

# A Study on the Availability and Threat Status of the Local Varieties of *Mangifera indica* L. Occurring at Thiruvananthapuram District in the Kerala State of India

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**Abstract :** *Mango is one of the most important fruit crops of India occupying about 60% of the total area under fruit crop plantation. The natural varieties of the wild forms found in Andaman's, Khasi hills, Assam, Sikkim, certain parts of Uttar Pradesh and along the Western Ghats are still lacking proper studies. In Kerala several well known varieties once popular among the previous generations are either vanishing or being replaced by new high yielding horticulture varieties. Several natural varieties from homestead and farmyards of many villages of Kerala state is replaced by new horticulture varieties of mangoes. As part of urbanization, widening of village roads had also destroyed so many mango trees, and no efforts have been carried out to conserve these natural varieties. In this context, a survey has been conducted for the study of availability and threat status of the local varieties of mangoes in the Thiruvananthapuram district of the Kerala state.*

## 1. INTRODUCTION

The tropical rain forests occurring on the slopes of the Western Ghats region of the Kerala state is rich in natural variants of *Mangifera indica*. There are several lesser-known domesticated exclusive varieties of mango species found to occur among the countryside's and villages of the state. Most of the common varieties under cultivation have been locally named in accordance with their taste, quality and place of distribution [1]. *Kilichundan, Moovandan, Pandi, Pulichi* etc. are few examples of very popular varieties and most of them are high priced fruits of the state. Kerala, the land of traditions and customs in life style and food habits, has remarkable connections with mango trees from time immemorial [2]. The fruits, wood and even the leaves of mango plant are widely used for various purposes and Several occasions by the Keralites [3]. However, deserving attention and importance has not been

given so far in conservation and domestication of several lesser-known vanishing exclusive varieties of mango species of Kerala. Kerala is a land of high cultural heritage, especially, in the field of ethnic food forms. Coconut, jack fruit, mango, banana etc are used in different forms, either raw or cooked. Special delicacies were prepared from these tropical fruits and the indigenous knowledge on these aspects is very rich in these areas [4]. However, the indigenous knowledge connected with ethnic food and culture is slowly disappearing from the region [5]. An attempt to record this knowledge and to assess the vulnerability of the varieties and the high pressure observed for their survival has become a necessity.

The above facts on these species in Kerala scenario highlight urgent necessity of conservation of local varieties. In this context Trivandrum District of the Kerala state has been selected to carry out the survey, collections, studies on the availability and threat status of the local varieties of mangoes.

## 2. MATERIALS AND METHODS

### 2.1 Area of study

Thiruvananthapuram district is the southernmost district of the costal state of Kerala with the area of 2192 square kilometer. The district situated between north latitudes 80 17, and 80 54, and east longitude 760 41 and 770 17. The highland regions on the east and the North east comprises the Western Ghats. The district stretches 78 kilometer along the shore of Arabian Sea on the west. Kollam district lies on the North with Tirunelveli and Kanyakumari district of Tamil nadu on the East and South respectively. The east and north east area of the district is endowed with rich diversity of several mango varieties. Commercial exploitation of local varieties, especially for pickles and fruits, is one of the major financial gains of the local people of Thiruvananthapuram

district. However, several natural varieties are depleting and have reached the verge of extinction due to various reasons like monoculture plantation crops and other anthropogenic activities for various domestic purposes.

### 2.1.1 Survey of local varieties of mango

An intrinsic and extensive survey on the locally known varieties of mangoes has been conducted in the Thiruvananthapuram district. Nook and corners of all villages coming under the district has been visited and indigenous information was gathered. In the light of these information's, a questionnaire

was prepared and distributed amongst selected villagers who are aware on mangoes and valuable information's on local mango varieties were obtained. A preliminary investigation was conducted in the district on the availability and variability of mango varieties. 15 local varieties of mango were identified with clear cut characteristics from this region. The varieties are (1). Kottoor konam, (2). Vellari, (3).Chambavarikka, (4). Karpooram, (5). Pandi, (6). Thali, (7). Moovandan, (8). Gomavu, (9). Chaviri, (10). Mylapoo, (11). Panchara, (12). Pulichi, (13). Kilichundan, (14). Nattumavu, (15). Njettukuzhian.

## 3. RESULTS

No.	Variety of Mango	Availability status	Threat status	Consumption strategy
1	Kottoorkonam	Plenty	Nil	Awareness classes for more cultivation and prevent cutting/ felling
2	Vellari	Plenty	Nil	Awareness classes for more cultivation and prevent cutting/ felling
3	Moovandan	Not plenty	Nil	Awareness classes for more cultivation and prevent cutting/ felling
4	Thali	Plenty	Nil	Awareness classes for more cultivation and prevent cutting/ felling
5	Pandi	Not plenty	Nil	Awareness classes for more cultivation and prevent cutting/ felling
6	Pulichi	Not plenty	Nil	Awareness classes for more cultivation and prevent cutting/ felling
7	Chamba varikka	Not plenty	Nil	Awareness classes for more cultivation and prevent cutting/ felling
8	Karpooram	Rare	Rare and more infections	Seeds and seedlings supplied
9	Njettukuzhian	Very rare	Rare	Seeds and seedlings supplied
10	Gomavu	Very rare	Rare	Seeds and seedlings supplied
11	Chaviri	Rare	Very rare	Seeds and seedlings supplied
12	Mylapoo	Rare	Rare	Seeds and seedlings supplied
13	Panchara	Rare	Rare	Seeds and seedlings supplied

14	Kilichundan	Plenty	Nil	Awareness classes for more cultivation and prevent cutting/ felling
15	Nattumavu	Plenty	Nil	Awareness classes for more cultivation and prevent cutting/ felling

#### 4. CONCLUSION

The present study is a pioneer work on indigenous mangoes of Thiruvananthapuram district. Moreover, the study has brought out enormous data and indigenous knowledge on uses and various aspects of mango varieties which have been in use for centuries. The study also revealed that the indigenous mango varieties have been drastically replaced by introduced cultivars and are facing serious threats for their survival [6]. The questionnaire for survey was highly effective and most of the senior citizens actively contributed their knowledge on mangoes, which was usually orally transmitted. It is high time to record these local information's which will be useful for further research in Mangoes.

The indigenous varieties studied are facing different types of threats for their survival. The present study revealed those only 3 individual plants of the variety '*Panchara*' and 2 individuals of '*Chaviri*' variety are surviving in the district. Most of the other varieties are also facing similar threat, especially varieties such as '*Karpooram*', '*Mylapoo*' etc.

The study was highly promising to initiate conservation programmes on these varieties. Both ex-situ and in-situ programmes were conducted during the study. For ex-situ conservation the varieties of mangoes were grafted on '*Nattumavu*' and supplied to villagers for planting. The highly threatened varieties such as '*Chaviri*', '*Panchara*', '*Karpooram*' and '*Mylapoo*' were individually selected and in-situ conservation methods were also undertaken for protecting their survival. Display boards depicting the importance of the varieties and warnings preventing these trees from being felled were also put up in appropriate places. Of course, the present study will be a land mark in the field of restoration of wild germplasm of mangoes.

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