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“Shezing” a low cost chow-chow [*Sechium edule* (Jacq) Swartz] storage by Meyor tribes in Anjaw district, Arunachal Pradesh

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Abstract

Since ancient time, different methods of storage for locally produced goods have been practised using traditional methods in India. Although, difference in techniques of storage are result of difference in knowledge of cultures, their attentiveness to geographic and climatic conditions. “Shezing” is the local storage method for Chow Chow in Anjaw-district of Arunachal Pradesh and is borne to meet the need and requirements during cold winter periods as well as lean period. Chow Chow is highly perishable vegetables with a very short shelf life. Through “shezing” the vegetables are stored in square shaped underground pit near to the household. This storage method is cost effective way of preservation and storage at the same time, it helps in increasing farmer income with absolute no expenditure in power supply, easy construction, maintenance environment friendly and fresh availability of vegetables for 56 months in cold winter and lean periods. This cumbersome practice of storage is still practised and prefer by the farmers of Anjaw-district for earning extra income during off season. This paper highlighted the methods and farmer friendly cost-effective practices of “Shezing”.

Keywords: Shezing, chow-chow, *Sechium edule*, Meyor tribes

Introduction

From time immemorial, indigenous traditional knowledge has long been a source of livelihood sustainability of tribal population. Indigenous traditional knowledge is developed over generations as a result of interaction, intimacy with the natural surroundings. This knowledge was developed through observation, experiences in the form of trial and error and has passed upon generation after generation. Traditional knowledge evolves of long intimacy and attentiveness to a surrounding area wherever people are materially and spiritually integrated with their landscape (Kimmer, 2002) [6]. Different indigenous storage practices are a result of knowledge of different cultures, their attentiveness to geographic and climatic conditions (Kanwar and Sharma, 2006) [5]. Approximately 70% of food grains produced in India is stored in indigenous grain storage structures like traditional bamboo baskets, mud containers, and gunny bags to modern storage containers (Kanwar *et al.* 2002 and Channal *et al.* 2004). Efficient storage techniques are always necessary to prevent spoilage of foods and grains at the same time keeping viability and germination. Natural and locally available resources like herbs, ashes, oils are used in traditional practices since eons ago and they are still reliable and user friendly (Nangnur, 2006) [10].

Chow Chow [*Sechium edule* (Jacq) Swartz]; also known as chayote in (Hindi Language), Isqush (Nepali), Piskut (Khasi language) and Sikut (Garo language) in North-Eastern Hill regions is a member of cucurbitaceous family; it is known to have originated in the cool mountains of Central America where it was first domesticated by the Aztecs (Newstrom, 1991) [11]. Chow-Chow is extensively grown in the North East India as an important home garden crop and used for marketing as well as self-use purpose (Sahoo *et al.* 2010) [13]. It is regarded as an important item in the daily diet among the people of North Eastern State. The delicate flesh makes it highly perishable with a very short shelf life (Lokesh and Puspita, 2015) [8]. In spite of the delicate flesh and perishability the Mayor tribes have their own methods for storage of Chow-Chow with the use and of locally available resources. The present study is an attempt to explore the traditional knowledge of storing of Chow-Chow as well as to document the indigenous knowledge, and procedures related to preparation and storing vegetables.

Study Area

Located at eastern most part of Arunachal Pradesh, Anjaw District is spread over 6190 Sq. Km and lies between 27 degree 33 minute – 29 degree 22 minute North Latitude and 95 degree 15minute to 97 degree 24 minute East Longitude. The District shares two international borders—with China and with Myanmar. By virtue of its proximity to Krishi Vigyan Kendra Anjaw, A technology generating, transferring and disseminating institute and for its median performance in sustainable development. Particularly in terms of it's conserving and promoting the traditional knowledge and wisdom of the tribal farmers of Anjaw district of Arunachal Pradesh, the Meyor tribes of Kibithoo circle was selected for this study purposively due to rich agrarian culture among the tribes of Anjaw. It is well known fact that the chances of finding Indigenous practices are more in agriculturally developed areas. That's why Kaho, Kibithoo and Moshai villages from Kibithoo circle were selected purposively on the basis agrarian culture and their contribution in agricultural production in district.

