Available online at www.ijpab.com

DOI: http://dx.doi.org/10.18782/2320-7051.2362

ISSN: 2320 – 7051

Int. J. Pure App. Biosci. **4 (4):** 77-83 (2016)

Research Article

International Journal of Pure & Applied Bioscience

OPEN ACCESS

Ethno Taxonomy of Angiospermic Weeds of Chittoor District, Andhra Pradesh, India

Pasupuleti Neeraja* and B. M. Reddy

Department of Botany, Kakatiya Government College, Hanamkonda, Warangal, Telangana, India

*Corresponding Author E-mail: neerajapasupu@gmail.com

Received: 25.08.2016 | Revised: 30.08.2016 | Accepted: 31.08.2016

ABSTRACT

An ethno taxonomy or folk taxonomy is a vernacular naming system. It is a localized naming and classifying system, which is the way native people traditionally describe and organize their natural surroundings and also it can be contrasted with scientific taxonomy. Ethnobotanical data collected during ethnobotanical survey carried out throughout the study area, Chittoor district, Andhra Pradesh, during 2008- 2016, a total of 448 plant folk species were identified. The data from folk botany provide evidence for the concept of rank in ethno biological classification, and angiospermic weed taxa of Chittoor district can be naturally accommodated into one of the six ethno biological ranks like kingdom, (the unique beginner), which is zero, lifeform 9, intermediate zero, generic 448, specific 302, and varietal 21.The generic rank can be linguistically analyzable into Monotypic genera 145 (32.36 %) Polytypic genera 303 (67.64 %). Economically useful genera are polytypic. The analysis of ethnobotanical data of ethno biosystematics of the angiospermic weeds of study area agree by and large the general principles of folk taxonomy by Berlin, and in many respects it is close to Tzetal folk taxonomy.

Key words: *Ethnotaxonomy, Chittoor district, Andhra Pradesh, Concept of rank, Angiospermic weeds.*

INTRODUCTION

Categorization is thought to be basic human quality, driving from experience with the world, and defines and expresses relationships among living things, aids in learning and communication serves as cognitive and semantic devices for storing and retrieving information, reflects evolutionary relationships and illuminates what is important to specific groups of people[3,7]. With named categories of things that are hierarchically juxtaposed with respect to class inclusion is termed as taxonomy. Folk taxonomies are generated from social knowledge and are used in every day speech also can be distinguished from scientific taxonomies that claim to be disembodied from social relations and thus are objective and universal. Folk taxonomies exist to allow popular identification about classes of objects, and apply to all areas of human activity. All parts of world have their own systems of naming the local plants.

Cite this article: Neeraja, P. and Reddy, B.M., Ethno Taxonomy of Angiospermic Weeds of Chittoor District, Andhra Pradesh, India, *Int. J. Pure App. Biosci.* **4(4):** 77-83 (2016). doi: http://dx.doi.org/10.18782/2320-7051.2362

