

**AN ANALYSIS OF CONSUMER PREFERENCE FOR  
DATES IN BENGALURU CITY**

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BENGALURU-560 065**

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# **AN ANALYSIS OF CONSUMER PREFERENCE FOR DATES IN BENGALURU CITY**

**RAFIQ**  
**MBAL 6020**

*Project Report submitted to the  
University of Agricultural Sciences, Bengaluru  
in partial fulfillment of the requirements for the Degree of*

***Master of Business Administration***  
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**Bengaluru**

**August, 2018**

*AFFECTIONATELY  
DEDICATED TO  
MY BELOVED  
PARENTS, FAMILY  
AND GUIDE*

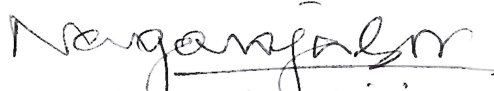


**DEPARTMENT OF AGRICULTURAL MARKETING,  
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**CERTIFICATE**

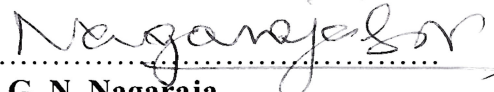
This is to certify that the Project Report entitled “AN ANALYSIS OF CONSUMER PREFERENCE FOR DATES IN BEGALURU CITY” submitted by Mr. RAFIQ, ID No. MBAL 6020, in partial fulfillment of the requirements for the degree of MASTER OF BUSINESS ADMINISTRATION (AGRIBUSINESS MANAGEMENT) to the University of Agricultural Sciences, Bengaluru is a bonafide record of research work done by him during the period of his study in this University, under my guidance and supervision and the project work has not previously formed the basis of the award of any degree, diploma, associateship, fellowship or other similar titles.

Bengaluru,  
August, 2018


  
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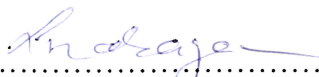
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*Place: Bengaluru*

*Date: August, 2018*

**(RAFIQ)**

# **AN ANALYSIS OF CONSUMER PREFERENCE FOR DATES IN BENGALURU CITY**

**RAFIQ**

## **ABSTRACT**

The present study was conducted to analyze consumer preference for Dates in Bengaluru city. The primary data was collected through pre-tested schedule from 60 consumers. The data was analyzed by using Descriptive statistics and Factor analysis. The result of the present study revealed that there were 13 different types of Dates available in the market imported from other countries. Beside there were 51 different brands of Dates in Bengaluru city and among them 11 were the major brands which were available in the market. Further there were 30 various value-added products of Dates in Bengaluru city. Accessibility, doctor advice, health benefits, price, better quality and taste were the major factors which influenced the consumption of Dates in Bengaluru city. Nearly 48.33 per cent of Consumer were purchasing Dates once in a month, followed by 16.67 per cent purchasing once in fortnight, once in a week (16.67%) and once in three months (3.33%). Nearly half of the consumer (48.33%) were purchasing in the range of 250 grs to 500 grs of Dates in the shops followed 1/2 to 1 kg or 43.34 per cent. Half of the consumer (50%) were purchasing Dates from modern retail formats followed by from local shops (43.33%). The study clearly revealed that there is a need to popularize the consumption of Dates and value-added products by creating awareness of the health benefits of Dates.

August, 2018

Department of Agricultural Marketing,  
Co-operation and Business Management,  
GKVK, Bengaluru-560 065

**(G. N. NAGARAJA)**

# ಬೆಂಗಳೂರು ನಗರದಲ್ಲಿ ಖರ್ಚುರದ ಗ್ರಾಹಕರ ಆಧ್ಯತೆಯ ಬಗ್ಗೆ ಒಂದು ವಿಶ್ಲೇಷಣೆ

ರಫಿಕ್

ಸಾರಂಶ

ಬೆಂಗಳೂರು ನಗರದಲ್ಲಿ ಖರ್ಚುರ ಕುರಿತಾದ ಗ್ರಾಹಕರ ಆಧ್ಯತೆಯನ್ನು ವಿಶ್ಲೇಷಿಸಲು ಪ್ರಸ್ತುತ ಅಧ್ಯಯನವನ್ನು ನಡೆಸಲಾಯಿತು. ಈ ಅಧ್ಯಯನದ ಉದ್ದೇಶಕ್ಕಾಗಿ 60 ಗ್ರಾಹಕರ ಮೂಲಕ ಪ್ರಾಥಮಿಕ ಮಾಹಿತಿಯನ್ನು ಸಂಗ್ರಹಿಸಲಾಯಿತು. ಈ ಅಧ್ಯಯನದಲ್ಲಿ ವಿವರಣಾತ್ಮಕ ಅಂಕಿಅಂಶಗಳು ಮತ್ತು ಫ್ಯಾಕ್ಟರ್ ವಿಶ್ಲೇಷಣೆಯನ್ನು ಬಳಸಿಕೊಂಡು ಅಂಕಿಅಂಶವನ್ನು ವಿಶ್ಲೇಷಿಸಲಾಗಿದೆ. ಈ ಅಧ್ಯಯನದಿಂದ ತಿಳಿದಿಬಂದ ಮುಖ್ಯ ಅಂಶವೆಂದರೆ ಬೆಂಗಳೂರು ನಗರದ ಮಾರುಕಟ್ಟೆಗಳಲ್ಲಿ ವಿವಿಧ ದೇಶಗಳಿಂದ ಆಮದು ಮಾಡಿಕೊಂಡ 13 ವಿವಿಧ ರೀತಿಯ ಖರ್ಚುರಗಳು ಲಭ್ಯವಿವೆ. ಬೆಂಗಳೂರಿನಲ್ಲಿ 51 ವಿವಿಧ ಬ್ರಾಂಡ್‌ಗಳು ಇದ್ದು ಅವುಗಳಲ್ಲಿ 11 ಮಾರುಕಟ್ಟೆಯಲ್ಲಿ ಲಭ್ಯವಿರುವ ಪ್ರಮುಖ ಬ್ರಾಂಡ್‌ಗಳಾಗಿವೆ. ಬೆಂಗಳೂರಿನ ವಿವಿಧ ಮಾರುಕಟ್ಟೆಯಲ್ಲಿ ಖರ್ಚುರಗಳು 30 ವಿವಿಧ ಮೌಲ್ಯ-ವರ್ಧಿತ ಉತ್ಪನ್ನಗಳನ್ನು ಕಂಡುಕೊಂಡಿದೆ. ಬೆಂಗಳೂರು ನಗರದಲ್ಲಿನ ಖರ್ಚುರಗಳ ಬಳಕೆಗೆ ಗ್ರಾಹಕರಿಗೆ ಪ್ರಭಾವ ಬೀರಿದ ಪ್ರಮುಖ ಅಂಶಗಳೆಂದರೆ ಪ್ರವೇಶಿಸುವಿಕೆ, ವೈದ್ಯರ ಸಲಹೆ, ಆರೋಗ್ಯದ ಅನುಕೂಲಗಳು, ಬೆಲೆ, ಉತ್ತಮ ಗುಣಮಟ್ಟ ಮತ್ತು ರುಚಿ. ಗ್ರಾಹಕರು ಒಂದು ತಿಂಗಳಿಗೊಮ್ಮೆ (ಶೇ.48.33%), ಹದಿನೈದು ದಿನಗಳಿಗೊಮ್ಮೆ (ಶೇ.16.67%), ವಾರದಲ್ಲಿ ಒಮ್ಮೆ (ಶೇ.16.67%) ಮತ್ತು ಮೂರು ತಿಂಗಳಿಗೊಮ್ಮೆ (ಶೇ.3.33%) ಖರ್ಚುರವನ್ನು ಖರೀದಿಸುತ್ತಿದ್ದಾರೆ. ಸುಮಾರು ಅರ್ಧದಷ್ಟು ಗ್ರಾಹಕರು (ಶೇ.48.33%) 1/2 ರಿಂದ 1 ಕೆಜಿ., ಶೇ.43.34% ಗ್ರಾಹಕರು 1/2 ರಿಂದ 1 ಕೆಜಿ ಮತ್ತು ಸುಮಾರು (ಶೇ.8.33%) ಗ್ರಾಹಕರು 1/4 ಕೆಜಿಗಿಂತ ಹೆಚ್ಚು ಖರ್ಚುರವನ್ನು ಖರೀದಿಸುತ್ತಿದ್ದಾರೆ. ಶೇಕಡಾ ಅರ್ಧದಷ್ಟು ಗ್ರಾಹಕರು ಆಧುನಿಕ ಚಿಲ್ಲರೆ ಅಂಗಡಿ ಮಾರುಕಟ್ಟೆಯಲ್ಲಿ ಖರ್ಚುರವನ್ನು ಖರೀದಿಸುತ್ತಿದ್ದಾರೆ, ನಂತರ ಶೇ. 43.33% ಗ್ರಾಹಕರು ಸ್ಥಳೀಯ ಅಂಗಡಿಗಳಿಂದ ಖರೀದಿಸುತ್ತಿದ್ದಾರೆ. ಈ ಅಧ್ಯಯನದಿಂದ ತಿಳಿದಿಬಂದ ಪ್ರಮುಖ ಅಂಶವೇನೆಂದರೆ ದಿನನಿತ್ಯದ ಚಿಲ್ಲರೆ ವ್ಯವಹಾರ ಮತ್ತು ಖರ್ಚುರ ಕುರಿತಾದ ಮೌಲ್ಯ-ವರ್ಧಿತ ಉತ್ಪನ್ನಗಳನ್ನು ಜನಪ್ರಿಯಗೊಳಿಸುವುದರಲ್ಲಿ ಆರೋಗ್ಯದ ಪ್ರಯೋಜನಗಳನ್ನು ಉನ್ನತ ಹಂತದಲ್ಲಿ ಪ್ರದರ್ಶಿಸುವ ಅವಶ್ಯಕತೆಯಿದೆ.

ಆಗಸ್ಟ್ 2018

ಕೃಷಿ ಮಾರಾಟ, ಸಹಕಾರ ಮತ್ತು  
ವ್ಯವಹಾರ ನಿರ್ವಹಣಾ ವಿಭಾಗ,  
ಕೃಷಿ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಜಿಕೆವಿಕೆ,  
ಬೆಂಗಳೂರು

ಡಾ|| ಜಿ. ಎನ್. ನಾಗರಾಜ  
ಪ್ರಮುಖ ಸಲಹೆಗಾರರು



# An Analysis of Factors Influencing Consumption of Dates in Bengaluru Metropolitan

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## Introduction

Dates (*Phoenix dactylifera* L.) is an important crop in the hot-arid regions of the world. Date palm products are generally used for human and animal consumption, pharmaceuticals, cosmetics, carpentry, and firewood. Dates fruit is a rich sources of sugars, vitamins, minerals and fibers. Dates fruit is a key income source and main food for local populations in many countries in which they are cultivated, and have played substantial roles in the economy, society, and environment of those countries.

Dates palm is the native crop of Iraq. Without dates, no large human population could have been maintained in the desert regions. Dates leading producing countries are Egypt, Iran, Saudi, Iraq, Pakistan, UAE, Algeria, Sudan and Oman.

In India, Dates are grown in the arid regions. In Rajasthan, Jaisalmer, Bikaner and jadhpure are the Dates grown places. Important varieties which are grown in India are Halawi, Hayan, Kalas, saidy, Sharman, Medjol, Deglet, Daity and Zahidi. Date fruit is major source of sugar, minerals, vitamins and has great health benefits.

## Objective

To analyze the factors influencing consumption of Dates in Bengaluru Metropolitan

## Methodology

### Study area:

The present study was conducted in Bengaluru Metropolitan of Karnataka.

### Source of data:

The primary data on consumer preference was collected through personal interview method using pre-tested schedule from 60 consumers. The secondary data was collected from various published sources and journals.

### Tools and techniques:

Factor analysis method was used for analysing of the factors influencing consumption of Dates in Bengaluru Metropolitan.



