

# An Exploratory Study Lip-Smacking Achaars and its Growing Demand within Indian Market

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**Abstract:** *Historically, pickling has served as one of the oldest methods for preserving a variety of food items, including vegetables, fruits, fish, and meat. This process leads to distinct and desirable alterations in flavour, texture, and colour, which develop gradually during the fermentation of pickles. Microorganisms play a central role in pickling food items, influencing both the quality and safety of the end product. This review will concentrate on traditional fermented pickles and explore their nutritional, medicinal, and economic potential. Additionally, it will summarize advancements in technology for analysing the microbial communities associated with these traditional pickles. Lastly, this paper will address the role of pickles in addressing food security concerns, consider the safety aspects of traditional pickles, and discuss biofortification as an intriguing technique for enhancing the quality of traditional pickles.*

**Keywords:** Pickles, Demand in the market, ingredients used in making pickle.

## I. INTRODUCTION

The data collection process involved the use of both primary and secondary sources. Primary data was gathered by conducting an online questionnaire survey, while secondary data was obtained from various sources, including books, articles, blogs, websites, and journals. The research survey employed a simple random sampling technique with a sample size of 114 respondents, and the target population for this study was consumers. The survey was carried out in various cities across India and was completed within a one-month timeframe.

The process of preserving fruits and vegetables in a mixture of salt and vinegar is commonly known as pickling. Pickles can be prepared through two main methods: one involving fermentation, and the other without any fermentation. To enhance their flavour and overall appeal, pickles often incorporate various spices, edible oils, sugar, or jaggery.

Pickles serve as excellent appetizers, as they stimulate the release of gastric juices, aiding in digestion. They possess the unique ability to whet the appetite and prepare the digestive system for a meal. The nutritional content of pickles can vary significantly based on the type of raw materials used and the specific preparation method employed, whether fermented or non-fermented. The choice of ingredients and the pickling process play a crucial role in determining the final taste, texture, and nutritional profile of the pickle.

Pickling is a centuries-old preservation method involving the fermentation process facilitated by lactic acid-forming bacteria, which naturally exist on the surface of various food items. These bacteria thrive at a temperature of around 30°C, and they convert the fermentable sugars within the food into lactic acid and volatile acids. This combination of acid and brine affects the vegetable tissues, resulting in the distinctive taste and aroma associated with pickles. Furthermore, the salt and lactic acid produced during pickling play a pivotal role in preserving the pickle by preventing the growth of spoilage-causing bacteria, provided oxygen is excluded from the process. Commonly pickled items include cucumbers and olives.



Fig 1.

There are different methods of pickling, including:

**A. Dry Salting:**

This process begins with the addition of dry salt to prepared vegetables. The salt extracts juices from the vegetables, forming a brine. Lactic acid-forming bacteria then initiate fermentation, which leads to pickling. The steps involved in dry salting include layering vegetables with salt in barrels, pressing them with a weight, and allowing fermentation to occur in a warm, dry environment. When fermentation is complete, the pickle is sealed to exclude air, as exposure to air can lead to spoilage.

**B. Fermentation in Brine (Brining):**

Certain vegetables or unripe fruits, such as cucumbers, olives, and raw mangoes, are submerged in a salt solution of known concentration. This method, known as brining, is used for items that lack sufficient juice to create brine with dry salt. The strength of the brine is crucial to encourage the growth of salt-tolerant lactic acid bacteria. Vegetables are initially placed in a 10% brine to allow lactic acid fermentation to take place, and the salt concentration gradually increases, reaching 15% by the time the pickle is ready.

**C. Salting without Fermentation:**

In this method, raw mango slices, for instance, are packed with a significant amount of salt to inhibit fermentation. After curing, excess salt is removed by soaking the vegetables in cold or warm water. The next step involves storing the vegetables in plain vinegar (10% strength), which prevents the vegetables from shrivelling when packed in sweetened and spiced vinegar, also aiding in vinegar absorption by the vegetable tissues.

The final step in pickling involves proper packing. The combination of salt, vinegar, and lactic acid, either individually or in combination, acts as a preservative. For instance, a 15-20% salt concentration inhibits the growth of undesirable microorganisms. Vinegar's role in preserving pickles is twofold: it lowers the pH, making the environment less conducive to spoilage, and it helps expel gases present in the vegetable tissues. Lactic acid bacteria, capable of thriving in acidic and high-salt environments, contribute to the preservation process. Once the vegetables are prepared and sealed in jars, they are stored in a cool, dry place to allow thorough absorption of vinegar before reaching the market.

These methods ensure the creation of a wide array of flavourful pickles, using a combination of spices, salt, and vinegar, and allow for the preservation of vegetables and fruits for extended periods.

Pickles are a diverse category of preserved foods that encompass a wide range of flavours, ingredients, and preparation methods. Here are some common types of pickles from around the world:

**Dill Pickles:** Dill pickles are cucumbers preserved in a brine solution with dill weed and often garlic. They are known for their slightly sour and dill-infused flavour. Dill pickles can be either fermented or made using a vinegar-based brine.