These naming systems are vital aid to survival and include information on habit and habitat, flowering and fruiting pattern, hues of plant parts, plant part from which cure for the ailment can be had etc. Theophrastus recorded evidence to Greek folk taxonomy of plants for the first time. Folk taxonomy is the cognitive study, of how people classify and reason about organic world. Ethno taxonomy divides between intellectualism versus utilitarianism. Intellectualism highlights the folk taxonomic principles that are marginally influenced by people's needs and uses to which taxonomies are put[3]. Utilitarianism emphasizes those structures and contents of folk biological categories that are fashioned by cultural interest, experience, and use. Categorization is thought to be basic human quality, driving from experience with the world, and allowing for structured order within which people can describe and interpret reality. Categorization defines and expresses relationships among living things, aids in learning and communication serves as cognitive and semantic devices for storing and retrieving information, reflects evolutionary relationships and illuminates what is important to specific groups of people[3,7]. Traditional systems of classification are thought to develop from basic human tendency to recognize "information chunks" are groups of living things that are imposed by nature. In other words, cultures name and classify things independently of practical value. Cross cultural studies tend to support the intellectualist position consistently showing that folk categorization follows highly similar patterns in different cultures and that is most cases folk genera corresponds with those of western science. Major proponents of utilitarianism argue that human mind constructs reality, essentially imposing an arbitrarily defined order on the natural world[7]. Rather than recognizing objective natural patterns, systems of classification are thought to develop from unique history and culturally defined beliefs, behaviors and preferences of a particular group. Folk categories are viewed as unstable and shifting, subject to idiosyncratic variation and patterned according to variables such as gender, age or social context. In other words, cultural groups name and classify living things based on local history, experience and primarily practical value. A culture's general purpose folk taxonomy is composed of a stable hierarchy of inclusive taxa which are mutually exclusive at each level of the hierarchy. These absolutely distinct levels or ranks are 1. Folk kingdom or Unique beginner 2. Life form 3. Generic species 4. Folk specific 5. Folk varietal. Ranking is a cognitive mapping that projects living kind categories on to fundamentally different levels of reality. Ranks, not taxa are universal. Taxa of the same rank tend to display similar linguistics, psychological, and biological characteristics. In contrast subordinate specifics are very usually labelled binomially unless culturally very salient. Nomenclature is often a near perfect guide to folk taxonomic structure[4].

Man's continued existence depends on his ability to recognise similarities and differences among objects and events in his physical universe. Thus man is by nature, a classifying animal and shows remarkable skill to mark the similarities and differences linguistically. Recently, through combined efforts of ethnographers and biologists the study of ethnobiological classification has become focus of research and a number of regular patterns have been observed which appears to be wide spread, if not universal[4]. Local people have learnt over a millennium how to identify plants for various purposes, as they have had to rely on their ambient vegetation for food, medicine and all other necessities of life. Wealth of knowledge or information on properties and use of non-timber forest products exist among the rural communities bordering forests. This knowledge, which is unique, is the key to the indigenous plant use. This knowledge that accumulated over thousands of years of direct contact with nature is location specific and on

the whole socio-culturally bound. Traditional folk knowledge, which is the sum of the attitudes, opinions, beliefs and customs handed down from generation to generation in a given society is neither often found in written form nor organized and structured in ways accessible to science. This knowledge is dynamic and not static. It changes through indigenous creativity and innovativeness and through contact with other knowledge systems. It will not be there for long for us to salvage since traditional usage and folk knowledge of plants is disappearing, along with the traditional lifestyles, due to copying of westernized lifestyles and economic system that support them..

Folk classification of plants, for instance is based on criterion that may differ markedly from those of scientific classification. The knowledge of plants is perhaps most refined indigenous information. One of the earliest systematic investigations of folk botanical knowledge was carried out by Harold Conklin[5] among the Hanunoo, a horticultural people of Philippines[5]. He found Haunoo ethnobotany to be incredibly rich lexical domain, containing more than 1800 specific plant terms. Conklin[5] and later ethnobiologists focused much of their research efforts on plant and animal terminological system and especially the taxonomic groupings of plants.

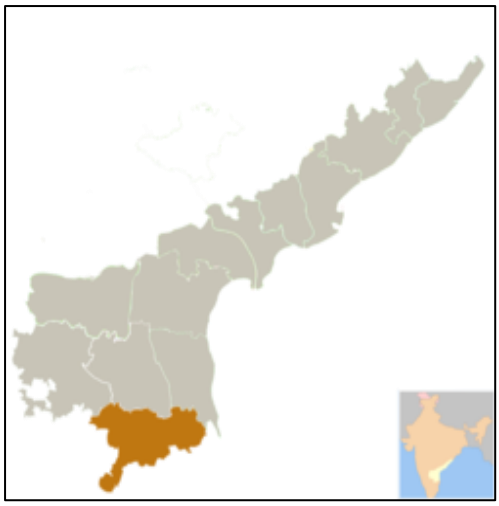
Handy and Pukui's characterisation of native Hawaiian ethnobiology noted that "every biological, zoological or inorganic form that is known to have been named was something use in some way". For the latter half of the 20th century the primary vehicle for examining the general patterns of thought in ethnobiological and cognitive research was categorization[3,5].