Fig. 1: Study area Bengaluru Metropolitan of Karnataka

## Results

Table 1: KMO and Bartlett's test for variance among factors

<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</b>		<b>0.545</b>
<b>Bartlett's Test of Sphericity</b>	Approx. Chi-Square	351.891
	Degrees of Freedom	171
	Significance Level	0.000

Table 2: Factors influencing consumption of Dates in Bengaluru Metropolitan

Sl. No.	Attributes	Components						
		1	2	3	4	5	6	7
1.	Taste	.106	.160	.073	.013	.006	.068	<b>.836</b>
2.	Health benefits	.226	-.033	<b>.642</b>	.184	-.036	.085	-.068
3.	Doctor advice	.380	<b>.567</b>	.209	.197	.206	-.251	-.100
4.	Accessibility	<b>.801</b>	.174	-.053	.116	.026	.076	.030
5.	Quality	-.017	.073	.007	.111	-.001	<b>.910</b>	.072
6.	Price	.205	-.147	-.503	<b>.300</b>	.098	-.008	.282
7.	Freshness	-.042	<b>.837</b>	.057	-.057	.106	.213	.299
8.	Advertisement	.143	.084	-.113	<b>.789</b>	-.041	.040	.141
9.	Influence of Family	.099	<b>.770</b>	-.048	.096	-.071	.065	-.007
10.	Attractive packing	-.331	.448	.081	<b>.541</b>	-.014	.203	-.201
11.	Quality Certification	-.171	<b>.423</b>	.415	.436	.090	.379	-.273
12.	On travel	.211	.028	.107	.318	.690	.002	-.115
13.	Religious occasion	.081	.071	-.216	-.147	.806	.134	.120
14.	In combination of other fruits	<b>.628</b>	.025	.201	.454	.131	-.027	-.128
15.	Availability in the local market	<b>.798</b>	-.027	-.055	-.137	.006	-.028	.111
16.	Product safety	.278	.241	.253	-.099	.109	<b>.498</b>	-.514
17.	Income	-.342	-.091	.385	-.167	<b>.660</b>	-.232	-.072
18.	Amount spent on food	-.032	.073	<b>.810</b>	-.042	.054	-.034	.139
19.	Amount spent on Dates	.268	<b>.447</b>	-.504	.237	-.242	-.131	-.101

## Discussion

The KMO measure was found to be 0.545. It shows that the factors that are extracted will account for reasonable amount of variance. The overall significance of correlation matrix is tested with Bartlett test of Sphericity (Table 1).

The factors are determined with the help of Cattell's scree plot; and it was observed that seven factors had Eigen value greater than one (Fig. 2). Accessibility, availability in the local market and in combination of other fruits had major influence on consumption of Dates in Bengaluru Metropolitan (Table 2). Doctor advice, freshness, influence of family and quality certification were the next major factors influence consumption of Dates in Bengaluru Metropolitan (Table 2).

Health benefits also played an important role in influencing consumption of Dates in Bengaluru Metropolitan (Table 2). Others factors like price, advertisement, clean and attractive pack, income, better quality, product safety and taste also influence the consumption of Dates in Bengaluru Metropolitan (Table 2).

## Graphs and Photographs

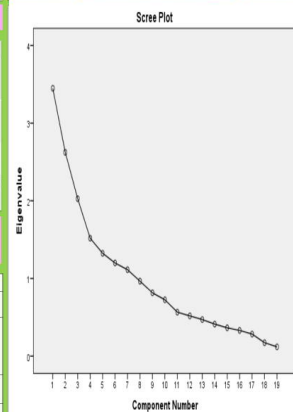


Fig. 2: Cattell's scree plot for factors influencing consumption of Dates in Bengaluru Metropolitan



Fig. 3: Different brand and value added products of Dates available in Bengaluru Metropolitan

## Summary

The study reveals that accessibility, in combination of other fruits and availability in the local market, doctor advice, influence of family and quality certification were the major factors that influence consumption of Dates in Bengaluru Metropolitan. There is a great need to popularize the consumption of Dates.

## Advisory Committee

Chairperson: Dr. G. N. Nagaraja

Members: Dr. B. M. Shashidhara  
Dr. M.S. Ganapathy  
Dr. M. T. Lakshminarayan

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## I INTRODUCTION

Date palm (*Phoenix dactylifera L.*) is one of the ancient domesticated fruit trees in the world. Date palm related to family of *Palmaceae*. Dates fruit is nutritious, energy producing and assimilative fruits. The scientific name of the Date palm tree *Phoenix dactylifera L.* probably resulting from a Phoenician name “*Phoenix*”, which means Date palm and “*dactylifera*” means ‘Dates bearing’, derived from a Greek word “*daktulos*” meaning a finger, illustrating the fruits form, (Chandra, 1990). The Date palm tree was recognized to ancient people as the “Tree of Life” and is one of the first fruit producing trees to be cultured. The Date palm is the successful and commercially significant crop in the arid areas of the world, particularly in countries like; Saudi Arabia, United Arab Emirates and Egypt etc. In these countries, Dates products are generally used for human and animal feeding, medicines, firewood, cosmetics and carpentry. The date palm fruit is a single, oblong, one-seeded berry with a terminal stigma, a fleshy pericarp and a membranous endocarp.

Date palm fruits have a great significance from both a food and health point of view. Dates are rich in vitamins, sugars, fibers and minerals. In some varieties of Dates, the sugar gratified of the fruits reaches up to 80 per cent, and considered as a high-energy nutrition fruit. Date palm, which is considered as one of the most friendly tree species to human kind, known as a plant of life for of its resilience. Date palm requires less water and survives for long period. Date palm fruit is very commonly consumed in several parts of the world and a vital element of the food and a staple food in many of the Arabian nations especially in the arid areas.

The Date palm plant needs high temperatures and less humidity to set fruit and ripens to maturity. For germination of pollen, a temperature of (35°C) is required. As with most Date palms, enquiry has indicated that warm to hot temperatures during night also promotes faster growth. The greater growth of Date palm took place between 7 p.m. and 7 a.m. than from 7 a.m. and 7 p.m. Areas with warmer night temperature promote faster palm growth than those that cool off at night. The best growing conditions for

palms are deep soils, preferably sand 3 to 5 feet deep, and a good supply of either sub-surface or irrigation water. India is the largest importer of dates in the world. In India Dates are consumed as dry fruits while in the Middle East and African countries they form a part of the cuisine and is used to make pastries and other delicacies. Mumbai, Hyderabad, Lucknow, Delhi, Bengaluru, Kerala, West Bengal and Srinagar are the most lucrative markets for the sale of Dates.

### **1.1 History of the Date Palm**

Date palm has long been is the greatest important fruit plant in the dry regions of the Arabian Peninsula, Middle East and North Africa. During the last three centuries, Date palm was also familiarized to new production zones in Australia, Mexico, southern Africa, India/Pakistan, South America, and the United States of America. Date palm is a key income source and main diet for local people in numerous countries in which they are cultivated, and have played important roles in the economy, environment and society of those countries.

Date palm is one of the eldest recognized fruit plant and has been cultivated in North Africa and the Middle East for as a minimum 5000 years. The primary record from Iraq indicates that Dates cultivation was may be established as early as 3000 BC. Because of the long past of Dates cultivation and the extensive distribution and exchange of Dates cultivars, the particular origin of the Dates fruit is unidentified, but it most likely originated from the prehistoric Mesopotamia area (southern Iraq) or western India . From its center of source, Dates cultivation spread throughout the Arabian Peninsula, Middle East and North Africa. Date palm culture had spread into Egypt by the mid of second millennium BC.

Date palm farming has had a very crucial effect on the past of the Middle East. Without Dates fruit, no large human people could have been maintained in the desert areas. Early on, Date palm agriculture became a sacred sign of fertility and fruitfulness. Dates had great mystical and cultural worth to the residence of the Middle East.

## **1.2 Geographic Distribution of Date Palm**

Date palm is a broadly spread species in diverse geographic, soil and climatic areas. Date Palms are grown in hot and arid areas of the world (encompasses the dry desert region of the world between 10°N and 39°N in the Northern hemisphere and between 7° S to 33 °51' S in the Southern hemisphere) and in nearly rainless regions at 9-39° North latitude, which are represented by the Sahara and Southern fringe of the near East Arabia Peninsula, Southern Iraq and Jordan.

Date Palm is advertised universal as a high-value sugary fruit crop. Dates considered as a significant survival plant in many of the world's desert regions. The Dates has moved remarkably well as development traveled out of Middle East and stretched places like the United States of America and Spain, with California. Beyond the dry climates, Dates can also be grown up in several other countries for nutrition or as an attractive plant including the landmasses of Americas, Asia, Africa, southern Europe, and Australia. The majority of Dates cultivating regions are placed in developing countries where Date palm fruit is considered the main diet crop, thus playing a key role in the dietary status of these communities. The common necessity among all Dates growing regions is the high heat (35°C) required for an optimum growth of pollen and the less moisture for fruit setting and maturing. Such desert-adapted crop needs huge amounts of water strained from deep in the earth through a well-established root or from shallow irrigation.

## **1.3 Worldwide Production of Date Palm**

The area under Dates cultivation almost increased from 0.63 to 1.23 million hectares, though, there has been certain reduction in years 2008 to 2010. In the year 2011, area figures rose at 1.20 million hectares that denoted a rise of 90.5 per cent as equated to 1990's. The rises in area under Date palm cultivation was quicker from 1990 to 2001- around 70 per cent rises to 1.07 million hectares - while only 11 per cent increase was from 2001 to 2011. Total global production of Date palm was 7.51million metric tonnes

(MMT) in 2011, which denoted an almost 120 per cent growth as equated to the 1990 production. The production from 2001 to 2011 showed mixed trends, with about 11 per cent increases overall, it is noteworthy to mention that Date cultivation and production have shown positive growth trends.

The Dates are cultivated in 37 countries and these countries accounted for 95.4 per cent of the entire production. The Date palm producing countries are listed below based on the region.

**Asia:** Saudi Arabia, Iran, Pakistan, UAE, Iraq, Oman, Yemen, China, Qatar Kuwait, Turkey, Bahrain, Occupied Palestinian Territory, Jordan, and Syria.

- **Africa:** Kenya, Namibia, Cameroon, Swaziland, Morocco, Benin, Chad, Niger, Somalia, Algeria, Egypt, Libya, Tunisia, Mauritania.
- **Americas:** USA, Peru, Mexico, and Colombia.
- **Europe:** Albania and Spain.

The average productive life of Dates is 40 to 50 years. There are a few Date trees that are may be several for hundred years. The average Date's tree produces 40 kg fruit per year, with produces of more than 100 kg likely with concentrated management. With low level of management and inputs Dates will produce less than 20 kg per year.

#### **1.4 Scenario of Date palm in India**

Dates grow fine in the dry northern lands near to the border of Pakistan. Dates growing states include Rajasthan's districts of Jodhpur, Jaisalmer, Bikaner, and Chandanwal. Punjab and Gujarat's chose arid regions also suffice. Despite having adequate land to cultivate the fruits, India absences the Middle East's high tech harvesting methods and machinery. Put in viewpoint, Israel grades higher in universal production than India. Middle Eastern farmers had a saying that specifies Date palm fruit's cultivating condition its feet in consecutively water and its head in the hot fires of

the sky. Certainly, Date palm need dry summers, less humidity, no chill and plenty sunshine. In Northwest region of India, flowering period happens from the month of February through March, and flower opening happens from the March through April. India cultivates roughly 40 to 50 varieties of Dates, which are categorized as soft and dry. Examples of main soft varieties are Shamran, Medjool, Hayany, Saidy, Halawi, and Kalas. Commercial kinds of dry Date palm include Deglet, Zahidi, Thoory, and Dayri. India is incapable to grow enough Dates fruit to meet demand. The fruit of Dates is especially popular among India's Muslim population. Stores offer a dizzying display of fruits, from soft-flesh worthy Arabic Date palm to harder Algerian varieties. Another unusual variety of Date palm available in India is the Barhi that is eaten fresh. These Date palm are hard and mildly juicy as opposite to chewy and sticky. Date palm imported from Saudi Arabia, Egypt, and the United Arab Emirates are of the greatest quality whereas those packaged and sold domestically tend to be the minimum edible.

### **1.5 Nutritional Value of Date Palm**

Dates fruit is a rich source of nutrients, sugar and pharmaceutical secondary metabolites, and Dates fruit has 3150 calories per kilogram, and contain a huge percentage of carbohydrate, protein, vitamins, minerals and enormous percentage of dietary fiber. Dates is contains calcium, phosphorus, magnesium, zinc, potassium, iron, copper, selenium and manganese. Date palm also has thiamine, niacin, riboflavin, and pantothenic acid. These mentioned vitamins and minerals support the human body to produce hemoglobin, which hemoglobin is a protein in RBC (Red blood cells) that fixes to oxygen and transmits oxygen from the lungs to muscles.

