

## Challenges of Teaching Ethnobotany in Nigeria

<sup>1</sup>Idu, M., <sup>2</sup>Atagana, H. I., <sup>1</sup>Erhabor, J.O., <sup>1</sup>Timothy, O. & <sup>3</sup>Osazuwa, E.S.

<sup>1</sup>Department of Plant Biology & Biotechnology, University of Benin, Nigeria.

<sup>2</sup>Institute for Science & Technology Education, University of South Africa

<sup>3</sup>Rubber Research Institute of Nigeria, Iyanomo, PMB1049, Benin City, Nigeria.

macdonalddidu@hotmail.com

### Abstract

Ethnobotany is increasingly being recognized as an important subject for conservation and sustainable development. However, the teaching of the subject is replete with challenges such as lack of rigour in its teaching, lack of funding, lack of good mentors, poor university curricula, lack of respect for the subject, uncertain occupational opportunities. These shortcomings have translated into students' anxiety in choosing or learning of ethnobotany as a career subject. It is believed that these challenges could be addressed if adequate curricula are developed in line with current developments in teaching and learning, improvement in society, cultural changes and social and infrastructural developments. Improved public awareness through symposia, where would-be students would be educated on available career opportunities as well as assuage the social problem associated with lack of respect for the subject. Also, developing courses or programmes in ethnobotany will depend greatly on the sharing of experiences and the learning of lessons by those who are practically involved. Ethnobotanists are therefore encouraged to engage in stronger collaborations since modern ethnobotany has tended to become more analytical, quantitative, cross-disciplinary and multi-institutional.

**Key words:** Ethnobotany, Ethnobotanists, Cross-disciplinary, teaching, Nigeria.

### Introduction

Plants and plant products have always been of central significance to human welfare. Plants provide people with food, fuel and medicine, as well as materials for construction and the manufacture of crafts and many other products (Hamilton *et al.*, 2003). Ethnobotany is a sub-discipline in Botany which relates to many practical purposes (McClathey *et al.*, 1999).

Ethnobotany was coined in 1896 by John W. Harshberger, who described ethnobotany as the study of plants used by primitive and aboriginal people (Harshberger, 1896, Rao, 1989). But Jones (1941), defined it as a discipline deals with the interactions between people and plants.

Ethnobotany, as a division of botany originated from the interest in finding plants to help fight illness. The knowledge of plants and their sustaining relationship to humans is known and central to indigenous world views, and not compartmentalized in a body of knowledge which one can choose to study or not (Thomas, 1999). The local people strive to understand the needs of plants and so examine where they occur, why they occur there, and how they can be accepted as gifts.

However, ethnobotany can be described in different facets or aspects. This includes the way people name and classify plants, the values placed on them, their uses and their management. Ethnobotany is an interdisciplinary science which includes both the sciences and the humanities. It is seen as a gateway to many disciplines. The following highlighted disciplines are often included in the study of ethnobotany: Anthropology, Sociology,

Ecology, Medicine, Chemistry, Agriculture, Horticulture, Forestry and Agroforestry, Archaeology (Paleoethnobotany), Economic Botany, Religious Studies and Linguistics

There are several new developments in biology, which have impact on human communities. The current increase in the call for communities in Africa to develop and document their indigenous knowledge systems buttresses the importance of ethnobotany. Thus anthropologists would be usefully employed in documenting and researching the use of different plants by different cultures. The world is getting more aware of the importance of herbal therapies and scientists (paleoethnobotanists) are researching the ancient use of plants for possible insight on how to manage the nutritional challenges of the present day. As man is faced with looming food insecurity, agriculturists and horticulturists are looking to expand the number of plants that would be useful for food. The ever-increasing outcry about global warming and the resultant changes in our planet, forestry experts are searching for the best possible management for forest resources to combat desertification, erosion and increasing atmospheric carbon dioxide. It is the responsibilities of biologists to educate the public about new developments and the implications of such developments on the communities. The responsibilities of ethnobotany have continued to increase as a result of these changes in the society. It is incumbent on ethnobotanical research to continue to examine and interpret the relationship between the latest innovations in the biological sciences and the human society vis a vis plant communities. Thus the teaching of ethnobotany has to assume an innovative approach by incorporating information from different disciplines to enhance the interpretation of the relationship between plants in the present environment and the human communities that interact with these plants.

