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Classification of Tuber Plants in Sasak Language

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***Abstract*—This study aims to (1) identify and inventory the lexicon and (2) describe the ethnobotany classification and nomenclature system. The identification and inventory of lexicons are intended to determine the shape and number of lexicons of tubers in the Sasak language. The description of the ethnobotany classification and nomenclature system of tubers is intended to find out the ethnoscience of Sasak speakers in that domain. For this purpose, the taxonomic classification and ethnobiology nomenclature theory used developed by Berlin et al. (1973) and Berlin (1992). Meanwhile, data collection in this study was conducted by participatory observation and in-depth interviews. In addition, intuitively introspective, linguistic data that has been collected is reconstructed and classified so that it becomes an adequate data type, of course by triangulating sources/data. These data are analyzed using the componential analysis method. The results of this study indicate that the lexicons of tubers in the Sasak language at the level of generic taxa are numerous, whereas there are not many at specific taxa and varietal taxa. This correlates strongly with the important role (certain taxa) in the lives of the Sasak-speaking people. From a theoretical perspective, there is a discrepancy between the general rules of ethnobiological nomenclature (which was submitted by Berlin et al., 1973) and the data, which is related to labeling taxa varietal with secondary lexemes whose superordinate category is labeled with primary lexemes.**

***Keywords*—classification; nomenclature; tubers; Sasak language**

I. INTRODUCTION

The ethnobotany study has grown rapidly nowadays. The focus of this study is to examine human and plant relations.[1] In the context of social sciences and humanities, ethnobotany is related to anthropology, linguistics, psychology, economics, philosophy, and others. The aim is to understand the position and role of humans on this earth. In addition, ethnobotany also aims to determine cultural diversity and biological diversity.

The definitions are given by ethnobotanists (about ethnobotany) show that there is a shift in the scope/orientation of this study. This can be seen from the shift in the use of the concept of man to human to people and from aboriginal to primitive to traditional (Harshberger, 1896; Jones, 1941; Berlin, 1992; Turner, 1995; Balick and Cox, 1996; Cotton, 1996). Meanwhile, in the context of this paper, the emphasis is on the relationship between ethnobotany and culture. That is, the researcher is trying to understand the classification of certain plants in a particular taxa level through marking their language in order to understand the culture of the local language speakers, namely the people who use these plants.

Ethnobotany studies by emphasizing the relationship between plants and culture where they are used have been carried out by ethnobotanists, anthropologists, and linguists. For example, Davies (2002), Hiepko (2006), Berlin et al. (1973), Berlin Suhandano et al. (2004), Suhandano (2004), Saharudin (2018). The results of these studies have emphasized discovering universal systems of

[1] Compare this with the following ethnobotany definitions: (1) "... plants used by primitive and aboriginal people." (Harshberger, 1896); (2) "... the complex relationship of plants ... to present and past societies." (Berlin, 1992); (3) "... the study of the interactions of plants and people, including the influence of plants on human culture." (Balick and Cox, 1996); (4) "... all studies which concern the mutual relationships between plants and traditional peoples" (Cotton, 1996).

naming and categorizing living things; calibrating folk and scientific thought; emphasizes traditional wisdom and philosophies; and examines plants through rituals in folkloristics and ceremonial healing (cf. Nolan and Turner, 2011).

Based on the description above, this study aims to discover universal systems of naming and categorizing living things. In the context of this study is a system of classification and ethnobotany nomenclature of tubers in the Sasak language. For this purpose, taxonomic classification theory and ethnobiology nomenclature are used by Berlin et al. (1973) and Berlin (1992). In the theory of taxonomic structures, there are five ethnobiological categories in a hierarchical manner, namely unique beginner taxa, life-form taxa, generic taxa, specific taxa, and varietal taxa (Berlin et al. 1973). Berlin (1992) added that taxa are subgeneric (after generic taxa).

Meanwhile, the method used in data collection to data analysis is combining methods used in the ethnobotany and linguistic fields. Data collection methods (both primary and secondary data) in this study include literature studies (specifically those related to theoretical data), participant observation, in-depth interviews, recordings (audio-visual), photographs, and transcription-translation. In addition, intuitively introspective, the linguistic data that has been collected is reconstructed and classified so that it becomes an adequate data type, of course by triangulating sources/data. The data analysis method is to use the method of componential analysis.

