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GOVERNMENT OF INDIA

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KNOWLEDGE • INNOVATION • OUTREACH

PACKAGING OF AMARANTHUS PRODUCTS

AATMANIRBHAR BHARAT

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

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INTRODUCTION

- Products like leaf squash, Pakkavada and stem based Cutlet and Pickle need to be packed safely and hygienically without losing its nutritional properties.
- Amaranthus squash has been made using the extract of the leaves and sweetened with sugar and sufficient quantity citric acid, artificial flavour and class -II preservatives.
- Amaranthus Pakkawada has been prepared using cooked and mashed leaves.

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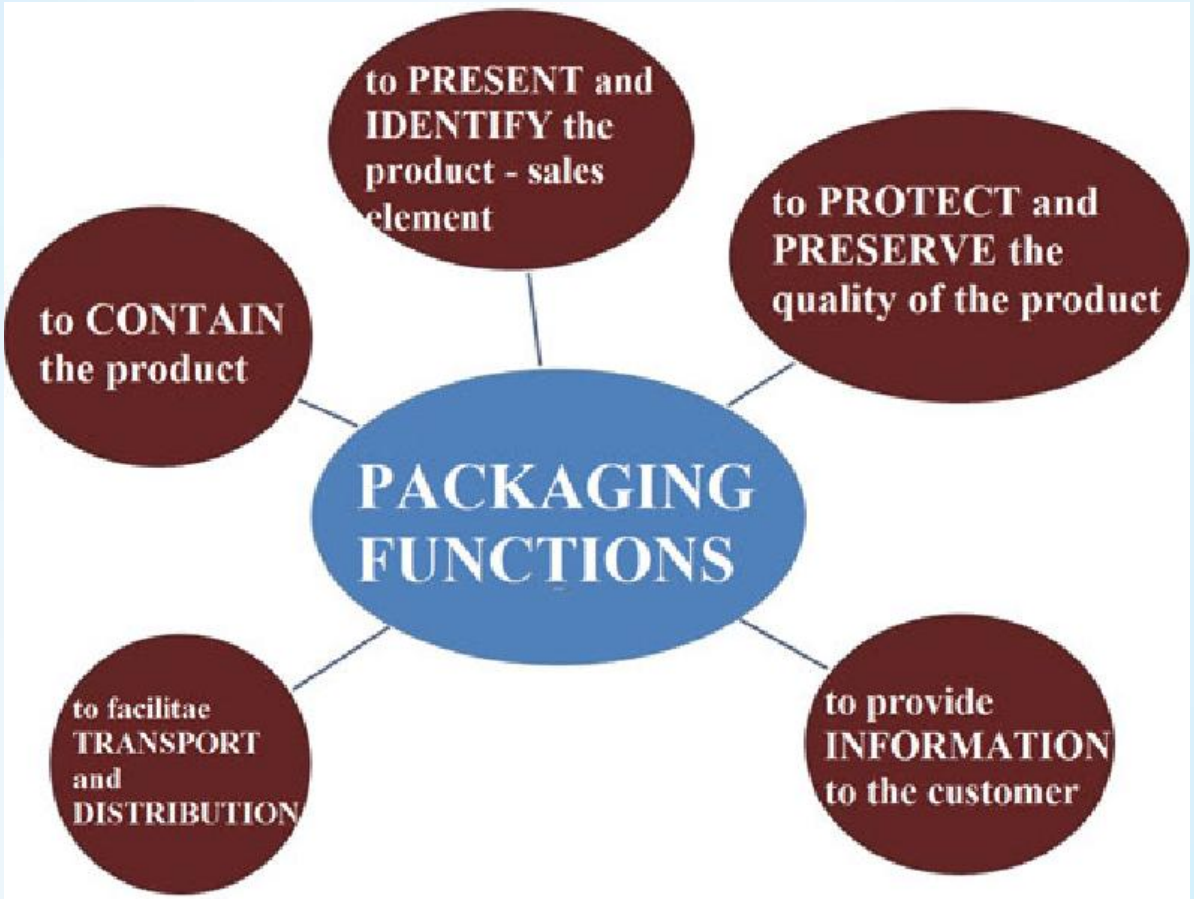
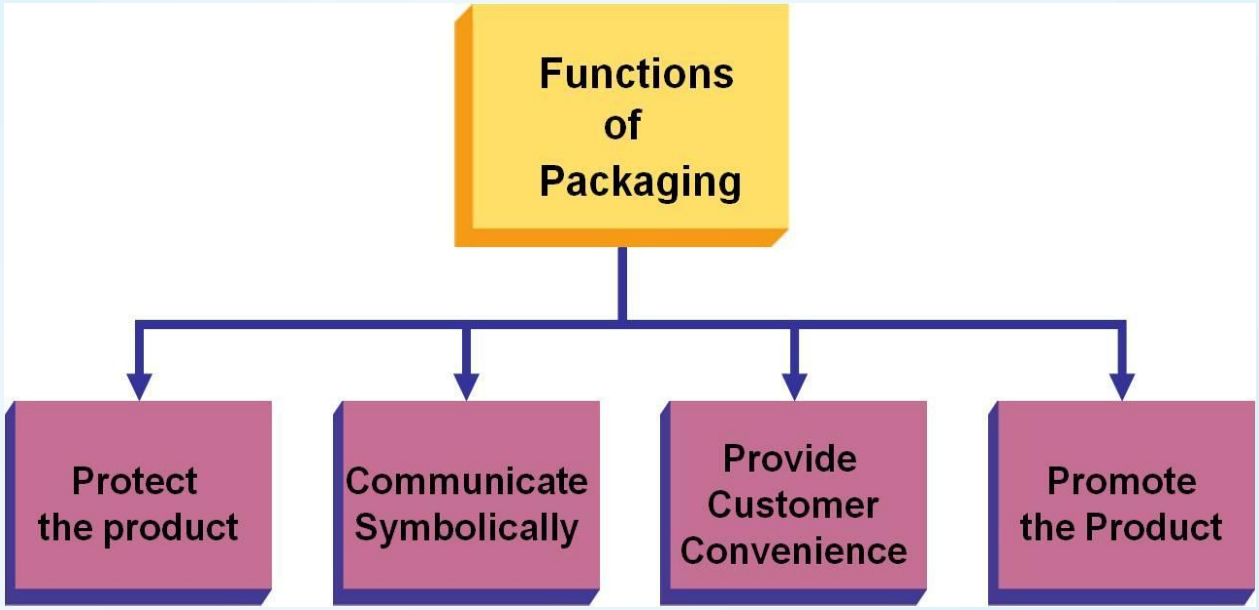
INTRODUCTION