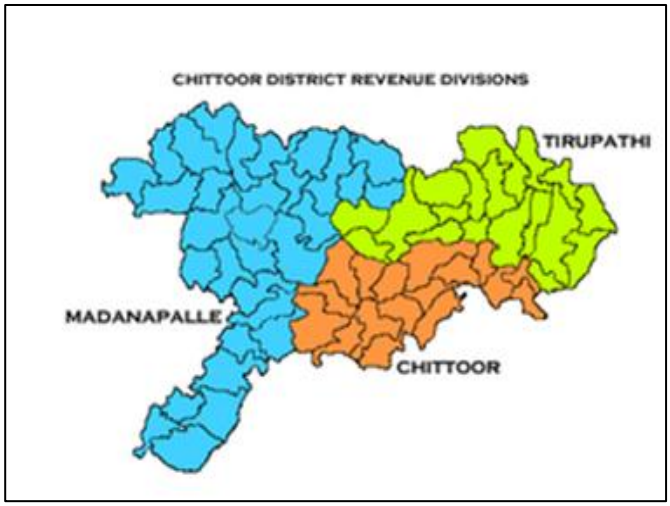
At the beginning of the research in ethno taxonomy researchers tried to analyze nomenclature from the linguistic point of view[5], in the present study an attempt is made and studied etymology and philology of the local names or vernacular names of angiospermic weed plants of Chittoor district, and applied general principles of folk taxonomy to the vernacular nomenclature which is in Telugu the native language of the study area. Andhra Pradesh.India.

Folk biological classification has been approached as if information about plants and animals were stored in people's head in taxonomically organised domains[4]. One of the major findings of ethnobiology stated by Berlin, Breedlove & Raven[4] is that folk taxonomies have a limited number of levels. Typically, five levels can be distinguished in a folk taxonomy[4]. At about the same time Berlin, Breedlove, Raven[4] elaborated their general principles of folk taxonomy based on ethnobotanical studies in central and South America and drew convincing parallels with the taxonomic thinking among European people, which became the basis of taxonomy in western science. In the following years several authors of ethnological papers used Berlin's principles as the best available system to present ethno taxonomic data. During botanical field work in Eipomek valley in 1976 about 400 Eipo plant names were recorded and vouchers collected. The study of Eipo folkbotany confirmed the existence of universals in folk classification system as elaborated by Berlin *et al*[3].

Study Area

Chittoor, the southern district of Andhra Pradesh is situated in the south eastern Ghats of peninsular India. Its location on globe is between 12°37'-14°8' North latitudes and 78°3'-79°55' East longitudes. It has boundaries with Potti Sriramulu Nellore district of Andhra Pradesh on the East. Chikkaballapura and Kolar districts of Karnataka on the West; Anantapuram and Y.S.R. Kadapa districts of Andhra Pradesh on the North; Krishnagiri, Vellore and Thiruvallur districts of Tamil Nadu on the South (MAP -1). The district spreads over an area of 15,152 Sq. Km having 4,513.4 Sq. km of forest land (30.09 %).





The district is divided into 3 revenue divisions viz., Chittoor, Tirupati and Madanapalle. Each revenue division is divided into mandals. District has 66 mandals under these 3 revenue divisions (Map 2). Ethnic people comprise native tribes and ethnic communities. Ethnobotanical studies started with identification of ethnic groups of the study area consists of tribal people namely Yerukala, Yanaadi, Nakkala, Irula, Sugali, and native communities like Reddy, Kamma, Balija, Kaapu, Brahmin, Karnam, Gondla, Kummari, Kamsali, Aachari, Sale, Vadde, Maala, Maadiga, Golla, Valmiki, Saatanu, Ligayat, Psakali.etc., *Yanadis* constitute major tribe and are landless labourers, their main occupation is snake charming. *Nakkalas*, Jakal hunters, are another nomadic tribe, move in bands and camp under the shade of trees at popular centers. *Sugalis* constitute chief immigrant tribe in the district, they have settled in the upland mandals of the district and their main occupation is agriculture. The *Yerukalas* are semi-nomadic tribe, chiefly engaged in making baskets, brooms and mats and also involved in fortune telling *Irulas* constitue agriculture labourers migrated from northern pockets of Tamil Nadu. Even non tribal ethnic people are well versed with local vegetation and its utility and the tribes constitute less than 2% of the total population.