Potassium is moreover an essential element that the human body needs to maintain good muscle contractions. Potassium is essential for healthy nervous system and well-organized metabolism in the human body. Date fruit also has carbohydrates which is contains three grams of dietary fiber and twenty nine grams of naturally occurring sugars. Dates are an enormous base of dietary fiber which is sodium free, cholesterol free and fat free. These factors are significant for decreasing the hazard of heart disease and tumor.

Soluble fiber helps to control diabetes by reducing high blood sugar and lowering high cholesterol. Insoluble fiber raises the human body's capability. The flesh of Date palm contains 0.2 - 0.5 per cent oil, whereas seed of Dates contains 7.7 - 9.7 per cent oil. The fatty acid available both in flesh and seed as a kind of saturated and unsaturated acids. The seeds of Dates has 14 kinds of fatty acids, but only eight of these fatty acids happen in very poor concentration in fleshy portion. Unsaturated fatty acids are includes palmitoleic, linoleic, oleic and linoleic acids.

Date depending on the kind of mineral, Salts and other minerals that can be found in various portions of date's i.e. boron, linoleic, potassium, linoleic sodium and zinc. Moreover, the seed of Date palm contains aluminum, sulfur chloride and cadmium. Dates have elemental fluorine that is beneficial in keeping teeth against decay. Selenium is another mineral available in Dates fruit which are help to prevent cancer and essential for immune function. The available protein in Dates is containing 23 types of amino acids; among these 23 types of amino acids some of them are not available in other fruits such as apple, orange and banana. Dates has at least six vitamins with a small amount of vitamin C, and B riboflavin, vitamins B thiamine, niacin and vitamin A.

Dietary fiber of 14 types of Date palm dependents on type and ripeness. Dates fruit has pectin, which has health benefits. In several ways, Dates fruit may be known as an almost good food, providing an extensive range of crucial nutrients and has plenty of health benefits.

### **1.6 Health Benefits of Dates fruit**

Dates trees have remained and growing for the last 5000 years in arid climatic condition and giving food to the people as source of nutrition security, energy, and as a healthy fruit. There are a number of health benefits of Dates fruit as below:

1. Fresh Dates combine of soft, easily digestible flesh and simple sugars like fructose and Dextrose, when eaten, their energy revitalizes the human body.

2. Dates fruit is good source of dietary fiber avoids the absorption of fat in the gut as well supports to keep the colon mucous membrane by reducing contact time.
3. Dates fruit has polyphenolic antioxidants, which known as tannins, have anti-inflammatory anti-infective, and anti-hemorrhagic (prevent easily bleeding tendencies) properties.
4. Dates fruit is a good source of vitamin **A**, and have antioxidant properties and essential for vision and good as keep healthy skin. Date's fruits are rich from vitamins and support to protect from lung cancers.
5. Dates fruit has antioxidant flavonoids i.e.  $\beta$ -carotene, zeaxanthin and lutein, have the capability to keep cells and some other parts of the body from destructive effects of oxygen- free radicals.
6. Date fruit is an enormous source of iron and this iron is an element of hemoglobin in the red blood cells, regulates the Oxygen-carrying volume of the blood.
7. Dates fruit is outstanding source of potassium is an essential mineral of body fluids that help regulate heart rate as well as blood pressure and therefore defend against coronary heart diseases.
8. Dates fruits have Calcium which is an important element that is a crucial constituent of bone, and required by the human body for blood clotting, muscle contraction, and nerve impulse conduction.
9. Date palm have manganese which is essential for body for the antioxidant enzyme. Dates fruit have copper also which is necessary for the making of red blood cells. Magnesium is necessary for bone growth.
10. The Date fruit has vitamin K and B-complex group of vitamins. It contains very good amount of pyridoxine (vitamin B-6), niacin, pantothenic acid, and riboflavin. These vitamins are acting as cofactors help body metabolize carbohydrates, protein, and fats. Vitamin K is essential for many coagulant factors in the blood as well as in bone metabolism.

11. Dates fruit is beneficial to propel with gastric ulcers and is a natural laxative.
12. Date fruit is essential for swelling in the feet and it's indicating that Dates fruit is Anti- inflammation.
13. Date fruit is anti-hyperlipidemic; heart disease is related to reduction in the absorptions of high- density lipoprotein cholesterol and rise in the low-density lipoprotein cholesterol. It was stated that eating the Dates seed flour decrease the total cholesterol, plasma triglycerides and low-density lipoprotein.
14. Dates fruit is immune stimulation; immune activation is defensive approach against infectious diseases. Immunostimulants improve the general protection of the host, and present a non-specific resistant response against the bacterial pathogens. They also intensify humeral and cellular mediated resistant responses.
15. Dates fruit is Anti-diarrhea; does of 3, 6 and 12 mg/kg of Dates aqueous is good for diarrhea. These properties can explain the basis for the active use of the crop as an antidiarrheal agent in old medicine.
16. Date fruit have Dietary Fiber; the worthy nutritional value of Date fruit seeds is related to their dietary fiber, which makes Dates fruit suitable for the making of fiber-based diets and dietary supplements. A large amount of Date seeds are being waste where the seeds have an important amount of dietary fiber.

## **1.7 Preparation for Market**

The important stages are includes:

- Cleaning Dates to remove dust, dirt, and other foreign materials using air pressure and water followed by air drying to remove surface moisture.
- Packaging to protect the Dates from physical damage use of insect-proof packaging to prevent infestation of the Dates with insects during their subsequent storage and handling steps.

- Cooling to below 10°C (preferably to 0°C) before transportation or storage under the same temperatures (0 to 10°C) and 65-75% relative humidity. Forced-air cooling is the most appropriate cooling method for dates (Kader and Hussein, 2009).

### **1.8 Storage Conditions**

Storage and transport at low temperatures is most important for maintaining quality of Dates because it minimizes loss of color, flavor, and textural quality. Delays development of sugar spotting, incidence of molds and yeasts, and insect infestation. Prevents development of syrupiness and souring of excessively moist Dates (Mahmoudi *et al.*, 2008).

Dates should not be mixed with onions, garlic, potatoes, apples, or other commodities with strong odors that can be absorbed by the Dates. Exposure to ammonia or sulfur dioxide can be detrimental to quality of Dates.

### **1.9 Importance of the Study**

The study helps to assess the consumer preference for Date's fruits in Bengaluru city. This study gives an overview about Dates fruits among the citizens of Bengaluru city and it gives valuable information to many traders and retailers to improve their business. The result of this study pertaining to the constraints would help to make appropriate remedial measures to consumers and retailers.

With this background, the present study was carried out with the following specific objectives.

### **1.10 Specific objectives of the Study**

1. To document the various types and brands of Dates and major brands in Bengaluru city,
2. To enlist the different Value added products of Dates available in the market and
3. To analyze the factors influencing consumption of Dates.

Based on the above objectives, the following hypothesis was formulated.

### **1.11 Hypothesis for the Study**

Better quality and health benefits are the most important factors influencing the consumption of Dates.

### **1.12 Presentation of the Study**

The study has been presented in six chapters. Chapter one highlights the importance of the study, while chapter two presents the review of the available theoretical and empirical literature on the subject and its related areas. Chapter three deals with the data source and research methodology, including the analytical tools employed in the study. Chapter four presents the detailed findings of the study and attempts to interpret and discusses the results. Chapter five deals with the summary and policy implications, emerging from the findings of the study. Chapter six lists the sources of research material, books, research reports and papers referred for the purpose of the present study.

### **1.13 Limitations of the study**

The main limitations of the study are the sample size is limited to Bengaluru city. The study is based on the primary data collected from consumer perception on consumer preference for Date fruit. The study is restricted to Bengaluru city only. Thus, the results of the study are interpreted with the above limitation in view.

## II REVIEW OF LITERATURE

In this chapter, an attempt was done to review the work completed by other researchers regarding to this topic of study. With respect to objectives of the study, the review of literature has been presented under the following headings.

2.1 Documentation of various types and brands and major brands of different commodities

2.2 Different Value added products of Dates available in the market and

2.3 Factors influencing consumption of Dates.

### **2.1 Documentation of various types and brands and major brands of Dates**

Veena (1996) analyzed brand switching and brand faithfulness of the processed fruits and vegetable products in the state of Karnataka. The outcome of the study exposed that Maggi, Kissan and Sil were having market retention of 74.20, 48.74 and 55.78 per cent, for products of jam. The equilibrium shares decided in order to forecast future market situation between the diverse brands indicate that shares of Kissan, Rex. Other brands were probable to drop, mostly on account of rise of market shares of Gala, Maggi.

Padmanabhan (1999) studied the business experience, product lines of dealers and farmers loyalty to dealer for pesticides in southern Tamil Nadu. The study revealed that price, efficiency and advertisement had huge influence on brand loyalty. Among these three factors, price was ranked first. In the case of low price farmer was purchasing products otherwise they would purchase alternative.

Nandagopal and Chinnaiyan (2003) studied the brand preference for soft drinks in Tamil Nadu. The research of Nandagopal and Chinnaiyan revealed that people were buying soft drink because better quality and price of the products were the second issue for purchasing of soft drinks.

Yella and Ramesh (2007) conducted a study on decision making styles of customers for carbonated drinks in India. The study tries to inspect behavior to packaged fruit drinks, as behavior effects purchasing behavior. The study revealed that the significant factors which influence on behavior of customers toward package fruit drinks, benefit and taste i.e., health/nutrition were given more significance by customers compared to other factors.

Singh and Ram (2010) explored the children's brand preference for candies in the age group of 2 to 5 years. They found that the vast majority (89%) of children starts buying confectionary products in the age group of 2 to 5 years. Approximately 43 per cent consumers had preference for all brands of confectionaries. National brands of confectionaries were way ahead of both local and international brands. Wafers were the most liked whereas chips were least liked among the types of confectionary products by the children. The factors in the ascending order of their importance in buying decisions were Taste, Colour, Packaging, Brand and suitable Price.

Virmani (2011) examined the effect of advertisements for the brand preference of tea in the state of Uttar Pradesh. They indicated that factors which impact on brand preference are availability and quality of the product but the quality of the product was ranked first. Majority of the consumers replied that advertisement has less influence on buying of tea but people buying tea because of better quality.

Gupta and Jain (2014) analyzed consumer attitude towards branded food products in urban and rural regions in India. The study revealed that the loyalty and belief of the customers are unlike in urban and rural regions. In rural area 23.33 per cent of consumers recommended the brand to others while in city area 14.67 per cent consumers recommended that. In rural area 22 per cent of interviewer while in city area 27.33 per cent of interviewer buying the same brand even in case of absence of that brand. Further, 12 per cent interviewer of rural region and 16 per cent interviewer of urban region were influenced by the brand image. There were some other issues also which affected the 16.67 per cent of rural area interviewer and 12.6 per cent of urban region interviewer.

The study shows that 84 per cent of the customers had positive performance towards branded food products. More than 90 per cent of the customers were well aware of all the brands accessible in the market.

Moksha (2016) identified the different neem based and non-neem based pesticides available in Kolar district. The study revealed that neem oil and neem cakes were available i.e., Nembicide, Neemza, Indika, Vijay Neem, Neem ban, Neemrin under oil formulation, Annandam Sahubam, Parryneem, avana, Organic gold, Eco garden under neem cake formulation.

## **2.2 Different Value added products of Dates available in the market**

Chandrasekaran and Ali (2013) studies that the valorization of Dates fruit processing by-products and wastes using bioprocess technology. The study indicated that enormous amount of Date seeds thrown into the environment besides the discarded Dates and spoiled wastes hold immense potential as raw material for bioprocessing and augmentation of new range of products.

Najib and Al-Yosef (2013) conducted a study on value added utilization of Dates by-products. The study revealed that Date fruit solid waste is produced at many steps of date value-chain/marketing. However, a number of different kinds of waste/by-products are produced, i.e., pits, cull Dates, press-cake, other residue. Dates fruit pits have more protein, amino acids fiber and fat than edible part of date's fruit. Date fruit pits also have some phenolic components and have antioxidant activity. They found that currently, incomplete use is made of date fruit by-products and they are waste or used in some time for animal feed.

