

PACKAGING OF FENNEL SEEDS AND ITS VALUE ADDED PRODUCTS



AATMANIRBHAR BHARAT

PM Formalisation of Micro Food Processing Enterprises Scheme (PM FME Scheme)

INTRODUCTION

Fennel is a very important spice used in both culinary as well as in medicinal purpose. The whole plant is important medicinally. Various parts of the plant are used for different purposes such as vegetables (base), leaves (culinary purpose & dye), flower (dye), seeds (spice & oil extraction).

- ✓ Fennel pollen is the most potent form of fennel, but it is extremely expensive.
- ✓ Bitter fennel, Florence fennel and sweet fennel are used for its fruits and essential oil.



FACTORS INFLUENCING KEEPING QUALITY OF FENNEL SEEDS AND ITS PRODUCTS

Quality of seed depends upon the

- a) Processing practices
- b) Initial moisture content: must have less moisture content.
- c) Temperature of storage: must be stored at low temperature.
- d) Storage for longer duration shall develop free fatty acid content.
- e) Method of packaging: Higher the air-content in the head-space resulted in the lower keeping quality.

DESIRABLE CHARACTERISTICS OF PACKAGING MATERIAL FOR FENNEL SEEDS AND ITS PRODUCTS

- a) Must compile Food Safety and Standards (Packaging and Labelling) Regulations, 2011
- b) Packaging material should not react with products
- c) Available at low cost
- d) Non toxic packaging material
- e) Should not allow printing ink to penetrate into the product
- f) Protect against tempering
- g) Protects against spoilage causing agents
- h) Withstand wear and tear during transportation
- i) Convenience in use
- j) Should be reuse or recyclable
- k) Compatible with the packaging machine

PACKAGING

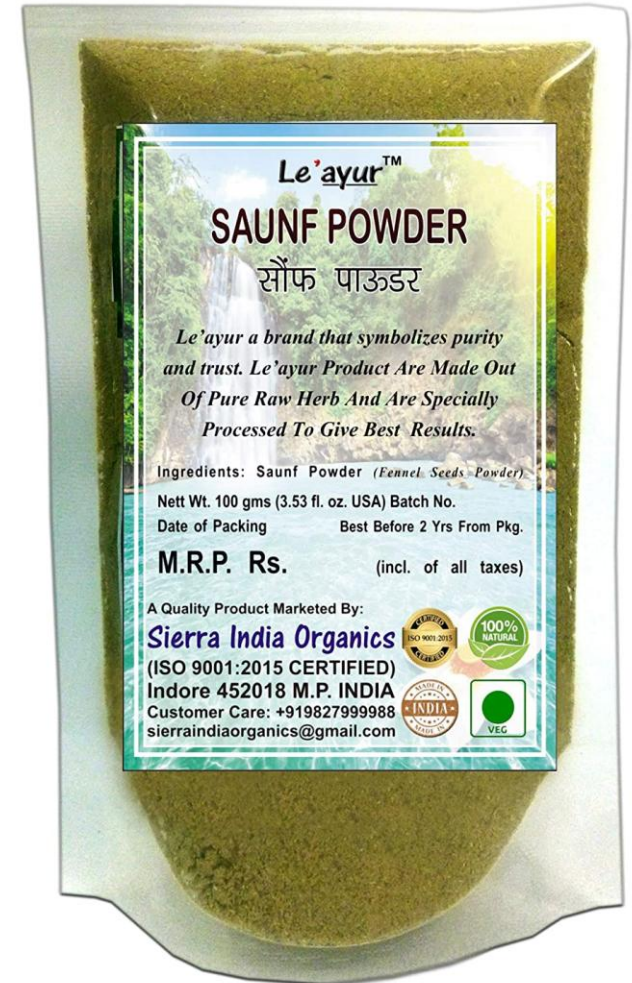
- Packaging is an important part of food manufacturing process. It protect the food products from physical ,chemical, biological damages.
- Without packaging, materials handling would be a messy, inefficient and costly exercise and modern consumer marketing would be virtually impossible.
- Packaging Institute International defined packaging as the enclosure of products, items or packages in a wrapped pouch, bag, box, cup, tray, can, tube, bottle or other container form to perform one or more of the following functions: containment, protection, preservation, communication, utility and performance. If the device or container performed one or more of these functions, it was considered a package.