**Bread and Butter Pickles:** These sweet and tangy pickles are typically made from cucumbers, onions, and bell peppers. They are preserved in a sweet brine made with sugar and vinegar, which gives them their distinctive flavour.

**Kosher Pickles:** Kosher pickles are characterized by their garlic and dill flavour. They are usually fermented in a brine and are popular in Jewish cuisine.

**Kimchi:** Kimchi is a spicy, fermented Korean side dish made primarily from Napa cabbage, radishes, and a mixture of spices, including chili powder, garlic, and ginger. It has a strong, pungent flavour and is a staple in Korean cuisine.

**Indian Pickles (Achar):** Indian cuisine is renowned for its variety of pickles. These pickles are often made from fruits and vegetables, such as mangoes, lemons, and chilies, and are preserved in oil and various spices. They can be sweet, spicy, or tangy, depending on the ingredients and regional variations.

**Gherkins:** Gherkins are small, crunchy pickles that are typically preserved in a vinegar-based brine. They are commonly used in sandwiches and as a garnish.

**Bagoong:** Bagoong is a traditional Filipino condiment made by fermenting shrimp or fish with salt. It has a strong, pungent flavor and is used in various Filipino dishes.

**Japanese Pickles (Tsukemono):** Japanese cuisine features a variety of pickles made from vegetables like daikon radish, cucumbers, and ginger. These pickles are often fermented or soaked in a brine containing soy sauce, rice vinegar, or miso.

**Pickled Eggs:** Hard-boiled eggs are preserved in a brine solution, often flavoured with beets, vinegar, and spices. Pickled eggs are a popular pub snack.

**Lime Pickles:** Lime pickles, a popular South Indian condiment, are made from lemons or limes preserved in a brine with salt and spices.

These are just a few examples of the many types of pickles enjoyed worldwide. Each type of pickle offers a unique combination of flavours, textures, and uses in various cuisines and dishes.

## II. REVIEW OF LITERATURE

**(El Sheikha, 2018)** Traditionally, various pickles are created through different fermentation techniques, including lactic fermentation (used for vegetables, fruits, milk, cassava, and meat), alcoholic fermentation (seen in cassava and rice products), high salt fermentation (employed in fish, soy sauce, and taco, a fermented soybean slurry), and mold fermentation (utilized for items like peanut press cake and soybeans). These age-old methods result in a wide range of pickled products, each offering unique flavours and textures.

**Lan et al., 2013** traditionally fermented pickles are usually homemade products obtained through spontaneous fermentation, but nowadays are evolving to address quality, safety and mass production issues. This requires the control of raw materials, microbial ecosystems, and fermentation processes

This review provides an overview on which types of microbial communities utilized via pickles and their nutritional and health benefits they could confer upon consumption. Additionally, the developments discussed in this review offer a taste of future trends in the characterization of associated-micro biota, role in filling the gap in food security, expected economic scenario of the pickling industry, and bio-fortification strategies for improving the nutritional and therapeutic properties of fermented pickles.

**(Ercolini et al., 2006)** The most dramatic increases have been noted in Tunisia, Egypt, Turkey, Spain, Algeria, Greece, Argentina, Iran, Syria, and Morocco. For each olive-growing country, typical varieties of table olives are produced using local traditional processes, with fruits being harvested at a pre-established stage of maturation

**(Pariona, 2018)** Mango is an important tropical fruit, belongs to the family Anacardiaceae. Mango, known as the king of tropical fruits because of its high palatability, excellent taste and exemplary nutritive value, in India mango occupies the top position with 18 million tones, which is approximately 50% of the global mango supply

Sweet cherry fruits have a very short life since they are subject to rapid microbial spoilage. Therefore, fruit fermentation by LABs is an efficient and straightforward technological option for maintaining and/or improving the nutritional and organoleptic features besides the safety and shelf-life of these fruits

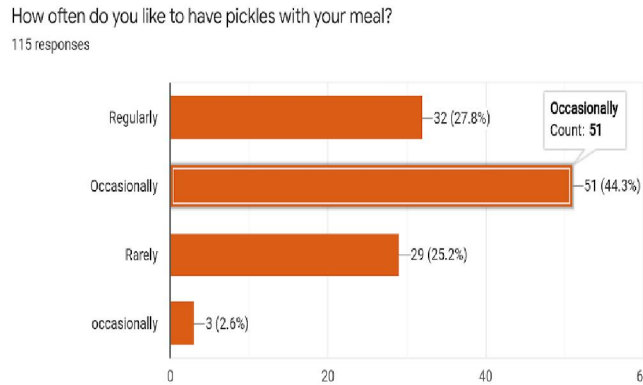
### 2.1 Objectives:

1. To find out the origin of (Achaars) Indian pickles
2. To study various spices used in the making of (Achaars) Indian pickles.
3. To study the varieties of regional achaars made from vegetables, fruits and also meat and seafood.