Multidisciplinary approach to teaching and research can increase the frontiers of ethnobotany in the management of tropical rainforest reserves in periods of environmental stress, for instance. Over the last decade ethnobotany has tended to become more analytical, quantitative, cross disciplinary and multi- institutional. Scholars in this field have become more engaged with questions of conservation, sustainable development, cultural affirmation and the intellectual property rights of local and indigenous people (Anonymous, 1995; Fernandez, 2002; Martinez, 2002).

This paper is an attempt to unveil and examine the various challenges faced by the teachers and students of this field of study with possible identification of solutions.

### **Ethnobotany in the Past**

The history and development of ethnobotany is as old as human civilization. But practical interest in the use of plants can be traced first to man's survival and then for civilization to develop, as people needed to know which plants were useful for foods, fuels, medicines, fibres etc. and how such plant resources could be mined or managed for human benefits (Idu, 2009). However, man's life has always been intimately connected with plants around him. In fact there is practically no human activity in which plants do not play a role. Ethnobotany in its widest sense has a linkage with almost every other science and field of knowledge (Manilal, 1989).

Ethnobotany in an economic perspective determines the traditional uses of plants in order to find other potential applications for food, medicine and industry. The discovery of many plants derived foods and medicines, first used by indigenous cultures changed the modern world. As the study of plants became more scientific, ethnobotany evolved as a field. Thus the field of ethnobotany began to expand from the study of the uses of plants to how plants

and cultures interacted on a more sociological or philosophical/religious grounds (Anonymous, 2002).

Over the years, traditional communities in Nigeria by living close to nature have acquired unique knowledge about the use of wild flora and fauna that are often not known to the people who lived outside such natural ecosystem. Through years of observation and analysis, trial and error, experimentation or even use of intuitive methods, the innovative members of the human communities have selected /identified useful and harmful members of the flora and fauna. The traditional knowledge, skills and practices thus developed are freely exchanged, cared for and nourished as a common property of the community. This was how man's knowledge about medicinal plants and their various therapeutic uses gradually increased in volume as civilization progressed (Ghani, 1989; Gill 1992). Transmission of this information has passed on from the traditional society to formal educational institutions in many instances in recent times. Except for the application of plants to traditional healing practices, other uses and plant human interaction have migrated to the domain of schools and universities. Traditional teaching and learning is the predominant mode of instruction in ethnobotany in Nigerian universities. This has left the dissemination of information in ethnobotany at the peril of classroom inadequacies and curricular imperfection and morbidity. Ethnobiology in general has been a marginal discipline for many years due to reluctance in incorporating scientific ideas from other disciplines (Morris, 2004). However in the last decade the society has shown more interest in the field as a distinct discipline probably due to the gradual acceptance of multidisciplinary approach. The pre-independence (pre-1960) ethnobotanical works carried out in Nigeria were mainly collections of plants sent abroad for screening. Ainslie (1937) is credited to be the first to document plants used in native medicine in Nigeria. The culture of plant use continues till this day and it is estimated that more than 70% of the present population uses plant in their cultural life and for health care.

### **Ethnobotany in the Present and Prospects in Nigeria**

Today, ethnobotany is in the midst of renaissance. This revival reflects increasing concern about the disappearance of the rainforests and the tribal cultures inhabiting them. Ethnobotanical knowledge is still being used by traditional healers or alternative medicine practitioners in Nigeria to treat and prevent diseases. Worldwide, there is a growing trend for appropriate documentation, research, development and promotion of traditional medicine and the knowledge system (Idu, 2009).