II. RESULTS AND DISCUSSION

1. Taxonomy Classification of Tuber Plants in Sasak Language

One human way of classifying plants on this earth is by taxonomic classification, namely classification based on similarities and differences in morphological characteristics and behavior of plants that can be seen with the naked eye. This kind of classification uses language labels as its main marker. The more complex the language label is given to an object signifies its important role in the culture of the language-speaking community. The same is true for the case of tubers in the Sasak-speaking community on Lombok.

Tuber Plants in the Sasak language are called plants *bêbuaq dalêm* 'having contents inside'. This naming cannot be separated from the position of the contents in the form of tubers that are in the ground. There are plants that are cultivated, semi-cultivated, and non-cultivated. First, cultivated tubers such as *lomaq* 'taro' (*Colocasia sp.*), *ambon* 'edible tuber', *kêmiliq* (*Dioscorea esculenta (lour.) burkill*), and *engan*; second, semi-cultivating ones such as *gawok, gadung* 'Asiatic bitter yams' **(***Dioscorea hispida dennst.*), *botor*, and *sebe* 'canna' (*Canna indica*); and third, non-cultivating such as *lombos* (*Amorphophallus paeoniifolius* (*dennstedt) nicolson*), *boyot*, *suraq*, and *inggu* (*Maranta arundinacea).*

These tubers are included in the taxa level of the generic category. Some names of tubers that occupy the level of the generic taxa are still directly in charge of specific taxa. For example, the generic taxa lexicon *lomaq* supervises the specific taxa *lomaq jamaq* 'ordinary taro', *lomaq tawah* 'taro tasteless', *lomaq rêkêt* 'sticky rice taro', and *lomaq têreng* 'bamboo taro'. The generic taxa of *gadung* oversees the specific taxa *gadung jae* 'ginger *gadung*' and *gadung sêgutus* 'gadung four tubers'. Furthermore, the generic taxa for the *ambon* lexicon oversee the specific taxa of *ambon jamaq* 'sweet potato' (*Ipomoea batatas*) and *ambon jawe* 'cassava' (*Manihot esculenta Crantz***)**.

Thus, the *lomaq* lexicon, *gadung*, and *ambon* are taxa in a generic polytypic category, which is directly in charge of a number of subordinate names. Conversely, the lexicon of *kêmiliq*, *engan*, *sebe*, *lombos*, *boyot*, *suraq*, and *inggu* are taxa in the generic category that are terminal, that is, they do not supervise a number of subordinate names. In the context of this study, these generic polytypic taxa are discussed.

The specific taxa of *lomaq jamaq, lomaq tawah, lomaq rêkêt,* and *lomaq têreng* are distinguished by Sasak language-speaking people (especially in Jerowaru sub-district, East Lombok district—research location) using *jamaq* 'ordinary' attributes, *tawah* 'tasteless', *rêkêt* 'sticky rice' and *têreng* 'bamboo'. The *jamaq*, *tawah*, and *rêkêt* attributes refer to the realm of the taste of the *lomaq* 'taro'. The *têreng* attribute refers to the size domain.

Meanwhile, the specific taxa *gadung jae* and *gadung sêgutus* are distinguished by the local language speakers using *jae* 'ginger' (*Zingiber officinale*) and *sêgutus* 'a bundle of four' attributes. The attribute of *jae* refers to the realm of content or *gadung* tubers similar to the contents of a ginger plant, while the *sêgutus* attribute refers to the number of *gadung* tubers.

Furthermore, specific taxa of *ambon jamaq* and *ambon jawe* are distinguished by speakers of the local Sasak language using the *jamaq* 'normal' and *jawe* 'Javanese' attributes. The *jamaq* attribute (in the context of *ambon*'s generic taxa) refers to the domain of taste and cultivated custom, while the *jawe* attribute refers to the domain of habitat (the origin of the plant). It is also possible that the meaning of the *jawe* attribute is 'wood, big-length'. This is understood from the use of the lexicon in marking several names of plants and animals. For example, *kangkung jawe* 'kale tree', *pare puteq jawê jêmêt* 'long-solid white rice', *lomaq jawe* 'big long taro', and *bebek jawe* ' *jawe* duck'.

