PALM WINE TAPPING METHODS AMONG IDOMA AND TIV ETHNIC GROUPS OF BENUE STATE, NIGERIA: IMPLICATIONS ON CONSERVATION OF PALM TREES (Elaeis guineensis)

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ABSTRACT

Some methods employed in tapping wine from palm trees may affect the life span of the palm tree. This study investigated the methods of tapping wine from palm trees (Elaesis guineensis) among the Idoma and Tiv ethnic groups of Benue State. The aim was to examine the implication of the palm wine tapping methods on the conservation of the palm trees in the study area. Applying a multi-stage sampling technique, 150 respondents were sampled and interviewed using semi-structured questionnaire to generate data. This was backed up with field observations of various palm wine tapping methods to gather the required information. The result identified three palm wine tapping methods namely inflorescent flower, terminal budding and felling of palm trees. The inflorescent flower method practiced in Idoma areas had all the trees tapped surviving while none of the trees tapped using felling the tree method in both communities survived. The inflorescent flower tapping method adopted by majority of tappers in the Idoma ethnic group was found to be more sustainable for palm wine tapping as it ensures survival of trees tapped, providing for the palm wine needs of today and future generations. However, terminal budding method of palm wine tapping associated with Tiv ethnic group is destructive because only a fraction of one quarter palm trees survived after tapping. Creating awareness on palm tree-friendly tapping methods and conservation strategies among the tapping community in these ethnic groups will improve the availability of living palm trees for continuity of use.

Keywords: *Palm trees, palm trees tapping methods, inflorescent flower, terminal budding .*

INTRODUCTION

Palms are believed to be among the oldest flowering plants in the world (Redhead, 1989). For centuries, many palm species have been tapped throughout the tropical world to produce fresh juice (sweet toddy), fermented drinks (toddy, wine), brown sugar (Jaggery) or refined sugar (Dalibard, 1999). Most tapped palm trees do not only produce sap but also have multipurpose uses (edible fruits, building materials, fuel, fibers, wax, etc.) and their socio-economic importance can be critical for the rural poor (Kovoor, 1983). Palm wine is a juicy alcoholic drink extracted from sap of various species of palm trees. According to Okagbue (1988), some of the palm species used include: oil palm (Elaeis guineensis), coconut (Cocus nucifera), date palm (Phoenix clotifera) and raffia palm (Raphia hookeri).

The unfermented sap is clean, sweet, colorless syrup containing about 10-12% (weight/volume) sugar, which is mainly sucrose (Ogbulie T., Ogbulie, J. and Njoku, 2007). Upon fermentation by the natural micro flora, the level of this sugar decreases as it converts to alcohol and other products whereas the sap becomes milky white due to the increased microbial suspension resulting from the prolific growth of fermenting organisms (Obire, 2005). Palm wine is very common in various parts of Africa and Asia. The business of palm wine tapping is dated back to centuries ago and it is passed over from one generation to another. This is why palm wine business is a rural affair in Nigeria. There are numerous techniques of tapping palm wine from palms; and these vary from one continent to another. The refined and friendlier technique of palm wine tapping for long term production is tapping the infloresent flower.

In African, palm wine is mainly tapped through two different techniques: destructive method (incision of stem apex of felled/upstanding palm), which is preferred in Ghana and Nigeria; and non-destructive method (excision of male inflorescence and sometimes of female inflorescence as well) which was developed where economic considerations have forced the people to preserve their palms, as in eastern Nigeria (Hartley, 1977). The excision of the terminal bud of standing trees is quite harmful since tapped palms never resume vigorous growth. If the terminal bud is only perforated, then the trees will show malformation in subsequent leaves, flowers and trunk growth (Kovoor, 1983). The most advanced method of tapping palm wine is that which is applied to the inflorescence spandex as the method guarantees a high yield for long periods without affecting the well-being of the palm tree (Kovoor, 1983). Tapping is an art and sap yields depend on the skills of the tapper (Khieu and Preston, 1995; Khieu, 1996). Unsustainable/destructive tapping methods may lead to the death of the palm tree and thus limit its abundance and continuous availability for future use. The objective of the study is to investigate palm wine tapping methods among the Idoma and Tiv ethnic groups of Benue State and their implication on conservation of palm trees in the area.

MATERIALS AND METHOD

A multistage sampling technique was adopted to obtain a representative sampling of palm trees. A three-staged procedure was used. The first stage involved a purposive selection of two local Government Areas, each from the three geopolitical zones based on the availability of palm wine trees and palm wine tappers. Zone A (Benue North-East) includes Kwande and Katsina-Ala local government areas, Zone B (Benue North-West) includes Gwer-East and Gwer-West local government areas and Zone C (Benue South) includes Otukpo and Ogbadibo local government areas. Four local government areas were selected from Tiv ethnic group (zones A and B) while two local government areas were selected from Idoma ethnic group (zone C). For the second stage of sampling, five villages were randomly selected from each Local Government Area. From each of the sampled villages, five palm wine tappers were interviewed and monitored to obtain information on their tapping method(s) and effect of the methods on the palm trees tapped. A total of 150 respondents from 30 villages in 6 LGAs were interviewed and monitored for a total period of two months(with each respondent's tapping period lasting for five weeks).

RESULTS AND DISCUSSION

Methods of Palm Wine Tapping: Three tapping methods were identified among the two ethnic groups namely: tapping from the inflorescent flower of the palm tree Fig. 1, tapping from the terminal bud of the palm tree (done by disenabling all the branches) Fig. 2 and tapping from felled palm tree (Fig. 3, Table 1). In the Idoma ethnic group, majority of palm wine tappers interviewed used the inflorescent flower method while a few used the felling method. The terminal budding method is not used in the area. On the contrary, most of the tappers in the Tiv ethnic group used the terminal budding method while other tappers used the felling method. The inflorescent method widely used in Idoma area is not practiced in Tiv land.

