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# Recent Developments and Case Studies in Ethnobotany

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# Informant use recall technique in ethnobotany

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## Introduction

The difference between what people *say* they do and what they *actually* do has long been of concern to social scientists. Similarly, respondent familiarity with domains such as plants, medicines, fabrics, and tools, for example, often differs from respondents' abilities to actually recognize the constituent items within domains, as demonstrated by Gatewood (1984) and Brewer (1995). Within ethnobotany, systematic studies of actual plant use as opposed to contextualized interviews about plant use are uncommon. Techniques such as the 24-hour dietary recall method (Dufour & Teufel 1995) are valuable and capable of yielding rich ethnobotanical data, but these and other descriptive methods can prove cumbersome and unwieldy, particularly when time constraints are considered (Cunningham 2001).

This paper addresses these concerns and presents an informant use recall research technique that was used to research medicinal plant use among the Highland Tzeltal Maya in Chiapas, Mexico. I then present a comparison between this technique and more standard ethnobotanical techniques. I hope that the strengths and weakness of both approaches can be illuminated in the interest of developing appropriate research design in ethnobotany that takes into account the specific contexts in which the research is being conducted.

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## Informant use recall methodology

The informant use recall technique was used to track medicinal plant use for 208 Tzeltal Maya individuals in six communities in Tenejapa, Chiapas, Mexico for nine months (Stepp 2002). Weekly interviews were conducted along with other complementary studies involving various aspects of ethno-ecological knowledge and use of medicinal plants. To my knowledge, this was the first systematic study to look at *actual* medicinal plant use by a traditional culture over a period of time, although other studies have examined actual food use (e.g. Dufour & Teufel 1995) and actual fuelwood use through in situ surveys (Monteiro *et al.* 2008).

Participants were provided a rudimentary plant press and asked to collect and press a voucher specimen of every plant used to treat illnesses that occurred in the period between my visits. They were also told that if no illnesses occurred in the household in a given period then that was of interest as well. This research strategy is a variant of what Medeiros *et al.* (2008) term the checklist interview whereby informants are queried about plants on a prepared list. In this case, informants provided their own checklist of sorts by saving voucher specimens of the medicinal plants they utilized. They were asked to make a mental note about various ecological aspects about where the plant was obtained (habitat, soil type, abundance of plant) and the amount of time required to find the plant. Subsequent visits to the household involved a semi-structured interview process where informants were asked about all of the illness they treated in the week prior and the plants used to treat them.

A variety of use, management, selection, time allocation and ecological data were provided through these interviews. The following questions were asked in Tzeltal:

1) *¿sbil chamel?*

What is the name of the illness?

2) *¿sbil te mach'a ay yich'o chamel?*

What is the name of the person with the illness?

3) *¿Binti poxilil la sle?*

How was the illness treated? While this almost always involved medicinal plants, occasionally they would report the use of patent medicines or injections.

4) *¿Binti jejhuk la stuntes be te wamale?*

If medicinal plants were utilized, what part of the plant

was used?

5) ¿*Te' bal, wamal bal, ak' bal, binti?*

Which of the three major plant life form categories the plant was in (*te'*-tree or woody shrub, *wamal*-herbaceous plant, *ak'*-grass)?

6) ¿*yip?*

What was the strength of the plant utilized?

7) ¿*ay bal yorail te bit'il k'alal ay yip te wamale?*

Is there a particular hour or season during which the plant was more effective?

8) ¿*ay bal yawil ya xch'i te wamal te k'alal ay yipe?*

Is there a particular place to collect the plant where the plant would be more effective?

9) ¿*te 'nax bal la yich' tael ta comunidad te wamale?*

Did you find the plant in the same community that you live in? If not, where?

10) ¿*jayeb ora ya xbeben ta sleel te wamal te banti ay snae?*

How long did it take you to find this plant walking from your house?

11) ¿*ay bal yorail te k'alal ya yich' leele?*

Are there special conditions to gather or harvest this plant?

12) ¿*banti ya x'chi? (ak'beya yejtal te banti ya xch'i te wamale)*

*k'altik*\_\_\_\_ *k'ajbenal*\_\_\_\_ *wank'altik*\_\_\_\_ *unin k'inal*\_\_\_\_  
*k'inal*\_\_\_\_ *t'etikil*\_\_\_\_ *tojol* *k'inal*\_\_\_\_ *ja'mal*\_\_\_\_ *pat*  
*na*\_\_\_\_ *kajpetal*\_\_\_\_ *akil*\_\_\_\_ *ts'unbil*\_\_\_\_ *otro*

What habitat did you find the plant in?