The generic taxa of *ambon* do not only cover specific taxa but under specific taxa, there are still taxa called varietal taxa. The specific taxa of *ambon jawe* 'cassava' has four varietal taxa, namely *ambon kosong* 'banana heart cassava', *ambon kapuk* 'cotton cassava', *ambon mêlaq* 'lush cassava', and *ambon sêkêwintan* 'one quintal cassava'. The *ambon jamaq* specific taxa also has four

varietal taxa as well, namely *ambon kanjon* '*kanjon* sweet potato*'*, *ambon madu* 'honey sweet potato', *ambon gêdang* 'papaya sweet potato', and *ambon ungu* 'purple sweet potato'.

Classification of language-based tubers above appears to be very detailed and mediocre. Types of generic taxa yams and generic taxa of taro, for example, are very detailed. This seems to indicate the intensity of the interaction between humans and these types of plants. In other words, if the language labeling a taxon becomes more complex, it can be concluded that the type of taxa from these plants is a taxon that is intensively cultivated and has important values in the culture of the local language-speaking community. In contrast, the simpler the labeling of the language of the taxa shows that the taxa are semi-cultivated or not cultivated.

2. Nomenclature of Tuber Plants in Sasak Language

Berlin (1992) states that ethnobiological nomenclature focuses on the patterns underlying the naming of plants in the ethnobiology classification system. In other words, the ethnobiological nomenclature discusses the relationship between linguistic forms used to label taxa with taxa in taxonomic structures. The linguistic form used to label taxa (according to Berlin et al. 1973) is twofold, namely primary lexeme and secondary lexeme.

In relation to the two types of lexeme mentioned above, the type of lexeme used by the Sasak-speaking community in marking generic taxa in each of these tubers is the primary lexemes.[2] This is because the lexeme consists of only one word that cannot be analyzed further semantically. The primary lexemes that cannot be analyzed often show its semantic status as a generic plural form. This can be proven by adding certain clitics in the Sasak language, such as clitic /*-kê/* 'my' to *ambonkê* 'my *ambon'*, /*-tê*/ 'us/our' at the *lomaqtê* 'our taro', /*-dê*/ 'you' at *ambondê* 'your *ambon'*, /*-nê*/ '' in 'his/her' *lomaqnê* 'his/her taro'.

Furthermore, at the level of specific taxa, speakers of the Sasak language mark the taxa with secondary lexemes.[3] This can be seen from the names of specific taxa (tubers in the Sasak language), which on average consist of two elements/words, namely the first element as the superordinate category and the second element as the attribute category. The specific taxa of *ambon jamaq* and *ambon jawe* or specific taxa *gadung jae* and *gadung sêgutus*, for example, both have elements as superordinate categories and attribute categories. The elements *ambon* and *gadung* are elements which show directly the superordinate category, while the elements *jamaq*, *jawe*, *jae*, and *sêgutus* are elements that show directly the attribute category as a specific taxa level.

The use of contrast sets is very helpful in identifying whether or not the names of plants consisting of two or more elements are productive type lexemes or secondary lexemes. As in the case of *ambon jamaq* and *ambon jawe* it is clearly a secondary lexeme because in the taxonomic structure both occupy a specific taxa level. The key to all this clarity is the discovery of one of the elements that show its superordinate category, namely the word *ambon*.

As for the names of tubers in the Sasak language in the case of varietal taxa, the Sasak-speaking community labeled each taxon varietal by omitting the word elements that become the attribute categories on specific taxa. Thus, in the case of the names of tubers (in varietal taxa), there is only the superordinate category element which shows the status of the generic taxa and the attribute category that shows directly the taxa status of the variable.[4] For example, the lexicon of *ambon kosong*, *ambon kapuk*, *ambon mêlaq*, and *ambon sêkêwintan* are taxa varietal which directly subordinate to the specific taxon *ambon jawe*, but do not mention elements that indicate attributes on their specific taxa. Is this intentional for some purpose? This seems to be based on the cultural perspective of the local Sasak language people in looking at certain parts of an object.