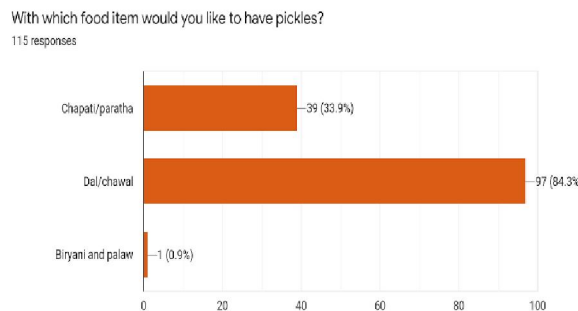
4. To understand the demand of Indian Achaars in the Indian Market.

**III. DATA ANALYSIS**

32% respondent say that they like to have pickle regularly  
 51% respondent say that they like to have pickle occasionally  
 29% respondent say that they like to have pickle rarely

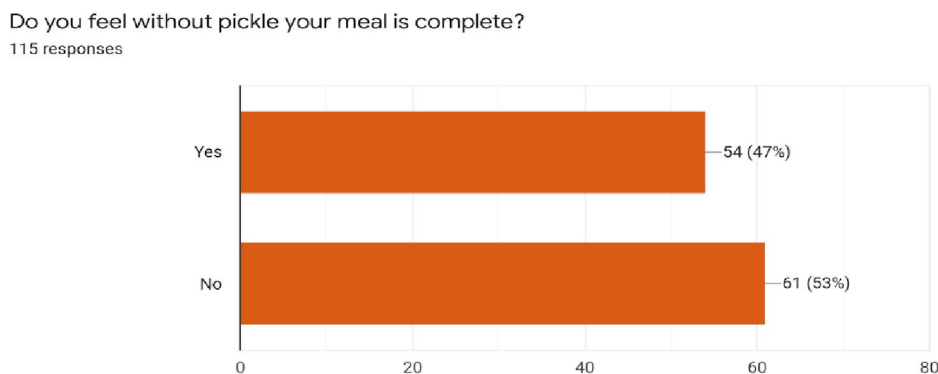


**Fig 2.**



**Fig 3.**

39% respondent like to have pickle with chapatti/paratha  
 97% respondent like to have pickle with dal chawal  
 1% respondent like to have pickle with biryani and pulao



**Fig 4.**

84% like to have mango pickle  
7% like to have amla pickle  
34% like to have lemon pickle  
21% like to have green chilli  
35% like to have mixed pickle

Which one is your favorite pickle?  
115 responses

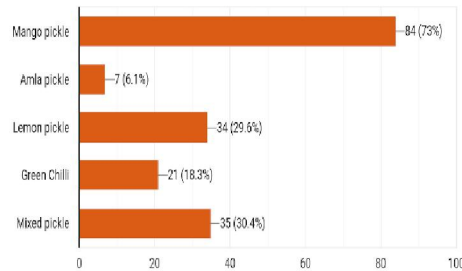


Fig 5.

47.4% respondents feel that their meal can be complete without pickles in their meals, 52.6% of the respondents don't need pickles when they have their meals.

Which brand do you prefer in pickle?  
115 responses

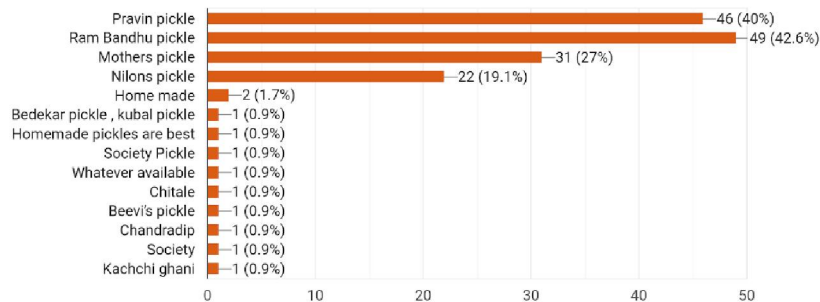


Fig 6.

Out of all the brands of Indian pickles available in the market, Pravin's and Ram Bandu pickles are the most sold ones in the market with 40.3% and 43% of respondents buying these brands respectively.

**IV. CONCLUSION**

Spices play a vital role in Indian pickle making since ancient time. The role of spices is to increase the palatability and is also used as a flavouring, colouring, and preservative agents. Various spices used in Achaar (Indian Pickles) making in India are as follows: Asafoetida, Cumin, coriander, Red chili, Mustard. Fennel, Fenugreek, Nigella seeds etc. Every spice used here in the pickle making plays a very important role: some enhances flavour, some act as a preservative, some give tart taste, and some also act extract nutrients from raw materials used

The pickling procedure typically affects the food's texture, taste and flavour. The resulting food is called a pickle, or, to prevent ambiguity, prefaced with pickled. Foods that are pickled include vegetables, fruits, meats, fish, dairy and eggs.

47.4% respondents feel that their meal can be complete without pickles in their meals, whereas 52.6% of the respondents don't need pickles when they have their meals.

Though Pickles are a part of the Indian meals, not all the respondents feel its importance. Most of the respondents say that consuming pickle with every meal or on daily basis is not that important.

This proves our first Hypothesis: Indian meal is complete without a spoonful of the lip-smacking pickle



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