13) ¿*binti sbil lumilal banti ya xch'i?*

What type of soil did it grow in?

14) ¿*jich yipal (+++++ ya sk'an yal lom toyol, + ya sk'an yal lom alan)*

How abundant is the plant (on a scale of 1-5)?

The voucher specimen collected by household members served as a prompt for the interview and the use of such visual stimuli followed protocols set out in Whyte (1984), Boster (1987), Johnson & Griffith (1998), Miranda *et al.* (2007), and Berlin & Berlin (1996). For an excellent review of ethnobotanical research utilizing visual stimuli see Medeiros *et al.* (2008). The protocol established by Berlin & Berlin was of particular importance for my study. They developed what they referred to as an *herbario viajero* or ‘traveling herbarium’ that consisted of dried herbarium vouchers with the labels removed of the 203 most common medicinal plants as determined in their long-term studies on Highland Maya medical ethnobotany (Berlin & Berlin 1996: 81–82). This enabled them to collect a wide range of ethnomedical and ethnolinguistic data throughout the Highlands. The demonstrated success of this technique (and many others as noted by Medeiros *et al.* 2008) influenced me to use a similar protocol.

The voucher specimens collected by informants, while often sterile (i.e. not in fruit or flower—features sometimes necessary to make a precise determination of species), were usually easy to determine through the use of a reference collection housed at El Colegio de la Frontera Sur in San Cristobal de las Casas, Chiapas. On the rare occasion when I was unable to make a determination based on a voucher collected by a participant, I would seek out the actual location where the plant was collected and try to make another collection for determination. If this still proved unsuccessful I noted the plant population with GIS coordinates and attempted to return to collect a fertile specimen.

Contextualized interviews were also conducted at irregular intervals and involved traveling to the particular ethnoecological zone where the plant was found and discussing salient features of the zone with the informant. This allowed for a control on informant’s reports of their behavior versus their actual behavior.

## **Informant recall and accuracy**

This study relied heavily on aided informant recall to collect data. I would like to further discuss this technique because it is important to address questions of accuracy and validity in any empirical undertaking. Wilson (1952) states “A measurement whose accuracy is completely unknown has no use whatever.” Informant recall of past events and behavior is a research technique that has been widely utilized in anthropology and the social sciences, although not as much in ethnobotany. While much of the research that has utilized informant recall has done so uncritically, there are some studies that

have sought to test the validity of the approach, especially with regards to informant recall of health related activities and behavior. Informant accuracy is of major importance for ethnobotany as fieldwork often relies heavily on interviews with informants (see Bernard *et al.* (1984) for a full literature review on informant accuracy). Failure to address these issues leads to less rigorous research. The results of research that have addressed informant accuracy in recall are, quite frankly, discouraging. It appears that decay of memory is very much a function of time (Sudman & Bradburn 1973). Obviously then, the more frequent that interviews take place, the better. For this reason, every attempt was made to contact participants in the study weekly, although at times practical field concerns made this impossible, in which case a two-week period lapsed.

Another way to improve informant accuracy is through aided recall (Cannell 1977). Visual stimuli have often been utilized in ethnobiological studies as a way of prompting informants and ensuring that the taxon being discussed is the same one that the researcher thinks it is (e.g. Boster 1987; Berlin & Berlin 1996). Within ethnobotany the use of herbarium vouchers as a basis for interviewing is quite common, although the way they were utilized in this study is perhaps novel. By having informants collect voucher specimens every time they collected a plant for a treatment, a prompt was readily available to jog the memory of the informant during the interview. Rather than have to remember all illness events that occurred since the previous interview, an informant simply had to work through a stack of dried plant specimens they had collected in order to recount their illnesses and treatments, along with other information that was collected during the interviews. While I would not claim that this technique allowed for 100 percent accuracy in reporting, it does allow for a high degree of confidence that underreporting of illness and treatment was kept to a bare minimum. Limitations to the approach may arise with informants' who are disengaged and unwilling to collect a voucher of all of the plants they utilize. These same informants would also be likely to indicate their lack of interest during the interview process and could be removed from the study. Also, informants may be unlikely to collect a voucher specimen during a particularly severe illness event. However, they would also tend to remember a serious illness event during the weekly recall interview, regardless of whether a voucher specimen was available to jog their memory.

