

# Pure or Altered: Understanding Honey's Integrity and Consumer Perception among Coimbatore Homemakers

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**Abstract:** Honey has been linked to health benefits such as improved heart health, wound healing, and antioxidant status in the blood. Raw honey has been used throughout history as a medicine and has a wide variety of health & medicinal uses. Most honey that is found in grocery stores is pasteurized. The present study was aimed to know the preservation, adulteration, and perception of honey in households among homemakers. The information regarding the preservation, adulteration, and perception of honey in households among homemakers was collected using a questionnaire through an online platform, and around 100 responses were taken for analysis. It has been observed that honey was used occasionally in households (57%). The primary reasons for its use were its taste (53%) and quality (39%). Additionally, most respondents stored honey at room temperature (82%), as it had a shelf life of over six months (39%), as seen in the article.

**Keywords:** Preservation, adulteration, honey, homemakers.

## I. INTRODUCTION

Honey, also called 'asl (Arabic), angabīn (Persian), shehed (Urdu), and madhu (Hindi), is a beautiful, amber-colored, viscous liquid with a delightful taste. It is one of the most famous functional foods and is the only edible product made by the insect *Apis mellifera*. Stingless bees from the genera *Melipona* and *Trigona* also produce honey. This natural sweetener consists of 25 different sugars, along with other bioactive compounds such as organic acids, enzymes, antioxidants, and vitamins, making it a highly nutritious functional food. Honey is a product derived from flower nectar and the upper aero-digestive tract of honeybees, which undergoes a process of dehydration within the hive. It has a complex chemical makeup that changes depending on the plant source. Primarily, it is composed of fructose and glucose. Honey also contains fructo-oligosaccharides, amino acids, vitamins, minerals, and enzymes. The composition can vary based on the plants visited by the bees, but it generally includes flavonoids, phenolic acids, ascorbic acid, superoxide dismutase (SOD), reduced glutathione (GSH), tocopherols, catalase (CAT), Millard reaction products, and peptides, which work together to offer a synergistic antioxidant effect [1,2].

A study conducted in the Metropolitan Region of Santarém, Northern Brazil, surveyed 600 potential honey consumers at supermarkets and farmers' markets. Most participants (57%) consume honey because they consider it healthy (65%) or tasty (35%). However, 43% avoid honey, citing reasons such as lack of habit (51.2%) or dislike of the taste (30.2%). Interestingly, 35% of consumers had never purchased honey. Among regular buyers, 91.8% prefer to buy honey directly from producers or at farmers' markets. For these consumers, color (48.6%) and texture (18.9%) are key factors in their purchasing decisions. They view honey as beneficial for health and often consume it in its pure form. Lastly, 44% of respondents did not consider honey to be affordable, though price was not a major factor in their purchase decisions [3].

Honey adulteration occurs for various reasons, such as adding sugars to enhance flavor based on consumer preference or to increase profits by mixing cheap, low-quality honey with more expensive varieties. Research by **Enchang et al.**, suggests that adulteration is a major factor influencing honey price fluctuations in the market. **Se et al.**, noted that common sugar syrups used in honey adulteration include high fructose corn syrup (HFCS), corn sugar syrup (COSS), inverted sugar syrup (ISS), and cane sugar syrup (CASS), with a particular preference for HFCS, which is derived from the simple isomerization of COSS [4].

Natural honey is one of the most expensive foods, making it vulnerable to adulteration both historically and in modern times. Ensuring the quality of honey, particularly in terms of feed and food, is a critical aspect of veterinary and sanitary inspections, as well as product standardization.