NEED OF PACKAGING

- **CONTAINMENT** : protecting the environment from the myriad of products that are moved from one place to another.
- **PROTECTION** : to protect its contents from outside environmental influences such as water, water vapor, gases, odors, microorganisms, dust, shocks, vibrations and compressive forces.
- **CONVENIENCE** : Products designed to increase convenience include foods that are prepared and can be cooked or reheated in a very short time, preferably without removing them from their primary package.

NEED OF PACKAGING

- **COMMUNICATION** : Packaging contains a lot of information such name of its manufacturer, product name, terms and uses, date of manufacturing, best before. nutritional information thus helping the consumer to be more informed.

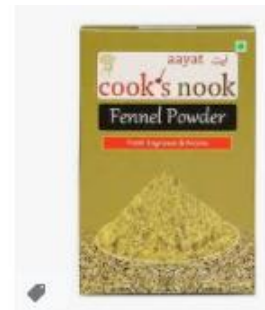


TYPES OF PACKAGING

- **PRIMARY PACKAGING** : Primary package are those package which directly came into contact with food products. It provides first or initial layer of protection to the food products. Examples of primary packaging includes parchment paper, greaseproof paper, paperboard cartons, and plastic pouches.
- **SECONDARY PACKAGE** : Secondary package are those package which surrounds or contains the primary package. Ex. Corrugated case, Boxes
- **TERTIARY PACKAGE** : It contains number of secondary package together. Mainly used for bulk handling of food products.

PACKAGING MATERIAL FOR FENNEL SEEDS AND ITS PRODUCTS

- Packaging of fennel seeds and its products is mainly done to protect the fennel seeds and its products from outside environment especially air and moisture, so that fennel seeds and its products can retain aroma, freshness for a longer period of time.
- The shelf life of fennel seeds and its products depends on the type of package material used for packaging.



PACKAGING MATERIAL FOR FENNEL SEEDS AND ITS PRODUCTS

1. Tin Cans:

- used for customized pack of different capacities.
- properly lacquered tin cans are must be use
- must be sealed properly to prevent oxidation in the product
- **Higher cost is one of the drawback**



PACKAGING MATERIAL FOR FENNEL SEEDS AND ITS PRODUCTS

2. Glass Bottles / jars:

- used for 50g to 250g.
- provide excellent protection
- not in much use because of their fragility and high weight.
- Used for fennel seed oil or ark (extract).
- Fennel seed is also packed in glass jar
- **Higher cost is one of the drawback**



PACKAGING MATERIAL FOR FENNEL SEEDS AND ITS PRODUCTS

3. LINED CARTON OR STAND ALONE PAPER PACK:

- Available in various shape and size.
- Flexible pouch may be made from laminates or Aluminum along with box is widely used.
- Attractive and economical pack



PACKAGING MATERIAL FOR FENNEL SEEDS AND ITS PRODUCTS

4. HDPE:

- ✓ replacing tin plate containers
- ✓ Blow moulded HDPE is available in the form of bottles, jars
- ✓ Mostly used for oil, ark, extract, shampoo etc.
- ✓ provide a moderately long shelf life
- ✓ lightweight, economical and transport friendly.



PACKAGING MATERIAL FOR FENNEL SEEDS AND ITS PRODUCTS

5. PET or PVC:

- ✓ Mostly used for fennel seeds and its products packaging because of excellent odour free and gas barrier properties.
- ✓ Blow moulded bottles made up of PET or PVC is used
- ✓ Recyclable



PACKAGING MATERIAL FOR FENNEL SEEDS AND ITS PRODUCTS

6. Flexible films/pouches/laminates:

- ✓ made from laminates or multi layer films.
- ✓ may be in the form of pillow pouch or as self-standing pouches.
- ✓ cheapest than any other packaging system.
- ✓ selection of laminate or a multi layer film is governed primarily by the compatibility of the contact layer, heat-sealing ability and heat-seal strength and shelf life required.