Ethnobotany is a valuable tool as it offers opportunities to those engaged in bio-prospecting, particularly in drugs/chemical and gene prospecting. Bio-scientists consider ethnobotanical knowledge as the first effective means of identifying and locating alternative food source leads for drugs and pharmaceutical, natural dyes, colours, gums, resins etc. (Pushpangadan & Kumar, 2005). Also , ethnobotanical investigation coupled with bio-prospecting is said to generate a number of IPR-covered products and technologies through appropriate science and technology intervention. (Idu, 2009).

Again, ethnobotanical investigation/knowledge has been very useful in understanding how local people manage their biotic resources. This has been found to have a lot of applicability to land use managers, conservation policy makers and the local people themselves. These documentations of resource use by scientist gives legitimacy to the tried-and-true management methods of the local people (Idu, 2009).

Ethnobotanical knowledge has also stimulated international trade in genetic resources commonly referred to as “bio-trade”. The annual global resource of bio-trade lies between US\$500 and US\$800 billion (Iaird & Kate, 2002). Ironically, the traditional knowledge that forms much of the basis of the many modern scientific researches, innovations and development has not been recognized by modern scientists.

Nigeria is well endowed with rich biodiversity and is equally rich in traditional knowledge and wisdom on the use and management of her biodiversity. These ethnobotanical strengths can be harnessed for generation of value-added diversified products, maintenance of intellectual property rights (IPRs), other natural product development technologies and related knowledge-based commercial and industrial ventures (Idu, 2009)

### **Teaching Challenges of Ethnobotany in Nigeria**

Ethnobotany is being increasingly recognized as an important subject for conservation and sustainable development, but has certain weaknesses which include lack of rigour in its teaching. Some of these perceived challenges in the teaching of ethnobotany as highlighted below have been linked to students’ anxieties in the learning of ethnobotany (McClatchey *et al.*, 1999). The dominant paradigm in the theory of teaching and learning of science in the present time is the constructivist paradigm, which considers learning as an active construct of knowledge built on the learner’s previous knowledge. This theory is very vital in the construction of ethnobotany curricular. Ethnobotany draws from the cultures and societal practices of a people over a protracted period of time, thus information inherent in the communities constitute a repository of knowledge of indigenous practices (Driver *et al* 1994; Mintzes *et al* 1998; Duit 1994; Knippels 2002).

There are a number of constructivist ideas, notably the constructivism that does not accommodate a priori existence of an objective reality and that which recognises objective reality (Boersma 1995; Knippels 2002). The latter resonates with social constructivism, which emphasises that learning is embedded in a social context (Cobb *et al* 1992). Ethnobotany relies on the social and physical circumstances in which the activities are situated as stressed in the situated cognition perspective (Hennessey 1993; Knippels 2002).

The challenges of teaching ethnobotany generally lie in the nature of the curriculum. The lack of recognition of the cultural position of the information required when designing the curriculum has reduced the discipline to share academic exercise rather than espousing it as a socio-cultural repository of indigenous knowledge. This stance has reduced the popularity of ethnobotany like many other related disciplines in the Nigerian academic system.

#### *Lack of Funding*

Funding is a major tool in carrying out effective teaching and learning, and indeed research. Lack of funding is not unique to ethnobotany in Nigeria; in fact most areas of study are experiencing funding limitations and cutback. Traditionally, ethnobotanical research has been funded secondarily by grants in related fields such as agronomy, cultural anthropology, pharmacognosy, plant anatomy, taxonomy, etc. In more recent times, funding has been provided through the burgeoning fields of conservation biology, ecology, sustainable development, etc. Just as ecology and conservation biology has come of age, and of funding, so too will ethnobotany as the field develops a basis for recognition in the world of science. It is not a surprise that ethnobotany has been poorly funded over the years. This is largely due to the obscure identity of the discipline in the Nigerian society. It is very difficult to convince a parent of a young graduate to take up postgraduate position in ethnobotany

because it potentially would lead to no viable job prospect. Research funding in Nigerian universities largely come from the monies earmarked for research in the university budget, which is principally from government funding. This goes to say that ethnobotany is hardly recognised as a viable discipline in the academic institutions. The economy of Nigeria revolves around the petroleum industry and very little funding is directed at disciplines that do not have direct bearing with this industry. Hence the government, private sector and individual funding agencies have paid little attention to research in ethnobotany.