Ragab *et al.* (2011) Conducted a study on physical and chemical changes in fruits of three dates palm (*Phoenix dactylifera l.*) Grown in south valley, Egypt. The physical and chemical changes in fruits of Siwi, Hagazy and Unknown dates palm were studied during three development stages ( Khalal, Semi Rutab and Rutab). Results showed that such characteristics varied greatly during riping stages with some variations

between the studied Dates samples. Fruit weight, flesh weight and pit weight were decreased from Khalal to Semi-Rutab and Rutab stages. Moisture, ash, protein, fats, non-reducing sugars and fibers contents decreased especially in the Rutab stage. Total and reducing sugars progressively increased from Khalal to Semi-Rutab and Rutab stages. Data revealed that the percentage of potassium, phosphorus, sodium, magnesium, and copper decreased from Khalal to Semi-Rutab and Rutab stages except iron increased.

Nasser (2014) conducted a study on the use of midribs of Date Palm varieties that grown in Saudi Arabia for production of the energy. The study revealed that the comparatively high heating values have found for the Date Palm midribs indicate that they are capable as a source of energy.

Tang *et al.* (2014) analyzed that Dates and their processing by products as substrates for bioactive compounds production. The study revealed that Date palm fruit is the most common fruit in middle-east countries. Though, the Dates production procedure is going along with a substantial rise of loss during storage, commercialization, picking, and conditioning process. Date fruit and their byproducts have many necessary elements for the growing of microorganisms. Therefore, date fruit can be changed into value-added mixtures through biotechnology.

Rathore and Goyal (2016) conducted a study on value addition and nutraceutical potential of date fruits to examine the value addition and nutraceutical capacity of Khuneizi (Red coloured) and Zahidi (Yellow coloured) types. They found that Date fruit powder of fresh date (*doka* stage) was established in form of principal processed product. Value addition of date fruit powder in terms of baked products was acceptable. The study about nutraceutical contents of date fruit powder exposed a significant quantity of flavonoids, total antioxidant activity total antioxidant activity and total phenolic content. Khuneizi type had significantly higher ( $p < .05$ ) flavonoid, antioxidant activity and phenols as compared to Zahidi type. A huge significant correlation was found among flavonoids, antioxidant activity and phenols. Therefore, date in powdered form have a huge potential in sweltering as well as useful food due to its nutraceutical contents.

### **2.3 Factors influencing consumption of Dates**

Ahmed (2001) analyzed the Dates consumption behavior among the Saudis. The study revealed that the Kingdom of Saudi Arabia (KSA) produces 16 per cent of the world production of Dates making it the fourth largest producer in the world. The data was collected from 700 samples. The findings of the study were older people (40 years and above) were found to consume larger quantities of Dates than youths and children. Additionally, female youths were found to consume larger quantities of Dates than their male counterparts. However, the educational and socio-economic changes that have been experienced by Saudi females after the oil boom, especially during the last two decades, might have changed their date consumption patterns too. The problems faced by Saudis while purchasing Dates are cheating, charging high price, low quality of Dates, unreliability of the seller etc.

Ramaswamy *et al.* (2005) analyzed consumer performance for prompt diet products. The study revealed that people changed their food habit according to taste, experience and availability of food material and tools but still people were searching for new technique to speed up the cooking technique. The purchasing behavior of consumers is greatly influenced by awareness and attitude towards the product. Advertisement was the great source of information for products.

Baraem *et al.* (2006) studied the Dates consumption and dietary significance in the United Arab Emirates was determined among different subgroups of the nation's society. The study revealed that adult consumers of both sexes and different age groups (18–30 years and 30–60 years) and occupations (students, workers, at home) were surveyed for information on their daily consumption of Dates types (rutab, tamr, seh, debbs, batheeth and madlouj). The most consumed date food groups were rutab and tamr, with rutab being more frequently consumed than tamr during the summer season. Overall, no major differences were observed in average daily consumption per capita of most of the date food groups between males and females, between employed and home-based consumers, and between students and individuals of 18–30 years old. On average,

daily consumption of Dates per capita was 114.3g, equivalent to 10 Date fruits. However, it was noted that the younger population does not consume Dates as much as the older population does.

Ranjitha (2011) analyzed the consumer preference for jaggery in Mandya district of Karnataka. The study revealed that colour was the most important attribute followed by shape with a relative importance of 27.30 and 24.50 per cent, respectively. The changing food habit and mental attitude among urban consumers has led consumers to attach higher importance for attractive colour. The purity of the produce was the third important attribute with a relative importance of 24.19 per cent and finally, storage of jaggery was the fourth attribute with an importance of 23.94 per cent.

Moghana *et al.* (2012) analyzed the factors influencing the preference for AGMARK products. They found that purity stands first, followed by price and availability. Non-availability in most of the groceries and high price of AGMARK products were perceived as major reasons for not purchasing AGMARK products by the non- users of the same.

Fadi and Khaled (2015) conducted a study on consumer's lifestyles and willingness to pay for Dates. They observed that Date were one of the largely produced fruits in Saudi Arabia the most commonly consumed varieties were Khalas, Raziz and Shishi. The Structural equation model results suggest that consumers' attitudes, social pressure and perceived control are found to relevant in explaining the individual's purchase intention to consume Date Palm and religiosity is also found to have has a relevant positive effect. Results of the choice experiment showed that the price and the processing attributes didn't have a strong effect. However, the production location has the biggest effect.

### III METHODOLOGY

In this chapter, the description of study area, sampling procedure, nature and source of data and also analytical tools and techniques used are presented in the following sub headings:

3.1 Description of the study area

3.2 Sampling design

3.3 Nature and source of data

3.4 Analytical tools and techniques

3.5 Concept used in the study

#### **3.1. Description of the study area**

The present study was conducted in Bengaluru which recognized as the capital city of Karnataka state. Located on the Deccan Plateau of in the south-eastern part of Karnataka state, Bengaluru is India's third most populous city and fifth-most populous urban agglomeration. Bengaluru city is known as the "Silicon Valley of India" for its role as the nation's top information Technology exporter. Bengaluru city is one the greatest ethnically diverse cities in India, with near to 62 per cent of the city's population encompassing emigrants from other regions of India. Over all a multi-cultural city, Bengaluru city has practiced of the information technology and commercial process farm out industries in India. Information technology corporations in Bengaluru city employ over 35 per cent of India's pool of 1 million experts.

Bengaluru city is located at an altitude of over 3000 feet above sea level, Bengaluru city is recognized for its enjoyable weather throughout the year. It is 12.97<sup>0</sup>N 77.56<sup>0</sup>E and cover and area of 1741 sq. Km. The majority of the Bengaluru city lies in the Bengaluru Urban districts of Karnataka state and surrounding rural areas are a part of the Bengaluru Rural district. Over the year, Bengaluru city has evolved into an industrial hub

for public sector substantial industries mainly aerospace, telecommunications, heavy equipment, machine tools, space and defense. The establishing and success of commercial software facility firm in Bengaluru city after the liberalization of the India's economy has took part in huge quantity to the development of the India's information technology industry.

Bengaluru is administered by a Municipal Organization which comes under Bengaluru city Metropolitan Area. Around 65 per cent of population of Bengaluru city speaks Kannada. Remaining people speaks English, Telugu, Tamil, Malayalam, Oriya, Hindi and Urdu. Bengaluru city is also recognized as the Lawn of India because of its greenery, presence many public parks and climate. Bengaluru city is well recognized for excellence of education provided by several eminent institutes, every year it attract hopeful candidate to this beautiful city for the famous institutes. Bengaluru city is recognized as the Garden city of the India and Bengaluru city has two nationally known botanical gardens Cubbon Park and Lal Bagh, which attract many visitors during the year. For recognition of its wide green cover, Bengaluru city was the receiver of the Indira Priya darshini Vrushka Mitra award in the late 1980s.

### **3.1.1 Climate and rainfall**

Bengaluru city experiences tropical savanna weather with separate wet and dry seasons, because of its high elevation, Bengaluru city regularly enjoys mostly moderate climate during the year. In the summer occasional heat waves make the climate uncomfortable. The coolest month of the year is December with an average low temperature of 15.4 °C and the hottest month of the year is April with an average high temperature of 36°C. The maximum temperature forever recorded in Bengaluru city is 38.9 °C or (102°F). The lowest forever record is 7.8 °C or (46°F). In the winter temperatures rarely goes below 12 °C or (54 °F) and during summer, season temperatures occasionally exceed 37 °C or (99°F). Bengaluru city obtains rainfall from mutually from the north-east and the south-west monsoons and the rainiest months of the year are August, September and October. Heat in the summer season is fair by fairly many

thunderstorms, which rarely causes electricity outages and local flooding. The average rain fall is 859 mm in Bengaluru city.

### **3.2 Sampling design**

Primary and secondary data both were used in the present study. The data regarding consumer preference were collected by a pre-tested schedule through purposive random sampling method. The data regarding consumer preference were collected from diverse localities of Bengaluru city namely Sahakarnagar, Judicial Layout, Yelahanka, Shivajinagar, Malleshwaram and GKVK to have fair demonstration of different socioeconomic strata. A total of 60 consumers were interviewed and 10 consumers from each area. The map of the study area is presented in Fig.1.

### **3.3 Nature and source of data**

#### **3.3.1 Primary data**

The primary data on socioeconomic characteristics i.e. name, age, education, occupation, dual income, and amount spent on food, amount spent on dates, food habit, and family details and the data on the factors influencing consumption of Dates was also collected through pre-tested schedule by personal interview method.

#### **3.3.2 Secondary data**

The secondary data was collected from several published sources and journals. The secondary data includes study area, demographic details, various types and brands of Dates and major brands in Bengaluru city and also value added products of Dates available in the market.

### **3.4 Analytical tools and techniques**

The following analytical tools and techniques were used to analyze the data for the present study.

### 3.4.1. Descriptive statistics

These were used to describe the basic features of data gathered from various sources. They provide simple summaries about the sample and following measures like averages, ratios, percentages etc. were used in the study.

### 3.4.2 Factor Analysis

Factor analysis is a measurement method used to define variability among experiential, associated variables in term of a potentially lesser number of ignored variables called factors. Factor analysis examines the difference in response to ignored latent variables. The experiential variables are confused as linear joining of the potential factors, plus “error” terms. The evidence obtain regarding the interdependencies between experiential variable may use later to decrease the sum of the variables in a dataset.

#### 3.4.2.1 Use of Factor analysis

1. To recognize fundamental factors that clarifies the correlation between the set of variables. A set of statement may use to gauge the profiles of clients. These declarations may then be factor examined to recognize the fundamental factors.
2. To recognize a new, minor set of non-joined variables to substitute the original set of interrelated variables in succeeding multivariate analysis.

#### 3.4.2.2 Factor analysis Model

$$X_i = A_{i1}F_1 + A_{i2}F_2 + A_{i3}F_3 + \dots + A_{im}F_m + V_iU_i$$

Where,

$X_i$  =  $i^{\text{th}}$  standardized variable

$A_{ij}$  = standardized multiple regression co-efficient of variable on common factor  $j$

$F$  = common factor

$V_i$  = standardized multiple regression co-efficient of variable  $i$  on unique factor

$U_i$  = Unique factor for variable  $i$

$m$  = number of common factor

The unique factors are uncorrelated with each other and with common factors. The common factors themselves can be a linear combination of the observed variables.

$$F_i = W_{i1}X_1 + W_{i2}X_2 + W_{i3}X_3 + \dots + W_{ik}X_k$$

Where,

$F_i$  = estimate of  $i^{\text{th}}$  factor

$W_i$  = weight or factor score co-efficient

$K$  = number of variables.

It is possible to select weights or factor score co-efficient so that the first factor explains the largest portion of the total variance. Then a second set of weight can be selected so that the second factor accounts for most of the residual variance subject to being uncorrelated with the first factor.

### 3.5 Concept used in the study

**Factor analysis:** It useful tool for investigation variable relationship for complex concepts such as socioeconomic status or psychological scales.

**Factor loading:** These are simple correlation between variables and factors. These represent how much a factor explain a variable in factor analysis.

**Factor score:** A factor score is a numerical value that indicates a person's relative spacing or standing on a latent factor.

**Scree plot:** A graph of Eigen values or singular values that demonstrates the portion of total variance represented by the principle components.