Linguistics plays an important role in studying the Ethnography of an area. As nomenclature in native language provides clue to ethno botanical studies especially culturally useful species receive consistent linguistic designations. Vernacular names provide the only valid key to folk taxonomy. Under linguistic studies etymology and philology of selected weeds in local language were deciphered with the help of eminent people in linguists of local Telugu which takes its origin from Dravidian language. In addition to that dictionaries like Shabdaratnakaram and Amarakosam[1] are a few to name were consulted for authentication of the phonetics in vernacular language. The study of etymology and philology of the nomenclature of weeds in vernacular language led to the formulation of folk taxonomy of the study area Chittoor.

The study of Etymology, philology of vernacular names of Angiospermic weeds in local Telugu language is the basis for understanding the folk taxonomy of weeds of Chittoor district. The study of the folk taxonomy gives clear insight in to the cultural association of plants with native people which forms essential part of Ethnobotanical studies. Physiographically the study area is divided into hilly, plateau and plains with red, black, and laterite soils and has dry climate. Vegetation of the region is influenced by both south west and north east monsoons. There are no perennieal rivers. The average temperature ranges from 30^{o}C to 42^{o}C in estern mandals and 19 ^{o}C to 32^{o}C in western mandals and temperature soars up to 47 ^{o}C during summer season.

MATERIALS AND METHODS

An ethnobotanical exploration was carried out covering all seasons like pre- monsoon, monsoon, post-monsoon, winter and summer in almost all mandalas of the Chittoor district A.P., during the years 2008-2016. The methods suggested by Jain and Goel[8] were adapted to survey Angiospermic weeds of Chittoor district. Specimen collection, field notes, processing of material was followed according to the standard protocol suggested by Botanical Survey of India. Identification of plant specimens were done with the help of regional floras[6] and e-floras. Voucher specimen were Compared with herbarium specimens of BSI, DRC, Hyderabad and deposited in the Herbarium of SVU, Tirupati. For enumeration APG III Plant Classification 2012 was followed. The botanical name of the taxa have been verified with International Plant Name Index (IPNI).

Documentation of Ehnobotanical and folklore data

The methods suggested by Jain and Goel[8] were adopted to survey the ethnobotanical aspects of Angiospermic weeds of the study area. Repeated field visits were undertaken to tribal hamlets to familiarize with the local tribes namely Yerukala, Yaanadi, Sugali, Nakkala, and Irulas in particular and common folk in general which paved the way for free discussion about various aspects related to utilization of plant resources, vernacular names, identification of plants, categorization of life forms. To study folk taxonomy, interactive and interview methods were followed. The informants involved were from both the sexes and with the age groups between 18-80. Discussions and interviews were recorded. Present study was undertaken in view of urgent need to document traditional ethnobotanical knowledge of the ethnic people who are fast getting modernized. The field work in the remote villages is the most important part of the ethnobotanical study. Before starting field work necessary information about the distribution of ethnic people in the study area was collected from demographic record. A number of interactions, and interview sessions were conducted in groups or with individuals involving both male and females above the age of 40 years. Information was sought on the ethnic uses of plants. Later the respondents were exposed to visual stimuli of weed specimens, firstly herbarium specimens were shown and interviewed for identification, nomenclature and folk uses of weed specimen showed, involving male and female in the age group of 18- 80 in groups of 5-20 members. Next stage photos replaced actual specimens due to extreme changes in color that occur when plant specimens are dried and pressed and mounted on the herbarium sheet. This elicitation procedure asked informants to name and describe the uses of weeds, habit and habitat ecological relationship and uses of weeds having medicinal uses, finally each day in late afternoons after field collections and formal interviews were complete, several men and women from the community would visit the field camp and view freshly collected weeds and begin to actively debate and discuss about its morphological characters, fruiting habits, and uses of the species gathered. Author felt that this type of research was essential to the development of an understanding of Chittoor rural folk perception and utility of angiospermic weeds.

