

## Value Added Products of Onion

<sup>\*1</sup>Dr.A. Beulah, <sup>2</sup>K.R. Rajadurai and <sup>3</sup>S. Maanchi

<sup>1</sup>Professor and Head, Department of Postharvest Technology, Horticultural College and Research Institute, Periyakulam, TNAU, India

<sup>2</sup>Professor and Head, Department of Floriculture and Landscape Architecture, Horticultural College and Research Institute, Periyakulam, TNAU, India

<sup>3</sup>Senior Research Fellow, Department of Postharvest Technology, Horticultural College and Research Institute, Periyakulam, TNAU, India

Corresponding Author: [krathanmayi@yahoo.co.in](mailto:krathanmayi@yahoo.co.in)

### Introduction

Onions are a crucial vegetable crop cultivated across India. Global onion production exceeds 100 million metric tons annually. China alone produces over 20 million metric tons followed by India. The country ranks second in global onion production, contributing 16% of the world's total output and accounting for 10% of the global area and production.

Due to price fluctuation onion can be processed into different value-added products through various processing techniques to enhance their utility, shelf life, and economic value. Beyond their traditional use as a fresh vegetable, onions can be transformed into a range of products that offer convenience, extended shelf life and diversified applications in the food industry. These products capitalize on the natural flavors, nutrients, and versatility of onions, providing consumers with a variety of options for incorporating onion flavor into their diets.

In India, Onions are processed in different forms like onion paste, dehydrated onion flakes, powder, oil, sauce, pickle, wine, beverages, etc. There is growing demand for processed onion products due to its convenience of use for the customers and added onion values for the manufacturer.

Global onion production is vast, but waste at various stages presents significant challenges. However, through improved agricultural practices, better post-harvest management, innovative processing and consumer education, the waste associated with onion production can be minimized. This not only reduces environmental impact but also enhances the economic value derived from onion crops.

### Value added products of onion

- Onion Powder
- Onion salt
- Onion Vinegar
- Onion Oil

- Onion Puree
- Onion rings
- Minimally processed onion
- Onion paste
- Dehydrated onion flakes
- Onion Pickle

### Onion powder

Onion powder is a versatile seasoning made by dehydrating onions and grinding them into a fine powder. It's commonly used in cooking to add a concentrated onion flavor without the texture of fresh onions. The methods to prepare the onion powder,

- Onions are dehydrated to remove moisture.
- The dehydrated onions are finely ground into a powder. After that mixed with finely ground refined table salt.
- 1-2% anti caking agents is added to prevent clumping and water absorption, ensuring the powder remains free-flowing.
- It is used for making soups, stews, marinades, spice blends and rubs.

Onion powder is a practical and flavorful ingredient that enhances a variety of dishes, offering the essence of onions in a convenient, long-lasting form.

### Onion Salt

Onion powder is blended with finely ground refined table salt and 1-2% of anti caking agents are included to prevent clumping and moisture absorption.

### Onion vinegar

- Onion vinegar is a unique type of vinegar made from onion juice and a yeast culture of *Acetobacter aceti*.
- It is notable for its nutritional content and potential health benefits.
- Additionally, it is rich in calcium (363 mg) and magnesium (122 mg).

- It has high potassium content (943 mg) and low sodium content (54 mg) compared to traditional rice and malt vinegars.

This vinegar supports the immune system by providing beneficial pro biotics and digestive enzymes and is also effective against hypertension.



### Onion Oil

- The distillation process extracts oils from onions, producing a dark amber-colored liquid.
- The yield of onion oil ranges from 0.002% to 0.03%, with approximately 4.4 kg of onions needed to produce one gram of oil.
- Onion oil is highlighted with the medicinal properties which may help treat conditions such as furuncles, liver cirrhosis, kidney inflammation, asthma, diabetes, and septicemia.
- Additionally, onion oil has been shown to inhibit mycotoxin and dermatophytic fungi.

It was used as cosmetic products improve to skincare and hair cares for its beneficial properties. The sulfur compounds in onion oil exhibit antibacterial, antioxygenic, and antidermatophytic activities.

### Onion Puree

- Red, white, and small onions are ideal for making puree. After grading and peeling, the onions are pulped and heated to 110°C.
- The resulting pulp is then concentrated to achieve a puree with a Total Soluble Solids (TSS) range of 10-15° Brix.
- To prepare the puree, the pulp is concentrated to 10° Brix, with the addition of 1% NaCl and 0.1% citric acid.

- After concentration, the purees are filled into containers at 70-80°C and then stored in a cool place for future use.

These purees can be mixed into stews, soups, and casseroles to enhance their flavor.

### Onion rings

- ✓ Onion rings can be prepared from either dehydrated or frozen onions. French-fried onion rings are deep-fried in oil or fat before being frozen, whereas raw breaded onion rings are frozen without undergoing blanching first.
- ✓ Onion rings are a popular snack or side dish made from sliced onions that are battered and deep-fried.
- ✓ The typical preparation involves:
  - Onions are cut into rings.
  - The rings are dipped in a batter which can be made from flour, eggs and seasonings. Sometimes a breadcrumb coating is added for extra crunch.
  - The battered rings are then deep-fried until golden brown and crispy. Onion rings are often served with dipping sauces like ketchup, ranch, or barbecue sauce.



### Minimally processed onion

The minimally processed products have been increasing interest in the fresh product market due to the convenience offered to consumers. In the case of onions, the preparation of the bulb is the biggest cause of complaints, since it contains volatile compounds that cause irritation to eyes and gives the handler a characteristic odor in their hands. Its minimal processing may increase their consumption and still reach new markets around the country. Minimally processed onions are 100% usable, pre-packaged, ready-to-cook products that retain their flavor, freshness, and convenience for the consumer. Currently, the market offers only ready-to-cook peeled multiplier onions, but these have a short shelf life of just

2-3 days. The unique aspect of the new processing method is that it preserves the freshness, flavor, and quality of the onion for up to 12 days. This minimally processed onion technology is especially beneficial for hotels, weddings, events, hostels, street food vendors, and busy working couples in urban areas.



### Onion Paste

Onion is grounded yet retaining its freshness. Preparation of minimally processed onions and onion paste entails optimization of proper preservatives and packaging materials to increase the shelf life of these products.

### Dehydrating onion flakes

- ✓ Dehydrating onions reduces their bulk, making them easier to transport and significantly extends their shelf life by reducing moisture which inhibits microbial growth.
- ✓ Dehydrated onion flakes can be ground into onion powder, which dissolves easily and reconstitutes quickly compared to flakes.

Onion powder adds onion flavor to a wide range of foods. To maximize the shelf life of dehydrated onion flakes and powder, proper packaging is crucial, as these products are highly hygroscopic.

### Onion Pickle

A traditional method for preserving onions is pickling. The most common pickling techniques are vinegar-based and oil-based. Vinegar-based pickling is popular in the United States and Europe, whereas oil-based pickling is more commonly used in Asia and Africa. The storage period of onion pickle can vary depending on the ingredients used, the method of preparation, and the storage conditions. For storing onion pickle at room temperature, it is important to ensure that the jar or container is sealed tightly. The pickle should be kept in a cool, dry place away from direct sunlight. The high acidity from vinegar and the salt content help preserve the pickle, but it's more susceptible to spoilage in warmer temperatures. It's typically lasts for 1-3 weeks. Onion pickle lasts much longer when stored in the refrigerator. The cool temperature slows down the growth of bacteria and mold, helping to preserve the pickle and the container is sealed properly to avoid contamination and flavor changes. The shelf life of pickle 1-2 months when it is stored in refrigerated condition.

### Reference

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