## **List of preference statements towards factors influencing consumption of Dates**

- Taste
- Health benefits
- Doctor's advice
- Accessibility
- Better quality
- Price
- Freshness
- Advertisement
- Influence of family
- Attractive package
- Quality certification
- On travel
- Religious accusation
- In combination of other fruits
- Availability in the local market
- Product safety
- Dual income
- Amount spent on food
- Amount spent of Dates

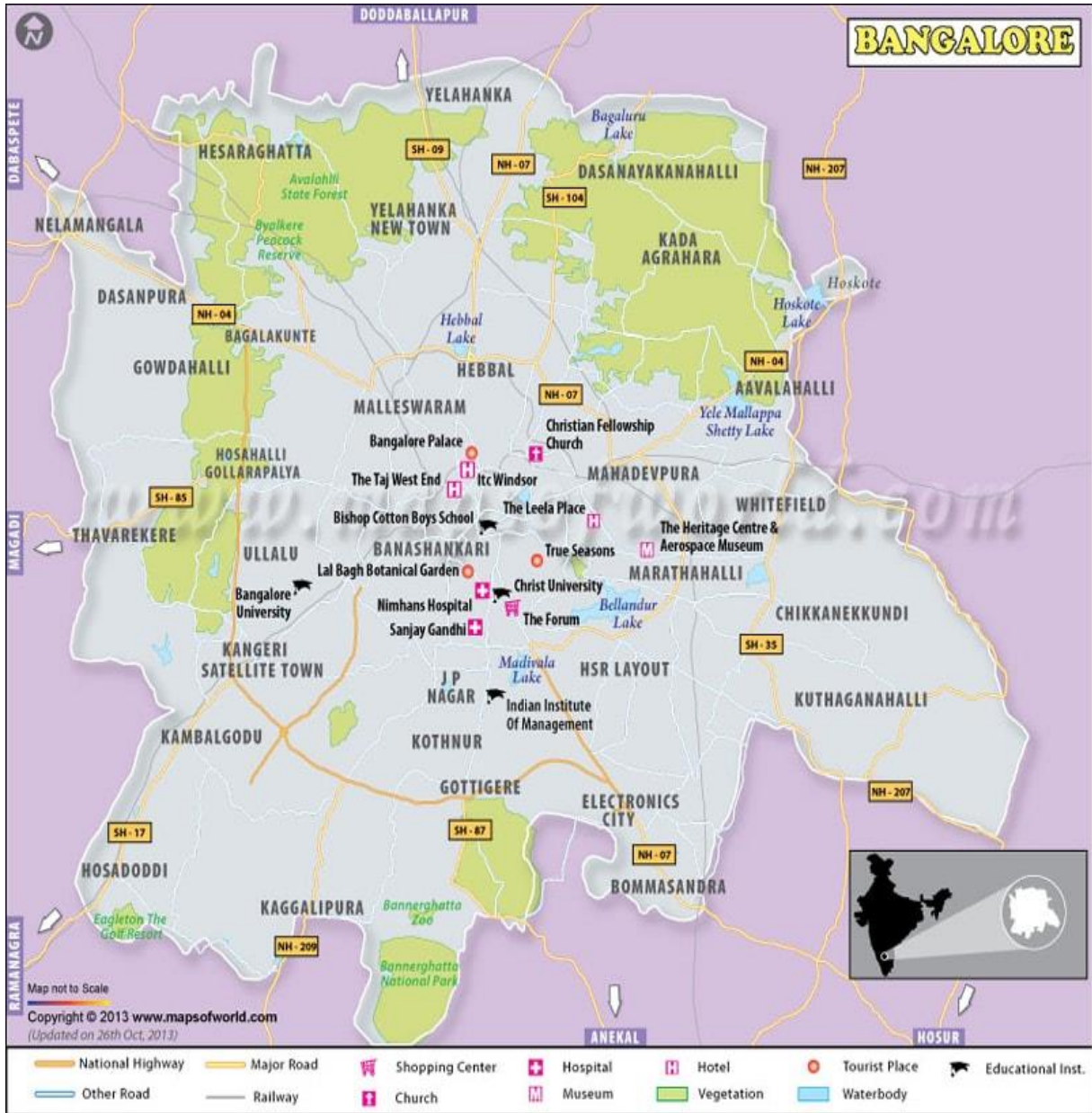


Fig. 1: Map showing the Study Area – Bengaluru city

## IV RESULTS AND DISCUSSION

The study provides insights on different types and brands, consumer preference and value-added products of Dates. The results are presented keeping the objectives in view under the following headings.

- 4.1. General information of regarding consumers of Dates in Bengaluru City
  - 4.1.1. Socio-economic characteristics of the consumers
- 4.2. Documentation of various types and brands and major brands of dates in Bengaluru city
- 4.3. List of different value-added products of Dates available in Bengaluru city
- 4.4. Factors influencing consumption of Dates
- 4.5. Frequency of purchase of Dates by consumers
- 4.6. Quantity of Purchase per trip to shop by consumers
- 4.7. Place of Purchase by consumers

### **4.1 General information of the Dates consumers in Bengaluru City**

The general information regarding socio-economic characteristic of consumers related to age, gender, employment pattern, family size, food habit, monthly income, amount spent on food and education were analyzed using percentage and result of these variables are presented under different sub headings.

#### **4.1.1 Socio – economic Profile of consumers of Dates**

The socio - economic profile of consumers of Dates is preferred in Table 4.1. The Table includes the information about age, education, gender, emplacement, food habit, monthly income, family size and amount spend on food. It could be seen from table that 33.33 per cent of consumers belonged to the age group of >28-38 years, 31.67 per cent of them belonged to the age group of >18-28 years, 13.33 per cent of them belonged to the age group of > 48-58 years, 11.67 per cent of consumers belonged to the age group of >38- 48 years and 10 per cent of them were above 58 years.

The education level of the consumers was analyzed and found that 31.67 per cent of consumers have completed their post-graduation, 25 per cent of them were under graduates, 15 per cent of the consumers studied up to high school and PUC each. 10 per cent of them studied primary school and 3.33 per cent of them were Ph.D. holders. Among the consumers interviewed 51.67 per cent were male and 48.33 were female. With regard to family size 37 per cent families had four family members, 25 per cent of them had five family members, and 15 per cent of them had above six members, 10 per cent of them had three family members and 5 per cent of the consumers had two family members. With respect to employment pattern 26.67 per cent of the consumers were house wife, 20 per cent were student, 16.67 per cent had their own business, 15 per cent of them were in government job and professional each and 6.67 per cent were others.

**Table 4.1: Socio – economic profile of consumers of Dates**

Sl. No.	Particulars	Number of consumers	Percentage to the total
<b>1.</b>	<b>Age (Years)</b>		
a)	Between 18 and 28	19	31.67
b)	Between 29 and 38	20	33.33
c)	Between 39 and 48	7	11.67
d)	Between 49 and 58	8	13.33
c)	More than 58	6	10.00
	<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>2.</b>	<b>Education</b>		
a)	Primary	6	10.00
b)	High school	9	15.00
c)	PUC	9	15.00
d)	UG	15	25.00
e)	PG	19	31.67
f)	Ph.D.	2	03.33
	<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>3.</b>	<b>Gender</b>		
a)	Male	31	51.67
b)	Female	29	48.33
	<b>Total</b>	<b>60</b>	<b>100.00</b>

<b>4.</b>	<b>Family Size (No.)</b>		
a)	Two	3	5
b)	Three	6	10
c)	Four	22	37
d)	Five	15	25
e)	Six	5	8
f)	Above six	9	15
	<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>5.</b>	<b>Employment pattern</b>		
a)	Business	10	16.67
b)	House wife	16	26.67
c)	Student	12	20.00
d)	Government job	9	15.00
e)	Professional	9	15.00
f)	Others	4	06.67
	<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>6.</b>	<b>Monthly income (Rs.)</b>		
a)	Up to 25,000	11	18.33
b)	More than 25,000-50,000	26	43.33
c)	More than 50,000-100,000	12	20.00
d)	More than 1 lakh-2 lakh	7	11.67
e)	More than 2 lakhs	4	06.67
	<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>7.</b>	<b>Food habit</b>		
a)	Vegetarians	14	23.33
b)	Veg & non-veg both	46	67.67
c)	<b>Total</b>	<b>60</b>	<b>100</b>
<b>8.</b>	<b>Amount Spent on Food (Rs. Per month )</b>		
a)	Below 5000	6	10.00
b)	Between 5001 and 10,000	22	36.67
c)	Between 10,001 and 15,000	11	18.33
d)	Between 15,0001 and 20,000	11	18.33
e)	More than 20,000	10	16.67
	<b>Total</b>	<b>60</b>	<b>100.00</b>

With regard to family income of the consumers, 43.33 per cent of them were earning between Rs. 25,000 and 50,000 per month, 20 per cent of them were earning between Rs. 50,000 and 1,00,000 per month, 18.33 per cent of them were earning Rs. below 25,000 per month, 11.67 per cent of the consumers were earning between Rs. >1 lakh and 2 lakh per month and 6.67 per cent of them were earning Rs. above 2 lakhs. With regarding to amount spend of food majority 36.67 per cent of the consumers were spending Rs. >5000-10000 per month followed by 18.33 per cent were spending Rs. >10000-15000 and >15000-20000 each, 16.67 per cent of the consumers were spending Rs. >20000-30000 per month and 10 per cent of them were spending Rs. below 5000 per month.

## **4.2 Documentation of various types and brands and major brands of Dates in Bengaluru city**

The different types and brands of dates are presented under different sub headings.

### **4.2.1 List of different types of Dates available in the market**

The details of different types of Dates available in the market is furnished in Table 4.2. The table indicates that the important types of Dates which were available in the market were Ajwa Dates, Medjol Dates, Kalmi Dates, Mabroom Dates, Ambera, Dates, Khudri Dates, Zahidi Dates, Safawi Dates, Sukarri Dates and Muzafati Dates.

Ajwa types of dates is recognized as the King of Dates. Ajwa Dates are very expensive which one Kg is Rs. 2500. Medjol Dates are best in the quality. Medjol Dates is sugar-free and the patients who have diabetes; prefer these Dates. Medjol Dates is quite expensive but the quality is better. Kalmi Dates are from Oman, available in the market. These Dates are naturally small and the shape of them are cylindrical. Kalike Dates are good source of potassium.

Mabroom Dates are a type of Dates from the country of Saudi Arabia. The color of Mabroom Dates is near to brown. It has one-year period shelf life. When people become uninterested of black Dates the wants Mabroom Dates. Ambera Dates are from Saudi Arabia specially form Medina, quite expensive, available in

the market. Khudri Dates are cylindrical in shape some time can be found in medium and big size also. The colour of these dates is brownish-red and available widely in the market.

Zahidi Dates are the type of Dates which is grown in the country of Iran. The colour of this type is yellow and the size is round and Available in the markets of Bengaluru city with low price. Safawi Dates are from the country of Saudi Arabia. They are big is size, chewy and sweet texture. Available in the market with suitable price. Sukarri Dates are from the country of Saudi Arabia are very sweet. Mazafati Dates are another type of Dates with lower price and commonly sold in the market.

**Table 4.2 : Details of different types of Dates available in the market**

<b>Sl. No.</b>	<b>Type of Dates</b>	<b>Color</b>	<b>Place of origin</b>	<b>MRP (Rs.) / kg</b>
1.	Medjol Dates	Light dark	Middle east& Africa	1400
2.	Ajwa Dates	Black	Saudi Arabia	2500
3.	Mabroom Dates	Light dark	Saudi Arabia	500
4.	Ambera Dates	Dark brown	Saudi Arabia	1500
5.	Khudri Dates	Brownish-red	Saudi Arabia	800
6.	Sukarri Dates	Brown	Saudi Arabia	600
7.	Saghai Dates	Lightly yellow	Saudi Arabia	1000
8.	Safawi Dates	Dark	Saudi Arabia	700
9.	Kalimi Dates	Black	Oman	550
10.	Barhi Dates	Yellow	India	400
11.	Zahidi Dates	Lightly yellow	Iran	900
12.	Kimia Dates	Black	Iran	500
13.	Mazafati Dates	Black	Iran	580

Note: MRP = Maximum Retail Price

#### **4.2.2 List of different brands of Dates available in the market**

The details of list and brands of Dates available in the market are presented in the Table 4.3. The table revealed that Lion Company has different brands which includes Arabian Dates Desert King, Dates Lion and Dates Halwa. Dates Royal Company has some brands which are Original Ajwa Saudi Arabian Dates, Saudi Arabian Safary Dates / Khajoor, Original Mabroom Saudi Arabian, Kalmi, Cold Sukkari Saudi Arabian Dates and Safavi saudi Dates, Seedless Maryam Dates. Markstor Company has also different brands which are Ajwa Al Saudi, Exotic Seedless Dates, Fresh & Soft Mazafati Dates, Seedless Omani Dates, Mazafati Dates and Safavi Dates. Another company is Al Alwani, the different brand of related to this company are Siafa Khudri Dates, Siafa Mabroom, Siafa Safawi Dates and Siafa Sukkary Dates, Sagai Dates, Ajwa al Madinah Dates, Premium international King Medjoul Dates. Rosta is another company which related brands are Gourmet dates (kalmi), Medjool Jumbo Dates and Dates Medjol.

