	-	-	-
54	above	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
55	below	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-
56	inside	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
57	where	+	+	+	-	-	-	-	-	-	+	-	-	-	-	-
58	he	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59	cold (weather)	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60	two	+	+	+	-	-	+	+	-	-	-	-	-	-	-	-
61	to sit	+	+	+	-	+	-	-	+	-	-	-	-	-	+	-
62	tail	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+
63	four	+		+	-	-	-	-	-	-	-	-	-	-	-	-

64	salt	+	+	+	+	-	+	+	-	-	-	-	-	-	-	-
65	tooth	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
66	thunder	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
67	day	+	+	+	+	-	+	+	-	-	-	-	-	-	-	-
68	heart	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-
69	nose	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
70	live	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
71	green	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
72	black	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
73	to count	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	to rain	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
75	woods	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
76	mother	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-
77	fish	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-
78	this	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
79	wife	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-
80	that	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
81	bad	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
82	road	+	+	+	-	+	-	-	-	-	-	-	-	-	-	-
83	needle	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
84	to fall (drop)	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
85	far	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-
86	if	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
87	fog	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
88	foot	+	+	+	+	-	-	+	-	-	-	-	-	-	-	-
89	we	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-
90	thou (you)	+	-	-	-	-	+	+	-	+	-	-	-	-	-	-
91	right (direction)	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
92	when	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
93	wood	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94	small	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
95	head	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
96	dry (substance)	+	+	+	-	+	-	-	-	-	-	-	-	-	-	-
97	flash	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
98	left (direction)	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
99	dirty	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
100	skin (of person)	-	-	+	+	+	-	-	+	-	+	-	-	-	+	+
101	yellow	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-

102	louse	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
103	spider	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
104	other	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
105	man (male)	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
106	sky	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107	sea (ocean)	+	+	+	-	+	-	-	+	+	+	+	+	+	-	-
108	wide	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
109	neck	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
110	fat (substance)	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
111	tongue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
112	to eat	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
113	night	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
114	shy	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-
115	eye	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
116	die	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
117	to throw	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
118	to see	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
119	to spit	+	-	+	-	-	+	-	-	-	-	-	-	-	-	-
120	cook	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
121	to burn	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
122	defend	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
123	buy	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
124	open	--	+	-	-	-	-	-	-	-	-	-	-	-	-	-
125	to kill	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
126	hold (in hand)	+	+	+	+	-	-	+	-	-	-	-	-	-	-	-
127	to squeeze	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
128	choose	--	+	+	+	-	-	-	-	-	-	-	-	-	-	-
129	to cut (with knife)	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
130	to hit	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
131	plant	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
132	cry	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-
133	kiss	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-
134	steal	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-
135	to hear	+	+	+	+	-	+	+	-	-	-	-	-	-	-	-
136	shoot	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
137	to flow	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
138	knock on	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-
139	to dig	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-

140	scratch (itch)	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
141	to bite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
142	bind	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
143	to suck	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
144	yawn	+	+	+	+	-	-	+	-	-	-	-	-	-	-	-
145	chew	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
146	to stab	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
147	to blow (wind)	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
148	to sew	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
149	red	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
150	they	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
151	to drink	+	+	+	-	-	+	-	-	-	-	-	-	-	-	-
152	mouth	+	+	-	-	+	-	-	+	-	-	-	+	-	-	-
153	to vomit	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
154	go up	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
155	name	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
156	mosquito	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
157	person	+	+	-	-	+	-	-	+	+	-	-	+	-	-	-
158	warm (weather)	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
159	long	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-
160	sand	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
161	short	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-
162	woman	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
163	belly	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
164	back	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
165	white	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
166	hair	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
167	house	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
168	grass	+	+	+	+	-	+	+	-	-	-	-	-	-	-	-
169	ill	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-
170	one	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-
171	I	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-
172	wing	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
173	hide	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-
174	narrow	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
175	all	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
176	who	+	+	+	-	-	-	-	-	+	+	+	-	+	-	-
177	husband	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-

178	milk	+	+	+	-	-	+	-	-	+	-	-	-	-	-	-
179	know	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
180	year	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-
181	sharp (knife)	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
182	to fear	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
183	rope	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-
184	earth (soil)	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
185	hand	+	+	+	-	+	-	-	-	-	-	+	-	-	-	-
186	thick	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
187	ear	-	+	+	-	-	-	-	-	-	+	-	-	-	-	-
188	egg	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
189	to fly	+	+	+	-	+	-	-	-	-	-	-	-	-	-	-
190	to laugh	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
191	not	+	+	+	-	-	+	+	-	+	+	-	-	+	-	-
192	to sleep	+	-	-	-	+	-	-	+	+	-	+	-	+	-	-
193	three	+	+	+	-	+	-	-	+	+	+	-	-	+	+	-
194	rat	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-
195	thin	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-
196	old	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-
197	bone	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
198	dull (knife)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
199	snake	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-
200	intestine	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
Total Cognate		136	110	94	33	24	21	19	12	10	10	9	7	7	6	3

Information

1 = Lipang (Lp)

2 = Langkuru (Ln)

3 = Waisika (Ws)

4 = Kui (Ki)

5 = Kafoa (Kf)

6 = Kamang (Km)