Based on these linguistic facts, the names of tubers in the Sasak language that have taxa varietal use secondary lexemes which have an average of two elements and consist of two words. The first word as an element of the superordinate category and the second word as an element of the attribute category. Whereas in some cases plants that have varietal taxa levels can be structured from three to words, where the first and second or third words as elements of the superordinate category and the third or fourth word as elements of the attribute category.

Thus, it cannot be said with certainty that the labeling of specific taxa and taxa varietal (with linguistic-based classification systems) must use a number of words. However, it is only guided by the existence of superordinate category elements and attribute category elements. This is clearly often confusing speakers outside the speakers of the language because there can be overlapping nomenclature systems between specific taxa and varietal taxa. In the context of a nomenclature case like this, the opposite pair theory cannot also be used to identify the position of the taxa. Remembering occurs equally in the case of secondary lexeme, not in the case of productive primary lexeme versus secondary lexeme.

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[2] The primary lexemes a form of lexeme in the form of a single word which is a semantic unity. This type of primary lexeme can not be explained linguistically (unanalysable primary lexemes) and some can be explained/analyzed.

[3] The secondary lexeme type is the primary lexeme which is attributed to a particular word so that the second type of lexeme is always polynomial.

[4] Cases like this do not occur in the case of names of local rice plants at the level of varietal taxa in the Sasak language. For example, *pare nyêrunjung payu* 'rice looks up continuously' and *pare nyêrunjung burung* 'rice looks up does not continue' or *pare beaq kêsambiq* '*kesambiq* red rice' and *pare beaq baloq* 'great-grandmother's red rice'. The word *nyerunjung* is an attribute category element in a specific taxa (*pare nyerunjung*) which is maintained in taxa in the varietal taxa, while the word *beaq* is an element in a specific taxa (*pare beaq*) which is also maintained in the varietal taxa. The retention of these attribute categories (specific taxa) in varietal taxa seems to be due, among other things, to the viewpoint of Sasak language speakers in terms of the presence of rice plants and other plants, especially in terms of the position of the plant culturally.

Nomenclature cases that occur at the level of specific taxa and taxa varietal above deviate from the general principle of nomenclature that Berlin et al. (1973). For example, taxa labeled with secondary and terminal lexemes and directly included in taxa labeled with secondary lexemes are varietal taxa. In fact, although varietal taxa of *ambon kosong*, *ambon kapuk*, *ambon mêlaq*, and *ambon sêkêwintan* are labeled secondary and terminal lexemes, but are not directly included in taxa labeled with secondary lexemes (originating from specific taxa and showing elements of the superordinate category). Instead, the language data shows that directly the elements of the superordinate category are labeled primary lexemes. If so, where does the nomenclature differ between specific taxa and varietal taxa if both are labeled with secondary lexemes?

Referring to the case, in this paper, the solution is proposed by looking at the existence and use of attributes on the taxa. For example, in the case of *ambon kanjon* lexeme, *ambon madu*, *ambon gedang*, and *ambon ungu* have attributes that are semantically far apart from the attributes of *ambon jamaq* 'sweet potato' lexeme and *ambon jawe* 'cassava'. In addition, the solution through the use of attributes in the form of a "unique lexicon", namely the lexicon that is only used in that domain or case, such as the case of the *ambon kanjon*. The *kanjon* lexicon which is the attribute category of the superordinate category (*ambon*) is a "unique lexicon". If this is found, it is possible that the lexeme occupies varietal taxa, because at this level of taxon special characteristics are needed which distinguish it from taxa on it. Lastly, is to look for and pay attention to the existence of synonyms of secondary lexemes which mark the level of certain taxa. It is possible that taxa that have many synonyms are taxa varietal. For the record, the second and third proposals require even more data comparisons.

III. CONCLUSION

Based on the results and discussion above, it can be concluded that taxonomic classification (linguistic-based) of tubers in the Sasak language follows the principles of taxonomic classification in the field of ethnobiology theorized by Berlin et al. (1973). However, in the case of ethnobiological nomenclature, there was a difference with the nomenclature theory said by Berlin et al. (1973). In the case of nomenclature at the level of specific taxa and varietal taxa, there is a labeling equation using secondary lexemes whose elements of the superordinate category use primary lexemes. Whereas in the case of varietal taxa, the superordinate category of elements should be labeled using secondary lexemes because they are a combination of elements of the superordinate category and elements of attribute categories in specific taxa.

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