The related brands of Urban Platter Company are Omani Farad Dates, Dried Date Slivers (Kharek Salli), Jordanian Medjoul Dates and Seedless Mabroom Dates from Saudi Arabia. Dates Vip Black Dates and Kimia Dates are the related brand of Al Fazal Company. Seedless dates Ajwa and Seedless dates Khudri brands are belongs to Doyen Premium Company. Seedless Omani Dates, Safavi saudi Dates and Maryam Dates brands are related to the company of Carvinal. Safawi Seeded Dates pouch and Ajwa Al Madinah Dates these two brand belongs to Falcon Company.

Dglet Nour Dates, Dates Medjol, Madinah Dates, Ajwa Dates, wet Dates Khajoor, Fard, UAE Khajur, Seedless Dates from Oman, Organic soft Dates, Queen Kalmi Dates, Safawi Dates, Seedless dates Khudri, Ajwa Dates, UAE Khajur, Mejdool Dates, Elworld Medjoul Dates, Dates black fard, Kimia Dates, Arabian Dates are brands which related to different companies

#### 4.2.3 Dates brands of Lion Company available in Bengaluru city

The list of Lion date brands available in Bengaluru city is presented in Table 4.3. The table indicated that Lion is India's largest Dates processing and trading company. The company is located in the city of Tiruchirapalli, Tamil Nadu India. This company importing and Re-packing the Dates

**Table 4.3: Dates brands of Lion Company available in Bengaluru city**

Sl. No.	Name of the Brand	Quantity (grams)	MRP (Rs.)
1.	Arabian Dates	680	350
2.	Desert King Dates	1000	350
3.	Lion dates	400	140
4.	Dates Halwa	1000	348
5.	Original Ajwa Saudi Arabian Dates	400	979
6.	Saudi Arabian Safary Dates / Khajoor	400	321
7.	Original Mabroom Saudi Arabian	500	385
8.	Kalmi	500	385
9.	Cold Sukkari Saudi Arabian Dates	350	400
10.	Safavi saudi Dates	500	395
11.	Seedless Maryam Dates	500	465

#### 4.2.4 Dates brands of Maekstor Company available in Bengaluru city

The list of Markstor dates brands available in Bengaluru city is furnished in Table 4.4. The table indicated that Markstor Company is located in Maharashtra and the importing Dates after packing of Dates selling in the market.

**Table 4.4: Dates brands of Maekstor Company available in Bengaluru city**

Sl. No.	Name of the brand	Quantity	MRP(Rs.)
1.	Ajwa Al saudi	250	1500
2.	Exotic Seedless Dates	500	650
3.	Fresh & Soft Mazafati Dates	300	350
4.	Seedless Omani Dates	300	360
5.	Mazafati Dates	500	225
6.	Safavi Dates	1000	700
7.	Zabeel Premium Deglet Nour Dates	500	354

**4.2.5 Dates brands of Al Alwani Company available in Bengaluru city**

The list of Al Alwani dates brands available in Bengaluru city is presented in Table 4.5. AL Alwani Dates Factory is a food and beverages company based in Jeddah, Saudi Arabia. The company is one of the leading date's producers of the country and has its own organic farming area in Madina. The farm produces a variety of the most popular dates in the market. Apart from dates, the company also offers a wide range of products, including coffee and dates related food items.

**Table 4.5: Dates brands of Al Alwani Company available in Bengaluru city**

Sl. No.	Name of the brand	Quantity	MRP(Rs)
1.	Siafa Khudri Dates	800	1600
2.	Siafa Mabroom	800	1900
3.	Siafa Safawi Dates	800	1850
4.	Siafa Sukkary Dates	800	1900
5.	SAGAI Dates	400	710
6.	Ajwa Al Madinah Dates	1000	1949
	Premium International King Medjoul Dates	200	396

#### 4.2.6 Dates brands of Rosta Company available in Bengaluru city

The list of Rosta Dates brands available in Bengaluru city is presented in Table 4.6. Rosta company has more than ten Royal dry fruits branded company and retail stores across prime high street and Mall locations in Mumbai & Pune offering a wide range of Imported Dry Fruits, Chocolates, Confectionaries and various other foodstuff for the gourmet consumer

**Table 4.6: Dates brands of Rosta Company available in Bengaluru city**

Sl. No.	Name of the brand	Quantity	MRP(Rs)
1.	Gourmet Dates(kalmi)	680	600
2.	Medjool Jumbo Dates	680	830
3.	Dates Medjol	1000	1290

#### 4.2.7 Dates brands of urban plater and Al Fazal companies available in Bengaluru City

The list of urban plater Dates brands an Al Fazal Dates brands available in Bengaluru city is furnished in Table 4.7. The Urban Platter Company is located in Mumbai. Manufactures and sells gourmet food products mostly through online channels. Urban Platter has a team of 37 people based in Mumbai. Al- Fazal company is belongs to united Arab Emirate.

**Table 4.7: Dates brands of urban plater and Al Fazal companies available in Bengaluru city**

Sl. No.	Name of the brand	Company	Quantity	MRP(Rs.)
1.	Jordanian Medjoul Dates	Urban plater	1000	1200
2.	Seedless Mabroom Dates from Saudi Arabia	Urban plater	250	210
3.	Omani Farad Dates	Urban plater	500	500
4.	Dried Date Slivers (Kharek Salli)	Urban plater	400	260
5.	Dates Vip Black Dates	Al Fazal	250	300
6.	Kimia Dates	Al Fazal	200	320

#### **4.2.8 Dates brands of Doyen premium, carvinal an Falcon companies available in Bengaluru city**

The list of Doyen premium Dates brands, Carvinal Dates brands and Falcon Dates brands available in Bengaluru city is presented in Table 4.8. The Doyen Premium company is Jordan's company. Carvinal is Oman's company. The above brands packed by Candor food Pvt. Ltd. Which is located in Mumbai and Falcon is Saudi's company. The above brands are re-packing by JKC General Trading Co. which is located in Turbhi, Navi Mumbai.

**Table 4.8: Dates brands of Doyen premium, Carvinal and Falcon companies available in Bengaluru city**

<b>Sl. No</b>	<b>Name of the brand</b>	<b>Company</b>	<b>Quantity</b>	<b>MRP(Rs)</b>
1.	Seedless dates Ajwa	Doyen premium	500	1200
2.	Seedless dates Khudri	Doyen premium	200	575
3.	Seedless Omani Dates	Carvinal	500	250
4.	Safavi saudi Dates	Carvinal	500	395
5.	Maryam Dates	Carvinal	300	300
6.	Safawi Seeded Dates Pouch	Falcon	500	480
7.	Ajwa Al Madinah Dates	Falcon	250	700

#### **4.2.9 Dates brands of Flyberry Gourmet, LEEVE Dry Fruits, Dates Crown and Ambrosia Delicatessen companies available in Bengaluru city**

The list of Flyberry Gourmet Dates brands, LEEVE Dry Fruits Dates brands, Dates Crown Dates brands and Ambrosia Delicatessen available in Bengaluru city is furnished in Table 4.9. Flyberry Gourmet company is located in Hyderabad, Telangana. The Flyberry Gourmet company importing various types of Dates, repack that and selling

to consumers. Date Crown company is the first retail brand from Al Foah and presently the market leader in the UAE. The brands are currently exported to more than 33 countries across the world. Imported to India by BAIT AL TAMOR Co, Turbhi, Navi, and Mumbai. The Leeve Dry Fruits located in Maharashtra - 422013 and imports various types of Dates.

**Table 4.9: Dates brands of Flyberry Gourmet, Leeve Dry Fruits, Dates Crown and Ambrosia Delicatessen companies available in Bengaluru city**

Sl. No	Name of the brand	Company	Quantity	MRP (Rs)
1.	Dglet Nour Dates	Flyberry Gourmet	500	500
2.	Dates Medjol	Flyberry Gourmet	500	880
3.	Madinah Dates	Leeve Dry Fruits	400	530
4.	Ajwa Dates Wet Dates Khajoor	Leeve Dry Fruits	400	1500
5.	Fard	Dates Crown	400	300
6.	UAE Khajur	Dates Crown	1000	519
7.	Seedless Dates from Oman	Ambrosia Delicatessen	250	540

**4.2.10 Dates brands of Crazy jack, Hoppilo, Ars and Natraj companies available in Bengaluru city**

The list of Crazy jack Dates brands, Hoppilo Dates brands, Arsh Dates brands and Natraj available in Bengaluru city is presented in Table 4.10. Crazy jack is Uk's company. Mostly producing Organic products, Hoppilo is Omani Dates company marketede by satvikk international, Yeshwanthpur, Bengaluru, Arsh company is located in Dubai, United Arab Emirates. Natraj company is in Kolkata. Importing Dates, re-pack that and sell in the market.

**Table 4.10: Dates brands of Crazy jack, Hoppilo, Ars and Natraj companies available in Bengaluru city**

Sl. No	Name of the brand	Company	Quantity	MRP(Rs)
1.	Organic soft Dates	Crazy jack	250	1500
2.	Queen Kalmi Dates	Hoppilo	500	300
3.	Safawi Dates	Arsh	500	750
4.	Arabian Dates	Natraj	500	220

#### 4.2.11: List of dry Dates brands available in Bengaluru City

The list of dry Dates brands available in Bengaluru city is presented in Table 4.11. The table revealed that dry Dates Kharik Sukha Khajur, Israel Dates | Wet Dates | Khajoor, dry Dates Slice, Dry Dates Premium Quality (Chuara), dry fruits dates sukha yellow khajoor, dry Yellow/Sukha Khajoor Premium Quality (Pila Chuara), Yellow dry Dates/ Peela Sukha which are related to different companies i.e. Lееve Dry Fruits, Sri Sauham Chhuare, Dryfruit Mart, Nurture Tree, dry Fruit Hub, Avni, SFT Dates, Sainik's dry Fruit Mall and Sgreat Spice.

**Table 4.11: List of dry Dates brands available in Bengaluru City**

Sl. No.	Brand Name	Quantity (grams)	MRP (Rs.)
1.	Israel Dates   Wet Dates   Khajoor	800	1600
2.	Dry Dates Slice	200	210
3.	Dry Dates Kharik Sukha Khajur	250	230
4.	Dry Dates Premium Quality (Chuara)	500	240
5.	Dry fruits Dates sukha yellow khajoor	1000	400
6.	Dry Yellow/Sukha Khajoor Premium Quality (Pila Chuara)	1000	400
7.	Yellow Dry Dates/ Peela Sukha	1000	440

Note: MRP = Maximum Retail Price

#### 4.2.12 List of major brands of Dates available in Bengaluru City

The list of major brands of Dates available in the market of Bengaluru city is furnished in the Table 4.5. The table indicated that Lion Dates, Desert king Dates, Arabian Dates, Deseeded Dates, Muscat Dates, Gourmet dates, Omani, Gourmet Dates

(Kalmi), Safavi Dates, Ajwa Al Saudi, Madian Dates, Premium Fard, Fard, Calsique Dates, Zahidi premium Dates, Queen Kalmi Dates, Kimia Dates and Medjoul Dates were the major brands of Dates available in the market.