RESULTS

Ethnobotanical data collected during ethnobotanical survey carried out throughout the study area, a total of 448 plant folk generics were identified. The data from folk botany provide evidence for the concept of rank in ethno biological classification, and angiospermic weed taxa of Chittoor district can be naturally accommodated into one of the six proposed ethno biological ranks like kingdom, (the unique beginner), lifeform, intermediate, generic, specific and varietal. (as shown in Table .1).

TABLE 1

S.No.	Ranks	Number
1	Unique beginner	0
2	Life Form	9
3	Intermediate	0
4	Folk genera	448
5	Folk Specific	302
6	Varieties	21

There is no unique beginner in the sense similar to most other plant folk classifications this group is unnamed. Of the total 448 generic classes are immediately included in one of the nine life form categories. 1. Mokka (Herb) 2. Poda (Shrub) 3. Chettu (Tree) 4. Teega (Climber/Creeper) 5. Gaddi (Grass) 6. Aaku (Leaf) 7. Gadda (Tuber) 8. Puvvu (Flower) 9. Kaaya (fruit) (Table 2).

TABLE 2

Life Form	Number	Richness (%)
Mokka (Herb)	122	27.00
Poda (Shrub)	86	19.00
Chettu (Tree)	25	06.00
Teega (Creeper)	58	13.00
Gaddi (Grass)	30	07.00
Aaku (Leaf)	72	16.00
Gadda (Tuber)	13	03.00
Puvvu (Flower)	23	05.00
Kaaya (Fruit)	19	04.00

Intermediate rank: Intermediate rank is not found in Chittoor indigenous classification.

Generic rank: The folk generics form the core of folk taxonomy, is a fact typical for all folk systematics is true for in the case of study area also.

The distribution of inventory of generic taxa over these nine categories, the generic rank can be linguistically analysable

Monotypic genera : 145 (32.36 %)

Polytypic genera : 303 (67.64 %)

Economically useful genera are polytypic.

Specific rank: 303 Chittoor weed folk generic classes are divisible into two or more smaller taxa which will be referred to as specific taxa. The names of several specific taxa are linguistically analysed as secondary lexemes.

Varietal rank: Specific taxa are further subdivided into 21 varietals.

DISCUSSION

From the present work, it has become apparent that, while individual societies may differ considerably in their conceptualization of plants there are a number of strikingly regular structural principles of folk biological classification which are quite general. If the patterns which have been observed continue to be confirmed by further research, this study promises to reveal important aspects of man's conceptual organization of the natural world. The result of present study promises to reveal important aspects of man's conceptual organization about the natural world. The result of present study confirms that telugu speaking native people of Chittoor district prescientific conceptual organization of angiospermic weeds agrees the general principles of classification and nomenclature in folk biology by Berlin[4], Berlin *et al*[2]. In all languages it is possible to isolate linguistically recognized groupings of plants of varying degree of inclusiveness, these classes are referred to as taxa; hence ranks are universal but not taxa which are indicated by vernacular names. Since most work done on this subject reveals that names provide only valid key to folk taxonomy. It is worthwhile to think about the folk taxonomy of angiospermic weeds of study area on the basis of their vernacular plant names. The nomenclatural situation is somewhat complicated due to an extensive name taboo system causing a double name of many plants. The local medicine men or the herbal healers of study area maintain secrecy regarding the plants which are used in the preparation of traditional medicine, to cure diseases. The local people also believe that if the name of the plant is revealed then it will not be useful for treatment and drug prepared will not work. Hence some plants were given only common names like gobbi, gummadu, gummadi, beera, casitha etc. These names give indirect hint for the cure. The naming of the taxa which occur as members of ethnobiological categories can be reduced to a small number of nomenclatural principles which are essentially identical in all languages. Folk plant taxa are of several distinguishable