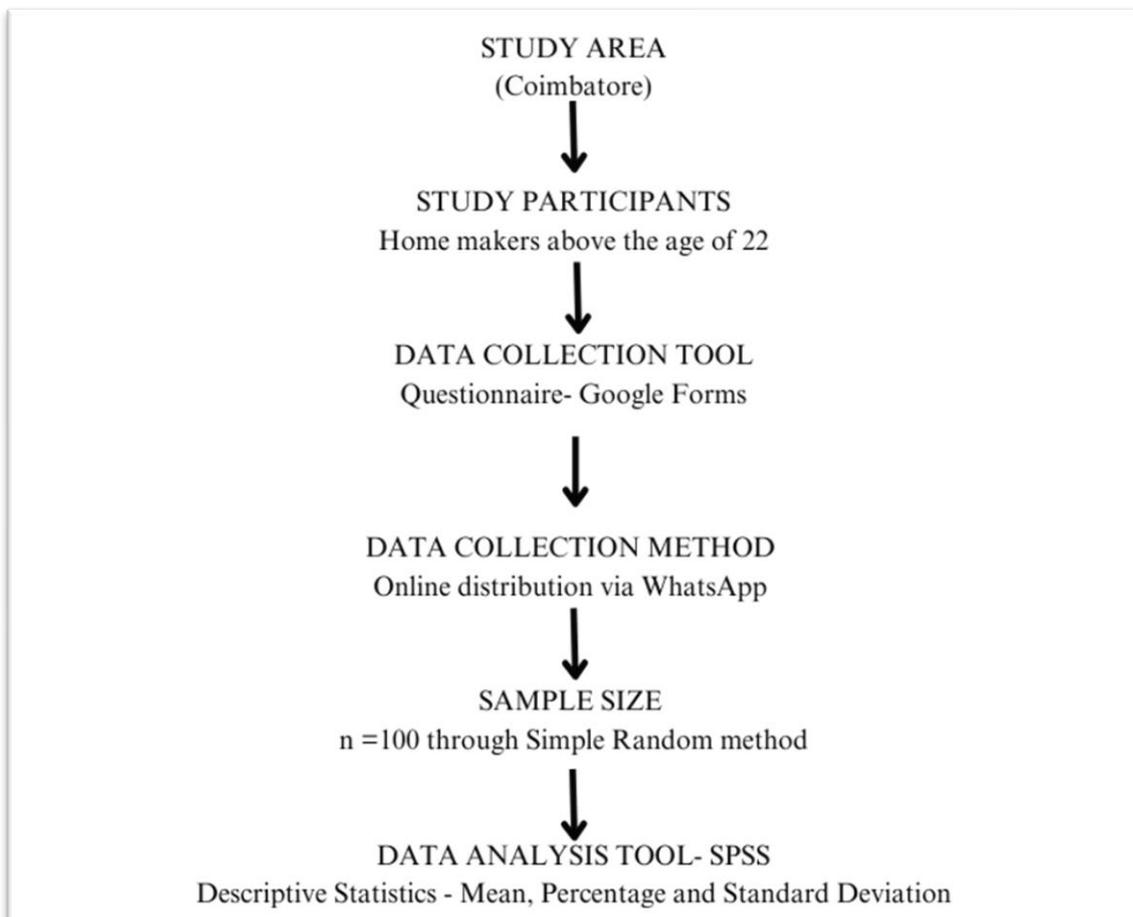
Adulteration involves intentionally altering the properties of honey to deceive consumers, often by falsely attributing a specific botanical origin or claiming rare nutritional benefits. The growing presence of adulterated honey in the Russian market has been a subject of study for many researchers. Food adulteration, a widespread issue, has been a significant concern since ancient times. It occurs when inferior materials are added to food or valuable components are removed, thus degrading the food's quality. Common food products vulnerable to adulteration include juices, oils, honey, pepper, grains, and dairy products, and these adulterants can have harmful health effects. It is estimated that approximately 57% of people experience health issues due to consuming counterfeit or contaminated foods, with around 22% of food being adulterated globally each year [5-6].

Hence, the present study was selected to understand the honey integrity and consumer perception and to evaluate the understanding of the homemakers about the consumption, adulteration and shelf-life properties of honey. With this view, there are certain objectives are framed in the study.

- Explore the various ways in which Tamil Nadu homemakers use honey.
- Analyse the perceived health benefits of honey among Tamil Nadu homemakers.
- Identify the various types of honey used at the household level.
- Determine whether consumers are purchasing commercial or natural honey.
- Assess the level of basic awareness regarding honey adulteration in households.
- Identify the different storage methods and the duration for which honey is used.

## II. METHODOLOGY

The study took place at Coimbatore and the study participants were the homemakers who were above the age of 22 years. The information regarding preservation, adulteration and perception of honey in households among homemakers were collected using the questionnaire. The questionnaire was framed in Google form and the link was sent to the homemakers through WhatsApp and around 100 respondents submitted the forms completely. The received responses were analysed using SPSS tool and the results were expressed in percentage and mean with standard deviation.