Methodology

In the social sciences, there are basically two approaches for carrying out: research quantitative (relational) and qualitative (explanatory). Considering to the nature of the study, the qualitative approach has been adopted to carryout research. The study investigates how we learn from local people and how they perceive, value, use and conserve the environment and natural resources (Braiones, 1996 and Mandonda, 1997). The research was carried out in a purposively selected Kibithoo Circle of Anjaw district, Arunachal Pradesh State, India, on the basis of ethnicity, geography and Agri-Horticulture-based farming systems (Pidatala, 2001). In the first stage, 10 villages were visited to investigate the diversity in indigenous knowledge. During the second stage, out of 6 villages, 3 villages, namely Kaho, Kibithoo and Moshai dominated by the *Mayor* tribe, were selected purposively for investigation and draw the sample of 20 farmers of various ages from each village and collected 60 samples were selected for conducting personal interviews and focus group discussions on indigenous agriculture practices (Kaplowitz, 2000). The objective of the study was to document and validate the traditional knowledge of storage by *Meyor* tribes of Anjaw district. It is important to note that for IKS, interviews or group discussion cannot yield complete scientific results. Therefore, in order to satisfy this objective, a combination of different methodologies was adopted in this study. A combination of group discussions and semi-structured interview methods was used to explore the different location specific indigenous knowledge about the old aged traditional practices adopting for storage and preserving of their agro products to make them available for the whole year during geographically and climatic odd situations (heavy rain, flood, road blockage and natural calamities etc.). This study was carried out by the team of experts in the year of 2017-18.

Results

A detailed description of Traditional grain storage structures Chezing of *Meyor* tribes of Anjaw district were collected and presented below. “*Chezing/ Shezing*” is the locally known name of square shaped pit constructed in well drain sandy loam soil near to the household for watch and ward. The size of the pit varies from one another depending on the amount of materials to be stored. Usually the pit is made up of dimension of (1.5 X 1 X 0.5) m³. The pit is dug in the month

of September-October after harvesting of fruit for storage (*fig-1*). After digging the pit, it is then lined sparsely or a thin layer with rice straw to prevent the Chow-Chow with direct contact with the soil. The wall of the pit is also lined with rice paddy straw (*fig-2*). After the covering all the four walls, the chow-chow fruits free from any cuts, bruises or mechanical injury are then placed one after another as a layer of chow is over another layer of straw is placed over. Paddy straw acts as a cushioning material which is kept between the rows of fruits and prevents the fruits from the vibrating impacts between the fruits, and act as a resilient support to dissipate the heat of respiration of the produce (*fig-3,4,5,6&7*). Pit should be covered from wooden planks to avoid the fruits may exposed with direct sunlight (*fig-8*). By using this easy practices farmer may preserve their products minimum six months which is quite a long period without using any mode of machine and equipment (*fig-9*). The rain water helps in developing lateral roots of Chow-Chow which is used as a planting material at the time of next planting. Around 100 to 200 numbers of Chow Chow fruits can be stored safely in the size of 1.5 X 1 X 0.5 without any problem and deterioration. At the time of requirements during lean periods the Chow Chow fruits are taken off from the pit to be used as a vegetable. Therefore, such type of ingenious knowledge may be very useful in such geo-difficult area like North Eastern Himalayan Region where the storage of food become important where electricity is also a threat. The government, research institutes should be come forward and encourage the farming communities to preserve their culture and wisdom and promote institutions to commercialise the wisdom accordingly. This will help to preserve our own knowledge and on the other hand we can generate the income and attain household food security for its population.