PACKAGING MACHINES



Source: FOSHAN DESSION
PACKAGING MACHINERY Co. ,LTD
for small pack



Source: Genius
Engineering Machines for
small pack (10 g)

PACKAGING MACHINES (Tin filling)



Source: China Packaging Machine

PACKAGING MACHINES (PET/HDPE filling)



Source: Nichrome industries pvt Ltd



Source: Chen Louis

SOME RECENT TRENDS IN PACKAGING :

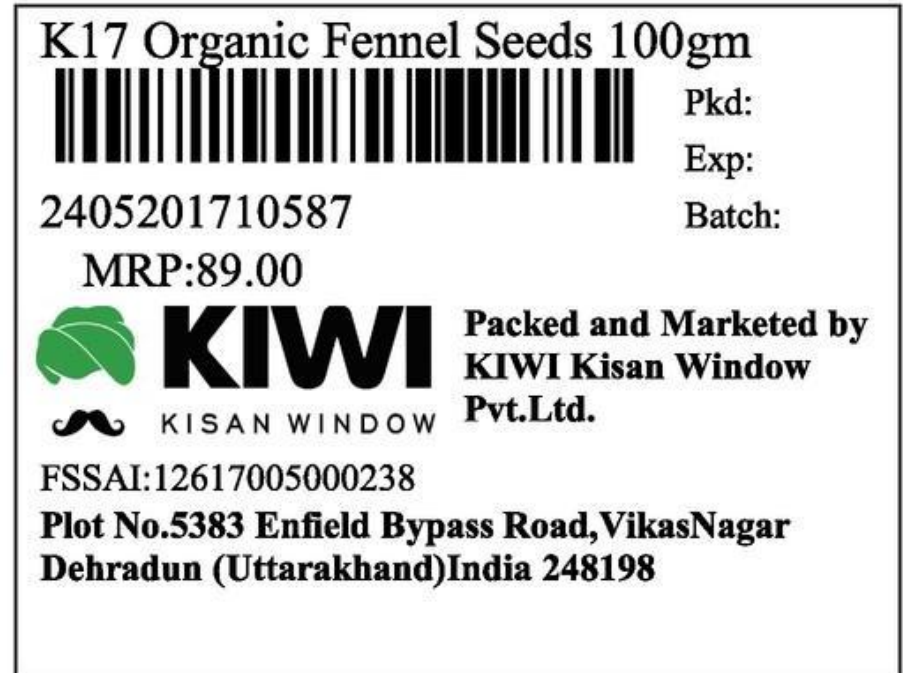
ASEPTIC PACKAGING :

- Aseptic packaging is the filling of sterile containers with a commercially sterile product under aseptic conditions, and then sealing the containers so that re-infection is prevented; that is, so that they are hermetically sealed.
- **Aseptic packaging are used for :**
 - ✓ To take advantage of high temperature.
 - ✓ Increase shelf life of food products at normal temperature.
 - ✓ In package sterilization.

LABELING

- Labeling is a means of performing the communication function of packaging, informing the consumer about nutritional content, net weight, product use and so on.

- ✓ Labeling acts as a silent salesman of a company
- ✓ Shape and design of the container attracts the customers.



PACKAGING & LABELING LAWS - FSSAI

General requirement for packaging:

- A utensil or container made of the following materials or metals, when used in the preparation, packaging and storing of food shall be deemed to render it unfit for human consumption:—
 - (a) containers which are rusty;
 - (b) enameled containers which have become chipped and rusty;
 - (c) copper or brass containers which are not properly tinned
 - (d) containers made of aluminum not conforming in chemical composition to IS:20 specification for Cast Aluminum & Aluminum Alloy for utensils or IS:21 specification for Wrought Aluminum and Aluminum Alloy for utensils.

PACKAGING & LABELING LAWS - FSSAI

- **Labeling should contain following information:**
 - ✓ Name of the food product., List of ingredients, Nutritional information.
 - ✓ Declaration of VEG and NON VEG., AGMARK, BIS
 - ✓ Declaration of added food additives, Recycled, Promotions.
 - ✓ Name and address of manufacturer. Serving Size, Preservatives



PACKAGING & LABELING LAWS - FSSAI

- ✓ Net quantity
- ✓ Code number
- ✓ Lot number/ Batch number.
- ✓ Date of manufacturing.
- ✓ Best before date
- ✓ Country of origin.
- ✓ Bar Code
- ✓ Brand Name etc



STORAGE OF FENNEL SEEDS AND ITS PRODUCTS

- ❖ The products must be stored in a damp free storehouses
- ❖ No insecticide should, be used directly on the dried seed.
- ❖ Pest control must be adopted for the storage area.
- ❖ Fennel seeds and its products can be stored in cool dry room with .
temperature (25°-28°C) and RH around 81%.
- ❖ . Stored seeds should be periodically exposed to the sun.
- ❖ The packet of the fennel seeds and its products must be impermeable to the
water and oxygen.

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