+ = cognate

- = not cognate

Calculation of cognates languages in Alor Regency is obtained based on the supplementary data. By following the procedure calculating the number of words related to lexicostatistics, data obtained that between Lp-Ln has 136 words of kinship. Lp-Ws has 110 words of kinship. Ln-Ws has 94 words of kinship. Ws-Km has 33 words of kinship. Ki-Kf has 24 words of kinship. Lp-Km has 21 words of kinship. Ln-Km has 19 words of kinship. Ln-Kf has 12 words of kinship. Ln-Ki has 10 words of kinship. Ws-Ki has 10 words of kinship. Ki-Km
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has 9 words of kinship. Lp-Kf has 7 words of kinship. Lp-Ki has 7 words of kinship. Ws-Kf has 6 words of kinship. Kf-Km has 3 words of kinship. After calculating the number of cognates, the analysis continued with the calculation of lexicostatistics. The results obtained are as follows.

1. Lipang-Langkuru
$$\frac{136}{200} \times 100 \% = 68\%$$
2. Lipang-Waisika
$$\frac{110}{200} \times 100 \% = 55\%$$
3. Langkuru-Waisika
$$\frac{94}{200} \times 100 \% = 47\%$$
4. Waisika-Kamang
$$\frac{33}{200} \times 100 \% = 16,5\%$$
5. Kui-Kafoa
$$\frac{24}{200} \times 100 \% = 12\%$$
6. Lipang-Kamang
$$\frac{21}{200} \times 100 \% = 10,5\%$$
7. Langkuru-Kamang
$$\frac{19}{200} \times 100 \% = 9,5\%$$
8. Langkuru-Kafoa
$$\frac{12}{200} \times 100 \% = 6\%$$
9. Langkuru-Kui
$$\frac{10}{200} \times 100 \% = 5\%$$
10. Waisika-Kui
$$\frac{10}{200} \times 100 \% = 5\%$$
11. Kui-Kamang
$$\frac{9}{200} \times 100 \% = 4,5\%$$
12. Lipang-Kafoa
$$\frac{7}{200} \times 100 \% = 3,5\%$$
13. Lipang-Kui
$$\frac{7}{200} \times 100 \% = 3,5\%$$
14. Waisika-Kafoa

$$\frac{6}{200} \times 100\% = 3\%$$

15. Kafoa-Kamang

$$\frac{3}{200} \times 100\% = 1,5\%$$

Table 3: Percentage of cognate languages in Alor regency based on total Lexicostatistics 200 Swadesh wordlist.

Lipang						
Langkuru	68%					
Waisika	55%	47%				
Kui	3,5%	5%	5%			
Kafoa	3,5%	6%	3%	12%		
Kamang	10,5%	9,5%	16,5%	4,5%	1,5%	
	Li	La	Wa	Ku	Kaf	Kam

V CONCLUSION

Results of the lexicostatistic calculation showed that the language of Lipang, Langkuru, Waisika had a very close relationship, which it is in the language of family. Indicated by the percentage of overall calculation of the Lp-Ln-Ws language is between 36%-81%. Waisika, Kamang, Kui, Kafoa languages are between 12%-36% namely families of a stock. Lipang, Langkuru, Kamang, Kafoa, Kui, Waisika are between 4%-12%, namely stocks of a microphylum. The languages of Lipang, Kafoa, Kui, Waisika, Kamang are between 1% -4%, namely microphyla of a mesophylum.

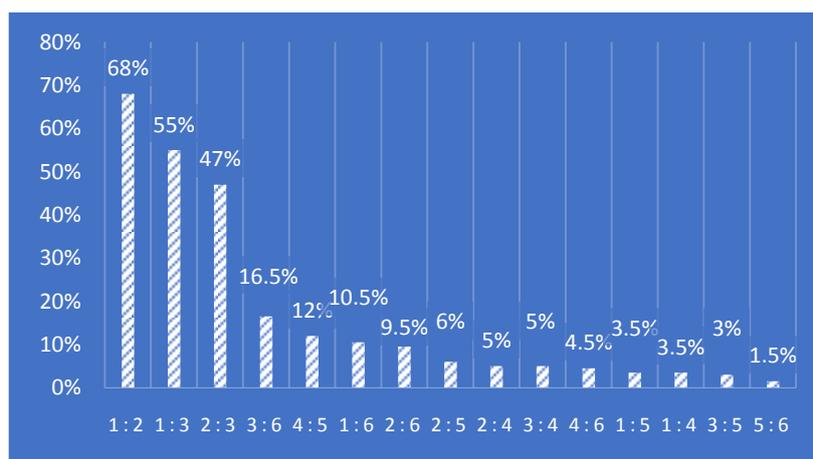


Figure 2: Graph of kinship languages in Alor Regency

From the results of the percentage of kinship between languages. It can be seen that the language of Lipang, Langkuru, Waisika is in the language of family. Based on figure 2, it can be concluded that the closeness of Lipang language, Langkuru, Waisika is very high Lp-Ln (68%); Lp-Ws (55%); Ln-Ws (47%). The language

closest to the farthest with these three languages is the language of Ws-Km (16,5%); Ki-Kf (12%); Lp-Km (10,5%); Ln-Km (9,5%); Ln-Kf (6%); Ln-Ki (5%); Ws-Ki (5%); Ki-Km (4,5%); Lp-Kf (3,5%); Lp-Ki (3,5%); Ws-Kf (3%); Kf-Km (1,5%).

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