III. RESULT AND DISCUSSION

The results pertaining to the study on **Pure or Altered: Understanding Honey’s Integrity and Consumer Perception among Coimbatore homemakers** were discussed under the following headings.

- 3.1 Frequency of honey consumption
- 3.2 Characteristics of honey preferred
- 3.3 Storage and shelf life
- 3.4 Awareness of different types of honey
- 3.5 Usage of commercialised and natural honey
- 3.6 Awareness towards adulteration in honey.

**3.1 Frequency of honey consumption**

The participants of the present study were the 100 home makers. Among the subjects, 65% of the family members consumed honey and 30% of the family members did not consume honey. 57% of the subjects consumed occasionally, 14% of the subjects consumed daily, another 14% of the subjects consumed weekly and 8% of the subjects consumed monthly once.

Table - 1

Frequency of honey consumption	Number of subjects (n=100)	
	Number of subjects	Percentage
Daily	14	14%
Weekly twice	14	14%
Monthly once	8	8%
Occasionally	57	57%
None of the above	7	7%
Total	100	100%

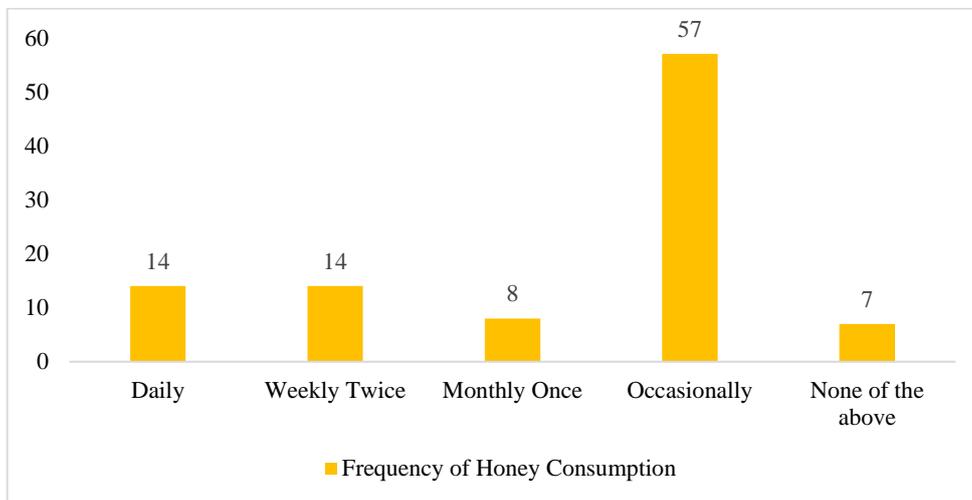


Figure – 1  
 Frequency of Honey Consumption

**3.2 Characteristics of honey preferred**

Among the respondents, 53% of them preferred the taste of the honey while 39% of them preferred the quality of honey and another 7% of the respondent’s preferred appearance and texture while 1% preferred the package of the honey.

Table - 2

Characteristics of honey preferred	Number of subjects (n=100)	
	Number of subjects	Percentage
Taste	53	53%
Quality	39	39%
Appearance and texture	7	7%
Packaging	1	1%
Total	100	100%

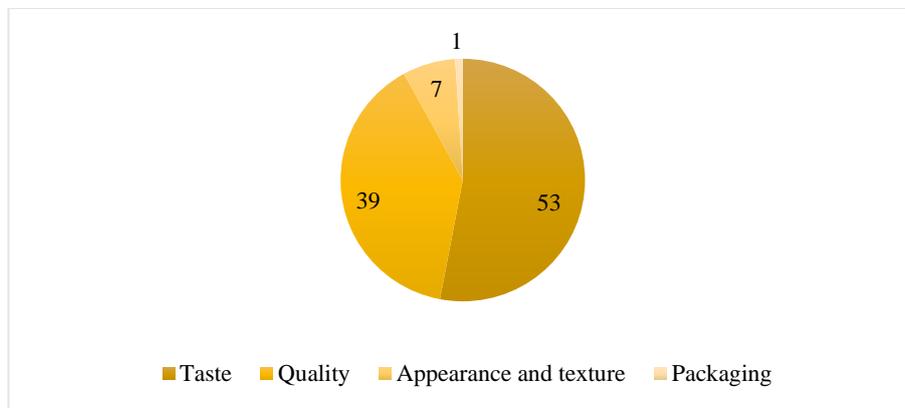


Figure – 2  
 Characteristics of Honey Preferred

**3.3 Storage and shelf life**

Among the subjects, 82% of them stored in room temperature whereas 12% of them preferred refrigeration and 6% use different methods of preservation. The shelf life of the honey used by the subjects varied from more than six months for 39%, more than one year for 26%, and 26% for more than one month whereas 9% for more than 6 years.