## Comparison of informant use recall versus standard ethnobotanical methodologies

This section presents a comparison between standard ethnobotanical collection techniques and informant use recall techniques. It is hoped that the strengths and weakness of both approaches can be illuminated in the interest of developing appropriate research design in ethnobotany that takes into account the specific contexts in which the research is being conducted.

Standard ethnobotanical collection techniques usually involve walking along transects (random or otherwise) with knowledgeable informants and collecting all voucher specimens of fertile plants encountered of ethnobotanical significance. At the time of collection a variety of ethnobotanical and ecological information is recorded along with the specimen. Table 1 compares the types of data collected with the two methodologies.

Table 1: A comparison of types of data collected between the two techniques

<b>Types of data collected</b>	<b>Use recall</b>	<b>Standard</b>
Medicinal plant species and their uses	Yes	Yes
Frequency of use	Yes	No
Admixtures/formulary	Yes	Usually requires follow-up interview
Seasonal variability in use	Yes	No
Actual medical use/ epidemiology	Yes	No
Field observation of efficacy	Yes	No
Ecological variation in use	Yes	No

With the use recall methodology it becomes possible to collect a broad range of additional data that come from knowing the actual frequency of use and the actual illness for which the plant was utilized. For example, data can be collected on seasonal variability in the use of a plant; field observation of efficacy of the plant on the person using it; ecological variation in the use of a plant (e.g. which ethnoecological zones people were obtaining plants from, differences in use strategies depending on altitudinal gradient); and other plants that are used in combination with the main plant. Particularly useful was ethnoepidemiological data that derived from researching the plant use. I was able to track health patterns while also collecting ethnobotanical data. Knowing the specific illness that a plant was used for avoids problems found in ethnobotanical studies based only on interviews. In these types of studies,

the use of a plant for a particular illness may be under-reported, over-reported or glossed as a general category of illness rather than the specific ethnomedical condition.

Despite these advantages a use recall methodology is best seen as a secondary methodology to be used only after a standard ethnobotanical inventory has been conducted. Table 2 notes some of the methodological and practical concerns with the two methodologies and demonstrates potential weakness in the use recall methodology.

Table 2: Methodological and practical concerns with the two techniques

<b>Methodological and practical concerns</b>	<b>Use recall</b>	<b>Standard</b>
Collection of plants with low cultural saliency	Unlikely	More likely
Quality of voucher specimens	Potentially Low	High
Number of species collected	Low	High
Time expenditure in relation to data collected	High	Low
Appropriateness of utilization in research	Secondary	Primary

A use recall methodology does perhaps make it less likely that plants with low cultural saliency (those plants that few people utilize or recognize as medicine) will be collected, while in the standard methodology if a person recognizes a medicinal plant, even if its saliency is low, it will be collected. This means that, on average and over a similar period of time, many more species will be noted in a standard methodology than in the use recall methodology. Also, the standard methodology provides superior vouchers since only fertile specimens are collected. The use recall methodology usually requires subsequent and time-consuming recollection in order to have a fertile specimen. On the other hand, supplemental voucher material that demonstrates the plant part actually utilized such as roots and bark is easily obtained with the use recall approach since the treatment had been recently prepared. Field collection of supplementary voucher material with the standard approach is a little more difficult and usually not practical at the time of initial collection.

Perhaps the biggest concern with the use recall approach is that it is time intensive. Sometimes a visit to a household would yield no ethnobotanical data because no one fell ill during the time period. However, the unfortunate truth is that this is not all that common in Highland Chiapas. People are



often ill for a variety of reasons, chief among them are lack of potable water, poor sanitation and malnutrition. In fact, this type of approach is only possible in a setting like Highland Chiapas with widespread health problems where medicinal plants are regularly utilized.

The use recall methodology may not be appropriate for initial ethnobotanical research in a community where a comprehensive ethnobotanical inventory has not been established. For example, prior to conducting my research in Chiapas, an extensive database of several thousand medicinal plants collections had been developed by Berlin & Berlin (1996). However, as a secondary or subsequent methodology it can complement a standard approach. Both approaches should be utilized to develop a full understanding of a socio-linguistic group's ethnobotanical knowledge and utilization. It ultimately comes down to whether a research strategy requires breadth or depth.

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