Discussion

The storage method of “*Chezing /Shezing*” developed by the *Meyor* tribes of living in these is borned on the need and requirements of vegetables during cold winter periods as well as lean period. Sparse availability of vegetables, high cost of modern storage appliances as well as remoteness of the villages has compelled farmers to rely on their traditional knowledge for storing vegetables. The indigenous method of storing of squash is a result of trial and error using different vegetables and worked on the principle of evaporation. Evaporation of water from the surface and side of the wall removes the heat from inside creating a cooling effect which helps in improving the storage shelf life of Chow Chow. This storage method is very cost effective way of preservation with no power supply involved, easy for construction and maintenance, use of locally available resources, environment friendly and at the same time fresh availability of vegetables. The freshness of the Chow-Chow fruits is as good as those freshly harvested ones in spite of its delicate flesh which usually caused higher rate of perishable nature of the harvested fruits. Such methods for storage of vegetables should be encouraged and promoted in other surrounding villages in order to help farmers go for large scale cultivation of this vegetable, safe and low cost storage and all round availability of Chow-Chow vegetables during cold winter and lean period. Such type of method for storing vegetables should be encouraged and for effective storing of sparsely available vegetables in the remote area. The methods which is borne out of the trial and methods of *Meyor* tribes of Kaho village can be used for testing other vegetables as well as help in developing more cost effective method for preservation,

minimizing post-harvest losses which are usually high in vegetables and making vegetables available year round. Moreover, proper documentation of the methods will also help researchers incorporating the ideas for developing low cost preservation structure.



Fig 1: Digging of pit



Fig 2: Laying of straw at the bottom



Fig 3: Straw layer at the bottom of the pit



Fig 4: Laying of the straw at the side of pit



Fig 5: Straw layer covering the pit



Fig 6: Placing of the chow at the pit



Fig 7: Covering of the chow chow fruits with a straw



Fig 8: Last covering the pit with the wooden planks layer



Fig 9: Chow-chow fruits with sprouts after storing in



Fig 10: Sprouted chow chow fruits chezing

6. Kimmer RW. Weaving Traditional Ecological Knowledge into Biological Education: A Call to Action. *Bio Science* 2002;52(5):432-438.
7. Kanwar SS, Sardana PK, Satyavir. In (Ed) Food and nutritional security, agro technology and socio-economic aspects, SAARM, India 2002, 175-9.
8. Lokesh K Mishra, Puspita Das. Nutritional Evaluation of Squash (*Sechium Edule*) Germplasms Collected from Garo Hills of Meghalaya – North East India. *Int. J. of Agri., Env., and Biot* 2015;8(4):971-975.
9. Mandonda A. Tree and Spaces as Emotion and Norms Laden Components of Local Ecosystem in Nyamaropa Communal Land, Nyanga District, Zimbabwe. *Agriculture and Human Values* 1997;14:353-372.
10. Nagnur S, Channal G, Channamma N. Indigenous grain structures and methods of storage. *Ind. J. of Trad. Knowl* 2006;5(1):114-7
11. Newstrom LE. Evidence for the origin of chayote, *Sechium edule* (Jacq.) Sw. (Cucurbitaceae). *Econ Bot* 1991;45(3):410-428.
12. Pidatala K. Eritrea: The Process of Capturing Indigenous Knowledge. IK Notes No. 36 Sep, 2001. Washington, D.C.: The World bank Programme on Indigenous Knowledge for Africa Region's Knowledge and Learning Center 2001.
13. Sahoo UK, Rocky P, Vanlalhriatpuia K, Upadhyay K. Structural Diversity and Functional Dynamism of Traditional Home Gardens of North-East India. *The Bioscan* 2010;1:159-171.

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References

1. Braiones A, Vincente P, Gibe J. "Alternative Research: A Challenge to the Academic in a Poverty Stricken Country", in N.H. Kristensen and H. Hon-Jenssen (eds.) *New Research in Organic Agriculture*. Tholey-Theley: IFOAM 1996, 140-143.
2. Channal G, Nagnur S, Nanjayyanamath C. Indigenous grain storage structures. *Leisa India* 2004;6(3):10.
3. Kaihura F *et al.* Tanzania: Agro-diversity, Learning from Farmers across the World in H. Brookfield, H. Parsons and B. Muriel (eds.) *Agro-diversity: Learning From Farmers Across the World*. Tokyo: United Nations University 2003, 113-135.
4. Kaplowitz MD. Identifying Ecosystem Services Using Multiple Methods: Lessons from Mangrove Wetlands of Yucatan, Mexico. *Agriculture and Human values* 2000;17:169-179.
5. Kanwar P, Sharma N. Traditional storage structures prevalent in Himachal homes. *Ind. J. Trad. Knowl* 2006;5(1):98-103.