#### *Lack of good mentors*

The shortage of well trained mentors in the field is another challenge in the teaching of ethnobotany. This challenge has limited the number of opportunities around the country particularly in terms of anxieties expressed by students. In some instances, rather than there being a lack of good mentors, there is a lack of widely distributed mentors. However, in an emerging discipline it is unreasonable to expect every university to have both economic botanists and ethno-botanists or even either of these. The concern of studying under a well respected economic botanist is a valid one. It would serve potential students well to review the literature produced by potential mentors to discuss programs and mentors with recognized leaders in the field.

#### *Poor University curriculum*

The curricula of some universities have not been able to cover the increasing multi-disciplinary nature of the course or programme. Again the multi-disciplinary approaches and specialization of knowledge are yet to get to the level of being available in textbooks. Laboratory and field studies are lacking or poorly incorporated in the course or programme. The importance of library research and readily available quality research references is also a challenge in developing and having a sound curriculum. Universities in different parts of the world are already developing cooperative learning activities which are aimed at invigorating teaching and learning in difficult and sometimes unattractive topics in different disciplines (Sanchez and Craig 2007). The curriculum in ethnobotany in the developing world needs to be very dynamic to cope with the growing changes in the societies. While it can be said that curricula in the Nigerian universities are gradually changing to meet with the pace of change in the world, this cannot be said of the curricula in ethnobotany. The needs of the society should be studied carefully to determine what nature the ethnobotanical instructions in the country would assume in order to be able to address the needs of the society.

#### *Lack of respect*

Ethnobotany, from observation is said to have and still suffering from lack of respect. The development of respect for ethnobotany will follow the pattern experienced by ecology which endured years of disrespect until theoretical models and a systematic structure for investigation was developed.

Another dimension to the problem is not so much due to the weaknesses in Ethnobotany *per ipse*, but rather to the frequent failure of ecologists, geneticists and other specialists to acknowledge the contributions Ethnobotany has made to their subjects (Hamilton, *et al.*, 2003). These scientist have the perception that ethnobotany is not a 'hard core science' which is a reflection in part of the methodological weaknesses in conservation. There is

often little monitoring of success, or evaluation of effectiveness. Results are rarely widely disseminated. There is need to find more effective ways of operating to garner the needed respect from other scientists (Pullin & Knight, 2001; Stevens & Milne, 1997).

#### *Obscure Occupational opportunities*

Uncertainty about available occupational opportunities in the future is one of the anxieties expressed by students. Although, the occupational opportunities in ethnobotany are expanding, particularly in developing countries where there is a desire to internally identify and reap economic benefits from indigenous uses of plants, this does not seem to be translating into students awareness in the present times.

As with research funding, students would do well to consider employment in parallel fields with future expansion into economic botany/ethnobotany occurring as more positions become available. It was also observed that most of the students were not always being given direction and advises which will prepare them to both learn about cultural uses of plants and also to secure jobs with their newfound knowledge.

#### **Possible Solutions/Recommendations**

Generally, the challenges faced in teaching and indeed research in ethnobotany can be surmounted by frequent organization of symposia where resource persons are on hand to educate participants on available opportunities of funding, carrier opportunities as well as assuage the social problem associated with lack of respect.

However, in more specific terms, ethno-botanists should follow the example set by scientists/students of the burgeoning fields of conservation biology, ecology, sustainable development etc, who experienced a dearth of funding, i.e. using funding from one source to fund a primary project, such as taxonomy of a group of plants and secondarily conducting ethnobotanical field studies.