**Table 4.12: List of major brands of Dates available in Bengaluru city**

Sl. No.	Name of the Company	Name of brand
1.	Lion	Lion Dates
		Desert king Dates
		Arabian Dates
		Deseeded Dates
		Muscat Dates
2.	Rostaa	Gourmet Dates Omani
		Gourmet Dates (Kalmi)
3.	Markstor	Safavi Dates
		Ajwa Al Saudi
4.	Falcon	Madian Dates
5.	Emira king Dates	Premium Fard
6.	Dates Crown	Fard
7.	Nature's Choice	Calsique Dates
8.	Emperior dates	Zahidi premium Dates
9.	Hoppilo	Queen Kalmi Dates
10.	Zargar zada dates	Kimia Dates
11.	Urban plater	Medjoul Dates

#### **4.3 List of different types of value-added products of Dates available in Bengaluru city**

The list of different value added products of Dates available in Bengaluru city is presented in Table 4.13. The table depicts that crushed Dates with almond, pistachio and sesame seeds, Dates with hazel nuts and chocolate, crushed Dates with roasted almond, crushed Dates with coffee and biscuits, Safawi Dates from Saudi Arabia with fillings, Date syrup, Khudri with almond, Sagai with almond, Safawi with almond, middle east Dates with almond, Spanish orange peel and rich dark Choco, Middle East Dates with rich dry fruit coating, Luxury Choco Dates, Dates syrup, Date palm sugar, Dates with cashew & almond, Dates almond, tamarind and Date, almonds Dates, Chocolate, almonds Dates Chocolate, dry Dates Kharik powder, almond Choco Dates dark, Dates with almonds, Dates powder, Ajwa Dates with seed powder, stuffed Dates with cashew,

almond Dates, masala Dates after meal, shahi atta khajoor cookies, Dates with almond and chocolate and mera cashew Dates were the value added products of Dates available in Bengaluru city market, produced by different companies.

**Table 4.13: List of different value-added products of Dates available in Bengaluru city**

Sl. No.	Name of the company	Name of the brand	Quantity (grams)	MRP (Rs.)
1.	Ambrosia delicatessen	Crushed Dates with Almond, Pistachio and Sesame Seeds	250	530
		Dates with Hazel Nuts and Chocolate	250	680
		Crushed Dates with Roasted Almond	250	530
		Crushed Dates with Coffee and Biscuits	250	550
		Safawi Dates from Saudi Arabia with fillings.	250	640
		Date Syrup	500	400
2.	Al Alwani Dates	Khudri with Almond	300	1000
		Sagai With Almond	300	1100
		Safawi With Almond	300	1100
3.	Doyen	Middle East Dates with Almond, Spanish Orange peel and rich dark Choco	500	700
		Luxury Dip Dates, Middle East Dates with Rich Dry Fruit Coating	500	700
		Luxury Choco Dates	400	1000
4.	Lion	Dates Syrup	1000	365
5.	Ekgaon	Date palm Sugar	1000	499
6.	Midas touch	With Cashew & Almond	200	330
7.	Neelam foodland	Dates Almond	400	500
8.	Kitchens of India	Tamarind and Date	300	98
9.	Mazaana	Almonds Dates, Chocolate	100	117
10.	Dilkhush	Almonds Dates, Chocolate	150	200
11.	Leeve dry Fruits	Dry Dates Kharik Powder	400	329
12.	Emigos	Almond Chocolates Dark	150	325
13.	Falcon	Dates with Almonds	200	340
14.	Holy Natural	Date Powder	100	280
15.	Shifa-e-Ajwa	Ajwa Dates with Seed Powder	100	1000
16.	Green Canteen	Stuffed Dates with Cashew	100	290
17.	Oskri	Almond Dates	100	300
18.	Goosebumps	Masala Dates After meal	250	250
19.	Apsara delights	Shahi atta khajoor cookies	400	75
20.	Le chocolate	Dates with almond and chocolate	200	300
21.	Natural threats	Mera Cashew Dates	350	260

Note: MRP = Maximum Retail Price



Ajwa Dates



Kalmi Dates



Medjol



Mabroom Dates



Ambera



Safawi

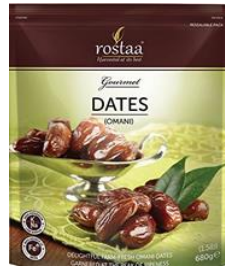


Zahidi



Sukarri

**Plate 1: The major types of Dates available in Bengaluru city**



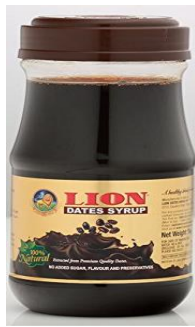
**Plate 2: The major brands of Dates available in Bengaluru city**



Plate 2: Major brands of Dates available in Bengaluru City (Contd.)



Plate 2: Major brands of Dates available in Bengaluru City



**Plate 3: Different value added products of Dates available in Bengaluru city**

#### **4.4 Factors Influencing consumption of Dates**

Factor analysis was used to identify the factors influencing consumption of Dates. The first step in factor analysis is to check the adequacy of data with the help of Kaiser-Meyer-Olkin (KMO) Measure and Bartlett's Test Table 4.14. The KMO measure was found to be 0.545 which shows that the factors that are extracted will account for fair amount of variance. The overall significance of correlation matrix was tested with Bartlett's test of Sphericity. The Chi-square value for Bartlett's Test was significant, thus rejecting the null hypothesis of independence among the variables.

Eigenvalues greater than one were considered for determining the number of factors influencing consumer preference for consumption of Dates. With the help of Cattell's scree plot the factors were determined. Seven factors had Eigen values greater than one, thus these factors were considered.

The rotated factor matrix for factors influencing consumer preference for consumption of Dates is presented in the Table 4.15. It could be observed from the table that "Accessibility", "In combination of others fruits" and "Availability in the local market" were substantially loaded on factor 1, while "Doctor advice", "Freshness", "attractive packing" and "quality certification was significantly loaded on factor 2. "Health benefits and "price" were loaded on factor 3, "advertisement was loaded on factor 4, "on travel" and "Religious accusation were loaded on factor 5, "better quality" was loaded on factor 6 and "taste" was loaded on factor 7.

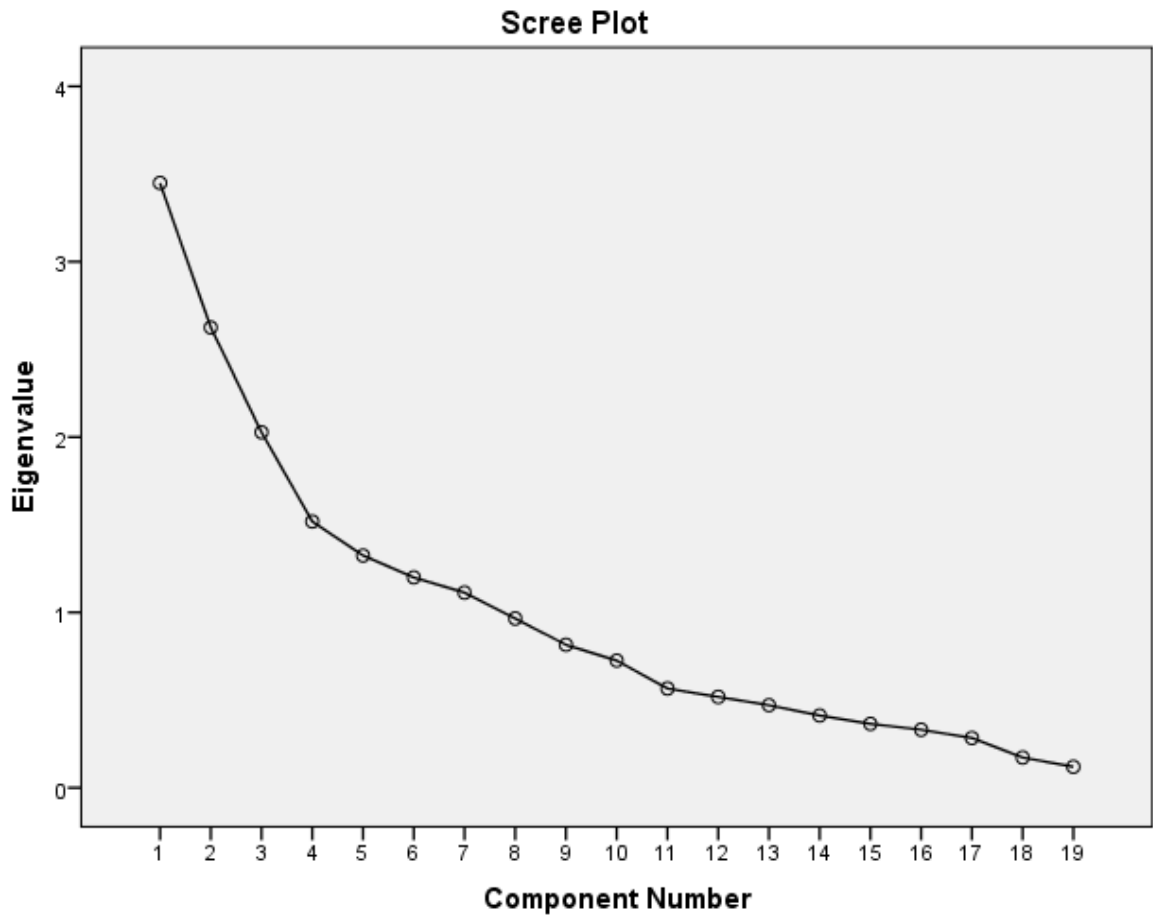
A high score of factor one reveals that consumers preferred the Dates and its products because of availability and accessibility of the consumers to Dates and also because of consumers preferred to consume Dates with combination of other fruits such as Dates with almond, Dates with cashew etc.

**Table 4.14: KMO and Bartlett's Test for variance among the factors**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.545
Bartlett's Test of Sphericity	Approx. Chi-Square	351.891
	Degree of freedom	171.00
	Significance	0.000

**Table 4.15: Rotated factor matrix for factors influencing consumption of Dates**

Sl. No.	Attributes	Components						
		1	2	3	4	5	6	7
1.	Taste	0.106	0.160	0.073	0.013	0.006	0.068	<b>0.836</b>
2.	Health benefits	0.226	-0.033	<b>0.642</b>	0.184	-0.036	0.085	-0.068
3.	Doctor advice	0.380	<b>0.567</b>	0.209	0.197	0.206	-0.251	-0.100
4.	Accessibility	<b>0.801</b>	0.174	-0.053	0.116	0.026	0.076	0.030
5.	Better Quality	-0.017	0.073	0.007	0.111	-0.001	<b>0.910</b>	0.072
6.	Price	0.205	0-.147	<b>-0.503</b>	0.300	0.098	0-.008	0.282
7.	Freshness	0-.042	<b>0.837</b>	0.057	-0.057	0.106	0.213	0.299
8.	Advertisement	0.143	0.084	0-.113	<b>0.789</b>	-0.041	0.040	0.141
9.	Influence of Family	0.099	<b>0.770</b>	0-.048	0.096	-0.071	0.065	-0.007
10.	Attractive packing	-0.331	<b>0.448</b>	0.081	0.541	-0.014	0.203	-0.201
11.	Quality Certification	-0.171	<b>0.423</b>	0.415	0.436	0.090	0.379	-0.273
12.	On travel	0.211	0.028	0.107	0.318	<b>0.690</b>	0.002	-0.115
13.	Religious accusation	0.081	0.071	-0.216	-0.147	<b>0.806</b>	0.134	0.120
14.	In combination of others fruits	<b>0.628</b>	0.025	0.201	0.454	0.131	-0.027	-0.128
15.	Availability in the local market	<b>0.798</b>	-0.027	-0.055	-0.137	0.006	-0.028	0.111
16.	Product safety	0.278	0.241	0.253	-0.099	0.109	<b>0.498</b>	-0.514
17.	Income	-0.342	-0.091	0.385	-0.167	<b>0.660</b>	-0.232	-0.072
18.	Amount spent on food	-0.032	0.073	<b>0.810</b>	-0.042	0.054	-0.034	0.139
29.	Amount spent on Dates	0.268	<b>0.447</b>	-0.504	0.237	-0.242	-0.131	-0.101



**Fig. 2: Cattell's screeplot for number of factors influencing consumption of Dates in Bengaluru city**

Factor 2 presents variables Doctor’s advice, freshness, attractive pack, quality certification and family influence. Therefore, this factor is labeled as “influence of doctor and family” and “marketing strategies”. Such consumers are influenced by the clean and attractive packing of the products, but not influenced when a retailer persuades them to buy the products. Factor 3 collects variables that related to health benefits and price. Therefore, this factor is labeled as “health benefits” because people eating Dates for the purpose of health and don’t considered the price where it is high or low. Factor 4 collects variables related to advertisements, because of that this factor is labeled as “awareness”. Factor 5 collects variables related to religious accusation and on travel so this factor is labelled as “religious” because most of Muslim population beside health benefits and other factors, eating Dates because of religious accusation. They consider Dates as a holy food and during Ramadan they breaking their fast by Dates. When they going for haj to Saudi, bring high quality Dates with themselves. Factor 6 labelled as “quality” collects variables that related to keeping quality. Factor 7 labeled as a “taste” such consumer largely depends on taste.