Number of Palm Trees Tapped: The number of palm trees tapped per method in each of the ethnic groups was evaluated and the result showed that in Idoma majority of the palm trees were tapped using the inflorescent method while few others were tapped using the felling method. For the Tiv ethnic groups most palm trees were tapped using the terminal budding method while a small proportion were tapped using the felling method. This implies that the two ethnic groups of Idoma and Tiv differed in the use of terminal budding and the inflorescent flower methods.

Survival of Tapped Palm Trees: In Idoma area, all the 518 trees tapped using the inflorescent method survived as shown on table 3 while none of the 198 trees tapped using the felling the tree method survived. The inflorescent flower method is thus non-destructive, this agrees with the findings of Van Die (1974). Out of the 715 trees tapped in the Tiv ethnic group using the terminal budding method, only a fraction of $^{1}/_{4}$ survived and none out of the 275 trees tapped using the felling the tree method survived. This indicates that the felling method is highly destructive and the terminal budding method also leads to loss of tree species.

Cultural and Physical Factors Influencing Methods of Palm Wine Tapping: In order to be acquainted with reasons why palm wine tappers adopted their methods of palm wine tapping, cultural beliefs (fear of accidents and known techniques are passed down through generations) and physical factors (addressed new developments such as building, road constructions, industries and non productiveness of the palm tree) were evaluated within the Idoma and Tiv ethnic groups. The major reason for the choice of tapping method in Idoma and Tiv ethnic groups was cultural beliefs such as fear of accidents and known techniques are passed. This implies that the dominant method adopted in each ethnic group was due to cultural factors, while few tappers, in Idoma area and in Tiv land based their choice of tapping method to physical factors.

Conservation Measures adopted in the study communities: A high percentage of palm wine tappers in the two ethnic groups do not practice any conservation measure but only engage in tapping of existing trees. Results on table 5 show that significant number of tappers in Idoma area and in Tiv land do not practise any conservation measure. However, other tappers in Idoma and Tiv ethnic groups respectively nurture existing wild palm trees while insignificant number in Idoma land and a few in Tiv area have established palm

plantations in their farms. It is equally observed that a few percentage of the tappers in Idoma and Tiv respectively would replace any dead tree by planting at least one palm seedling. The table 5 indicates significant value between methods of palm wine tapping used in Idoma and Tiv ethnic groups. It also shows significant difference between effects of destructive tapping methods on the lifespan of palm trees tapped. There is however no significant difference between the factors influencing the choice of tapping method in both ethnic groups.

Table 1: Palm wine tapping methods in Idoma and Tiv ethnic groups

Tapping method	Idoma	Tapping %	Tiv	Tapping %
Inflorescent flower	37	74	0	0
Terminal budding	0	0	76	76
Felling of palm trees	13	26	24	24
Total	50	100	100	100

Source: Fieldwork, 2011

Table 2: Number of palm trees tapped in Idoma and Tiv areas within five weeks

Tribe	Inflorescent flower	Terminal budding	Felling of palm trees	Total
Idoma	518	0	198	716
Tiv	0	715	275	990

Source: Fieldwork, 2011

Table 3: Survival of palm trees tapped within five weeks

Ethnic groups	Inflorescent flower	Percentage survival	Terminal budding	Percentage survival	Felling of palm trees	Percentage survival
Idoma	518	100	0	0	0	0
Tiv	0	0	184	25.7	0	0

Source: Fieldwork, 2011

Table 4: Factors influencing palm wine tapping methods

Factors	Idoma	%	Tiv	%
Cultural	39	78	73	73
Physical	11	22	27	27
Total	50	100	100	100

Source: Fieldwork, 2011

Table 5: Conservation measures (%) adopted by respondents

Conservation strategies	Idoma	Conservation %	Tiv	Conservation %
Replacement with one stand	7	14	17	17
Nurturing the wild stands	19	38	20	20
Establishment of palm plantation	2	4	26	26
No conservation measure	22	44	37	37
Total	50	100	100	100

Source: Fieldwork, 2011

Fig. 1: Palm wine tapping from the inflorescent flower of palm tree (non-destructive method) practiced in Idoma Ethnic group.

Fig. 2: Palm wine tapping from the terminal bud of the palm tree (Destructive Method) practiced in Tiv Ethnic group.

Fig. 3: Palm wine tapping from felled palm tree (Destructive method) practiced in Idoma and Tiv ethnic groups.

Fig. 4: Destroyed palm trees through terminal budding method of palm wine Tapping practice in Tiv ethnic group

CONCLUSION

The study identified three palm wine tapping methods: the inflorescent flower, the terminal budding and the tree felling methods among the Idoma and Tiv ethnic groups in Benue state. Out of the three methods, the inflorescent flower method is adjudged the best because it ensures the survival of palm trees tapped. This provides for the sustainability of the practice as a tree can be tapped several times over a long period. The tree felling and the terminal budding methods are destructive as they could result to the death of tapped trees. They can only be used on trees that are marked for destruction due to use of the land for different purposes. Creating awareness on palm tree-friendly tapping methods and conservation strategies among the tapping community in these ethnic groups will improve the availability of living palm trees for continuity of use. Encouraging palm tree plantations among tappers and non-tappers will not only increase the number of palm trees for wine tapping but also help in the provision of other palm products and environmental stability.

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