Hopefully, teachers and particularly students of ethnobotany are advised to surf the internet to identify potential mentors. One of the best mechanisms that potential students have to encounter potential mentors and to evaluate the respect of each fellow ethno-botanist is to attend scientific meetings of associations and societies of ethno-botanists, ethno-biologist and other related fields.

Again, ethnobotany been a multi-disciplinary field require that ethno-botanists get the needed knowledge and skills pertaining to many disciplines (Jacobson & Robinson, 1990). Instructors of ethnobotany courses should as a matter of necessity become more interdisciplinary in training and outlook as the multi-disciplinary nature of ethnobotany has emerged as a dominant theme in the academic rhetoric. In today's global competitive knowledge economy, updating the content and method of curricula should be an almost permanent undertaking. It is suggested that department in university need to change their curricula every two to three years in order to ensure that the content of their teaching reflects the rapidly advancing frontiers of scientific knowledge (Willian Saint et al 2004).

Courses and indeed programmes will become more beneficial and effective to both students and the teachers if the instructors chose to team teach to take advantages of individual strength. A course or programme in ethnobotany should provide an education which will assist its graduates to identify and find answers to problems in the real world. Such

problems rarely fall neatly into the discrete disciplines into which modern academia is divided (Jacobson & Robinson, 1990).

Non- high tech components of courses should include visits to botanical gardens and industries, but with increased public awareness of conservation issues, the sites been more likely to include plants used culturally or to deal with ethnobotanical topics. Also to be incorporated into courses or programme as the case may be are laboratory and field studies such as microscopy, ethnographic observations, demonstration or plant processing procedures and use of visual aids such as raw plant products, artifacts, and tools used in plant processing.

In all, the major aims of courses and programmes in Ethnobotany as with Biology (Liras, 1994) should be to teach students how to think, how to identify problems, how to explore them and how to acquire information or assistance from specialists, as necessary for the tasks in hand.

There is need for a general guideline and standardization of research techniques and a substantial theoretical basis developed to earn the needed respect. On the other hand respect will only be won with hard work and good science. Ethno-botanists should see this as their opportunity to make the contributions which will define a future field.

A look at some general occupational opportunities outside of academic employment include working in and using ethnobotanical skills in one of the following areas such as the pharmaceutical field research, land/use development, herbal medicine industry, health food industry, agricultural introduction/new crop sciences, state and federal agriculture, forestry, and land management units, cultural conservation organizations and government positions, primary and secondary science education. One of the more exciting and rapidly expanding opportunities for students of ethnobotany is that of the primary school science teacher. Many state systems of education now require teachers to obtain a bachelors degree in a specific field followed by a master's degree in education. Ethnobotany training certainly provides a student with a sound background in biological and social sciences as preparation for the modern classroom.

### **Conclusion**

Ethnobotany as a field is on the rise just as it is rapidly becoming a common word in certain circles, although the depth of scientific understanding behind its common usage is questionable. Ethno-botanists are therefore encouraged to see the need to be able to maintain effective communication with their audience throughout the entire process of teaching and learning, from the initial identification of issues through the gathering of information and analysis of results, and to the identification of recommendations for follow-up action. The ability to recognize priorities and contribute systematically to their solution is partly a matter of leadership, and the ability to mobilize fellow researchers and communities.

Ethnobotany issues are the focus of much public attention. Due to increased public interest and policy making in conservation, companies are looking to plants for new approaches to food, medicines, and energy sources. University departments are also opening positions for

interdisciplinary-trained ethno-botanists. The future looks promising for any dedicated scientist in this fascinating and vital field of research. However, for the public to fully embrace ethnobotany like any other discipline in the Nigerian society, the teaching and learning of the subject has to be innovative reengineered through curriculum improvement and modern teaching approaches.

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