#### **4.5 Frequency of purchase of Dates by consumer**

The frequency of purchase of Dates by the consumers is furnished in the Table 4.16. The table revealed that 48.33 per cent were purchasing Dates once in a month, followed by 31.67 per cent of them were purchasing once in fourth night. 16.67 per cent of the consumer were purchasing Dates once in a week and 3.33 per cent of the consumers were purchasing Dates once in three months.

**Table 4.16: Frequency of purchase of Dates in Bengaluru city**

<b>Sl. No.</b>	<b>Frequency</b>	<b>No. of consumers</b>	<b>Percentage to the total</b>
1.	Once in a week	10	16.67
2.	Once in fourth night	19	31.67
3.	Once in month	29	48.33
4.	Once in three months	2	3.33
	Total	60	100.00

#### 4.6 Quantity of Purchase per trip to shop by consumers

The quantity of purchase of Dates by consumers per trip to shop furnished in Table 4.17. The table indicated that 48.33 per cents of consumers were purchasing  $>1/4 - 1/2$  kg of Dates per trip to shop followed by 43.34 per cent of them were purchasing  $>1/2- 1$  kg of Dates per trip to shop and 8.33 per cent of consumers were purchasing  $>1/4$ kg of Dates per trip to shop.

**Table 4.17: Quantity of Purchase per trip to shop by consumers**

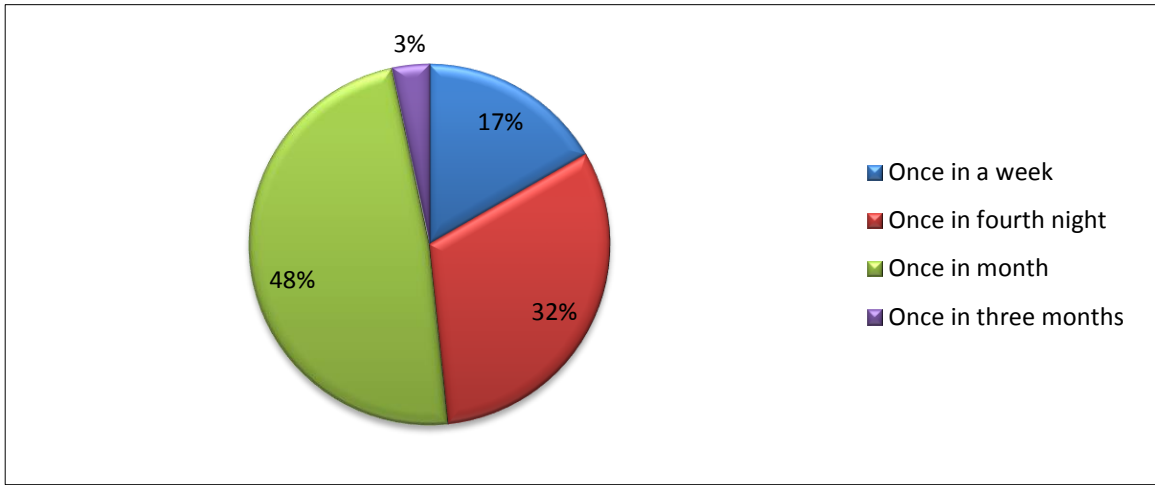
Sl. No.	Quantity	No. of consumers	Percentage to the total
1	$>1/4$ kg	5	8.33
2	$>1/4 - 1/2$ kg	29	48.33
3	$>1/2- 1$ kg	26	43.34
	Total	60	100

#### 4.7 Place of Purchase of Dates by Consumers

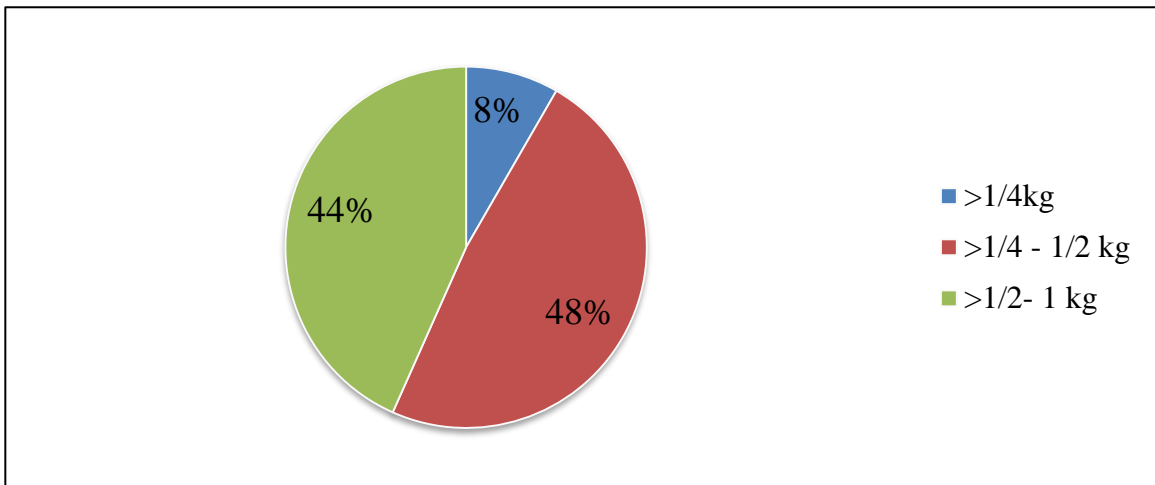
The details of place of purchase of Dates by consumers is furnished in The Table 4.18. The table indicated that that 50 per cent of the consumers were purchasing Dates from Mall followed by 43.33 per cent of them were purchasing from local shops.

**Table 4.18: Place of Purchase of Dates by Consumers**

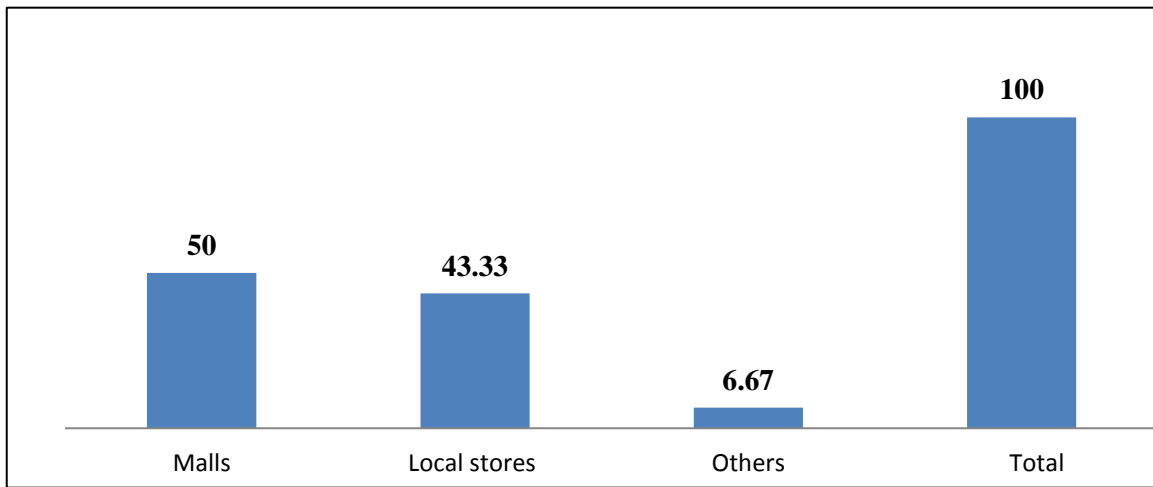
Sl. No.	Place	No. of consumers	Percentage to the total
1	Malls	30	50.00
2	Local stores	26	43.33
3	Others	4	6.67
	Total	60	100



**Fig. 3: Frequency of purchase of Dates by consumers**



**Fig. 4: Quantity of Purchase per trip to shop by consumers**



**Fig. 5: Place of purchase of Dates by consumers**

## V SUMMARY AND CONCLUSION

Dates fruit is a rich source of sugar, fiber and energy. Dates fruit also contain essential vitamins such as riboflavin, thiamin, niacin, vitamin A, and vitamin K, crucial minerals such as iron, calcium, sodium, phosphorus, magnesium, zinc, copper, selenium and potassium. The vitamins, minerals, sugar, fiber and energy are needed for the essential function of the human body.

Dates fruit is known as good food and has plenty of health benefits such as; they are good source of dietary fiber avoids the absorption of fat in the gut as well as supports to keep the colon mucous membrane by reducing contact time. Dates fruit is an enormous source of iron and this iron is an element of hemoglobin in the red blood cells, regulates the Oxygen-carrying volume of the blood. Potassium available in the Dates help regulate heart rate as well as blood pressure therefore defend against coronary heart diseases. In addition eating the Dates seed flour decrease the total cholesterol, plasma triglycerides and low-density lipoprotein. Dates fruit is Immune stimulation; Immune activation is defensive approach against infectious diseases. Immunostimulants improve the general protection of the host, and present a non-specific resistant response against the bacterial pathogens.

With this background the present study attempted to document various types and brands of Dates and major brands in available Bengaluru city and to enlist the different Value-added products of Dates available in the market and to analyze the factors influencing consumption of Dates. This study gives an overview about Dates fruits among the citizens of Bengaluru city and it gives valuable information to many traders, retailers and consumers.

With this background, the present study was conducted in Bengaluru city of Karnataka state with the following objectives:

1. To document the various types and brands of Dates and major brands in Bengaluru city,

2. To enlist the different value-added products of Dates available in the market and
3. To analyze the factors influencing consumption of Dates.

The primary data as well as secondary data was used in the present study. The primary data recording consumer preference were collected by a pre tested schedule. Purposive random sampling method was used to choose the consumers. The data regarding consumer preference were collected from diverse localities of Bengaluru city. A total of 60 consumers were interviewed. Secondary data have been collected from several published sources and journals.

### **5.1 Major findings of the study**

- Among the consumers 33.33 per cent of consumers belongs to the age group of more than 28-38 years, followed by 31.67 per cent in the age group of 18-28 years.
- All the consumers were educated and none of the consumers were illiterates.
- Among the consumers interviewed, 51.67 per cent were males and 48.33 were females.
- With regard to family size, 37 per cent families had four family members followed by 25 per cent of them had five family members.
- Among the consumers, 26.67 per cent were house wife, 20 per cent were students, 16.67 per cent had their own business, and 15 per cent of them were in government job and professional.
- Among the consumers, 43.33 per cent of consumers were earning between Rs. 25,000-50,000 per month, 20 per cent of them were earning more than Rs.50,000-100,000 per month, 18.33 per cent of them were earning Rs. below 25000 per month, 11.67 per cent of the consumers were earning Rs. more than 1 lakh - 2 lakh per month and 6.67 per cent of them were earning Rs. above 2 lakh.

- Among the consumers, 36.67 per cent were spending Rs. more than 5000-10000 per month for food, followed by 18.33 per cent were spending Rs. more than 10000 - 15000 and more than 15000 - 20000 each, 16.67 per cent of the consumers were spending Rs. more than 20000 - 30000 per month and 10 per cent of them were spending Rs. below 5000 per month.
- Among the consumers , 48.33 per cent were purchasing Dates once in a month, followed by 31.67 per cent of them were purchasing once in fortnightly, 16.67 per cent of the consumer were purchasing Dates once in a week and 3.33 per cent of the consumers were purchasing Dates once in three months.
- Most of the consumers 48.33 per cents were purchasing more than 1/4 - 1/2 kg of Dates per trip to shop followed by 43.34 per cent of them were purchasing more than 1/2- 1 kg of Dates per trip to shop and 8.33 per cent of consumers were purchasing more than 1/4kg of Dates per trip to shop.
- Among the consumers 50 per cent were purchasing Dates from organized retail shops followed by 43.33 percent of them were purchasing from local shops.
- The factor analysis revealed that the factors influencing the consumers to consume Dates are Accessibility, in combination of others fruits, availability in the local market, Doctor advice, quality Certification, health benefits, attractive packing, better quality, influence of family, religious tradition, taste, freshness and price.

## 5.2 Conclusion

There is a great need to popularize the retail business of Dates and value added products of Dates by displaying the health benefits on the top of shelves. Further, appropriate other promotional strategies may be adopted to increase the retail business in the modern retail formats.

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