types, the so called ethno biological ranks are basically five in terminology of Berlin *et al*[2,4]. As it is evident that the vernacular names provide the only valid key to folk taxonomy. The present study is also based on local names in Telugu which is a Dravidian language. (with mixed accent of Tamil and Kannada as the study area borders with Tamil Nadu and Karnataka). The nomenclatural situation is somewhat complicated due to an extensive name taboo system causing a double naming of many plants.In the study area the majority of native folk depend on magico-religious beliefs for the treatment of snake bite, migraine, fertility, vigor and vitality by using plants. It is believed that if the name of the plant is revealed, then medicine will not work hence the person who cures the disease maintains secrecy regarding the name of the plant may be the reason behind name taboo. The sub divisions of folk generics of angiospermic weeds are distinguishable through their binomial nomenclature. Most common specifics of many folk generics are labelled with monomial name of the generics only.

CONCLUSION

Folk classification of plants for instance is based on criterion that may differ markedly from those of scientific classification. The knowledge of plants perhaps the most refined indigenous information. Evidence of richness of this information exists and has been recorded through various studies and was noted that through traditional knowledge the local communities often understand their situations better than the educated experts do. The value of traditional environmental expertise is rapidly gaining recognition. There is a growing appreciation that much of that knowledge is useful in identifying new resources and achieving conservation goals. The taxonomic, biological, nomenclatural, and psychological characteristics associated with taxa of each rank tend to support the hypothesis that the concept of rank but not taxa is fundamental to all systems of folk biological classification. As such folk biosystematics of the angiospermic weeds of study area agree by and large the general principles of folk taxonomy[2,4] and in many respects it is close to Tzetal folk taxonomy. Present studies show that the ethnic people of the study are keen botanists and they identified 21 varietals when compared with scientific studies where we have only two varieties. Ethnobotanical study of the Chittoor district confirms the operation of Utilitarianism and universalism.

REFERENCES

1. Amarasimha, T.C. and Paramesvara Mussat, Amarakōśam: Amarakosam. Sahitya Pravarthaka Co-operative Society. (1959).
2. Berlin, B., Breedlove, D.E. and Raven, P.H., *Principles of Tzeltal Plant Classification: An Introduction to the Botanical Ethnography of a Mayan Speaking People of Highland Chiapas*. New York: Academic Press. (1974).
3. Berlin, B., Ethnobotanical Classification: Principles of Categorization of Plants and Animals in Traditional Societies. Princeston University Press, Princeston, NJ. (1992).
4. Berlin, B., Folk Systematics in Relation to Biological Classification and Nomenclature. *Annual Review of Ecology and* Systematics, **4:** 259-271 (1973). DOI: 10.1146/annurev.es.04.110173.001355.
5. Conklin, H.C., Ethnobotanical problems in comparative study of folk taxonomy. *Proc 9th Pacific Sci Cong, Pacific Sci Assoc Bot*., **4:** 299-301 (1962).
6. Gamble, J.S. and Fischer, C.E.C., *Flora of the Presidency Madras.* Vols. 1–3. Calcutta: Botanical Survey of India. 2017 pp. (Reprinted 1957; London: Adlard & Co. London). (1915–1936).
7. Hunn, E., The utilitarian factor in folk biological classification. *American Anthropologist,* **84(4):** 830–847 (1982).
8. Jain, S.K. and Goel, A.K., Workshop Excercise-1: Proformas for fieldwork (Form A & B) in "*A Mannual of Ethnobotany*" (Ed. S.K. Jain). Scientific Publishers, Jodhpur. 171 - 183 (1987).