Table -3

Shelf life of honey used by the subjects	Number of subjects (n=100)	
	Number of subjects	Percentage
More than one month	26	26%
More than six months	39	39%
More than one year	26	26%
More than six years	9	9%
Total	100	100%

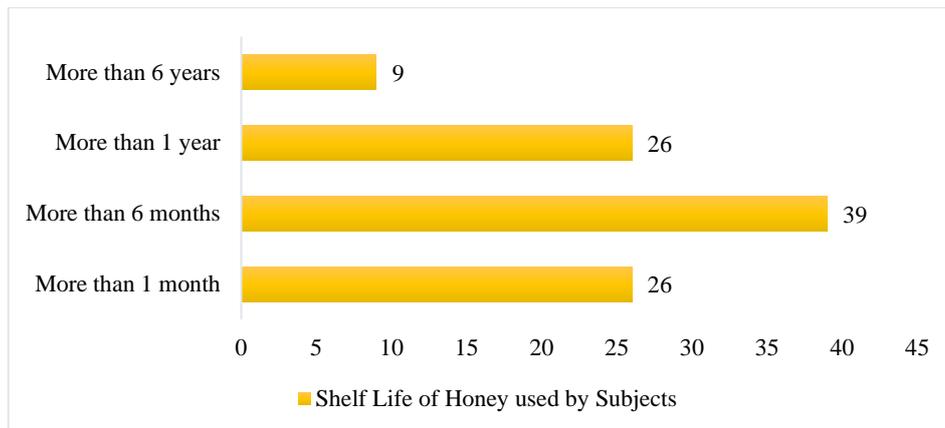


Figure – 3  
 Shelf Life of Honey used by subjects

**3.3 Awareness of different types of honey**

Majority of the respondents (53%) did not know about the different types of honey. Only 47 % of the subjects knew about the different kinds of honey. Among the respondents who knew of different types of honey, few knew about the moringa flower honey, raw honey, pasteurized honey etc.

Table - 4

Knowledge about Types of Honey	Percentage of Respondents
Unaware of different types	53%
Aware of different types	47%
Specific types known (e.g., moringa flower honey, raw honey, pasteurized honey)	4%*
Total	100%

\*4% among 47% of respondents who were aware of different types of honey.

**3.5 Usage of commercialised and natural honey.**

Among the subjects 55% of them use natural honey products over commercialised ones, whereas 45% prefer buying the commercial honey products.

Table – 5

Preference for Honey Products	Percentage of Respondents
Use natural honey products	55%
Prefer commercial honey products	45%
Total	100%

**3.6 Awareness towards adulteration in honey**

Majority of the subjects (62%) knew about the adulteration done in the honey while 38% didn't know what the adulteration was done in honey. Among the respondents who knew about adulteration a few knew honey was adulterated with sugar, jaggery, colour and stabilizer to keep it in liquid form.

Table - 6

<b>Knowledge about Honey Adulteration</b>	<b>Percentage of Respondents</b>
Aware of adulteration in honey	62%
Unaware of adulteration in honey	38%
Specific adulterants known (e.g., sugar, jaggery, color, stabilizer)	5%*
Total	100%

\*5% among the 62% respondents who were aware of adulteration in honey.

#### IV. CONCLUSION

In conclusion, the study reveals that honey is used infrequently in households, mainly due to its taste and quality. The majority of respondents store honey at room temperature, trusting it will prolong its shelf life, with many stating it lasts for over six months. While honey is commonly used, there are ongoing concerns about its preservation and adulteration. The results underscore the importance of educating homemakers about the distinctions between raw and pasteurized honey and how different preservation methods affect its nutritional and medicinal benefits.

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