- Amaranthus Cutlet is a highly nutritious snack item prepared using the stem of Amranthus and other ingredients like soya chunks, onion, potato, green ginger , garlic and spices.

- Amaranthus pickle is prepared using the stem of the Amaranthus and other ingredients like ginger, garlic, chilly powder, Asafoetida, Gingelly oil and vinegar


to PRESENT and IDENTIFY the product - sales element
to PROTECT and PRESERVE the quality of the product
to CONTAIN the product
PACKAGING FUNCTIONS
to facilitae TRANSPORT and DISTRIBUTION
to provide INFORMATION to the customer

ROLES OF PACKAGING



OTHER PHYSICAL PROTECTIONS OF PACKAGING

- Offer Protection against environmental conditions- moisture barrier
- Offer protection against microorganisms- oxygen barrier
- Strength properties to withstand mechanical hazard during transportation and storage
- Have a good printability

DETERIORATIVE FACTORS OF AMARANTHUS SQUASH

- Moisture absorption from humid atmospheres promotes microbial growth in turn leads to loss of structure, texture, and consistency of the product .

- Beyond a certain level of moisture content, microbial infection and biochemical degradation sets in.

DETERIORATIVE FACTORS OF AMARANTHUS SQUASH

- Bacteria and yeast grow faster when juices are exposed to high moisture. Removal of solids by extraction and sieving of juices makes the oxidation-reduction potential to become higher which in turn favors the growth of yeast.
- The normal change expected in fruit juice is the alcoholic fermentation by yeasts at room temperature.

DETERIORATIVE FACTORS OF AMARANTHUS SQUASH

If acetic acid bacteria are present, the alcohol produced may be converted to acetic acid. Depending on the type of fruit juice and temperature, the type of yeast growing on them also varies.

In addition to alcoholic fermentation, juices also undergo other changes caused by microorganisms.

DETERIORATIVE FACTORS OF AMARANTHUS SQUASH

- Lactic acid fermentation of sugars, by hetero fermentative lactic acid bacteria such as Lactobacillus pastorianus, L. brevis and Leuconostoc mesenteroides in apple or pear juice, and by homo fermentative Lactobacillus arabinosus, Lactobacillus leishmanii and Microbacterium.

- The fermentation of organic acids of the juice by lactic acid bacteria.

- Slime production by Leuconostoc mesenteroides, Lactobacillus brevis and Lactobacillus plantarum and streptococci in fruit juices.

DETERIORATIVE FACTORS OF AMARANTHUS PAKKAWADA

- Losing crispness
- Tendency to get rancid
- Chances of mould growth if prolonged exposure to moisture are the key deteriorative properties of fried snack items.

DETERIORATIVE FACTORS OF AMARANTHUS CUTLET

•Most snack foods are intended for immediate consumption and have a shelf-life of only 1-2 days.

• Otherwise its taste, texture and flavour may loose. Moisture, presence of non vegetarian food may deteriorate the snack item easily.

DETERIORATIVE FACTORS OF AMARANTHUS PICKLE

- At a certain low salt concentration and low acidity , lactic acid bacteria grow more quickly than other microbes, and may spoil easily .
- Below this "right" concentration, bad bacteria may survive and spread more easily, possibly out-competing lactic acid bacteria and spoiling the pickles.

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CONSUMER PACKAGES

- The options available to the traders/exporters in the selection of a consumer pack for domestic and export market are quite wide.
- The selection/choice of the packaging material/system depends upon a number of factors.
- Shelf-life period(the degree of protection required by the product against moisture pick-up, aroma retention and discolouration.

CONSUMER PACKAGES

- Climatic conditions during storage, transportation and distribution.
- Type/sector of market.
- Consumer preferences.
- Printability and aesthetic appeal.

SUITABLE CONTAINER FOR AMARANTHUS SQUASH

- Three most popular packaging for juices, smoothies, and fruit-based beverages are Glass, PET and Cart .
- The most important parameter to check while evaluating package performance of different packaging materials is their ability to protect product quality. Other factors that take into consideration are recyclability and shelf life.
- Three very important properties which packaging should have if it is to aptly maintain product quality are as follows:
- Aroma barrier
- Gas barrier
- Light barrier

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SUITABLE CONTAINER FOR AMARANTHUS SQUASH

- Nearly all juices, smoothies, and fruit-based drinks are extremely sensitive to oxidation, which can lead to loss of vitamins and unwanted changes in color and taste.
- The gas barrier attribute of a container plays a major role in determining oxidation rate and consequently quality degradation.
- The other important attribute is oxygen exposure, which includes oxygen in head space, permeation through closure or spout, and how permeable the walls of the container.

1.GLASS BOTTLES

- When it comes to aroma and gas barriers, glass bottles are just as good as any other packaging material, if not better. Glass bottles provide protection because they have perfect aroma and gas barriers.
- Visible light penetrates via clear glass, as do part of UV spectra. This may affect compounds which are photosensitive, like certain vitamins. But it is very much possible to protect the contents of a glass bottle against UV rays.
- Fruit beverages packaged in glass usually have a shelf-life of 1 year or more.

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2.PET BOTTLES

- For consumers, PET bottles have obvious advantages over glass. Pet Bottles are not only unbreakable and light weight but also more attractive.

- Given the success of PET bottles in storing other beverages, the industry is focusing on finding ways to improve gas barriers of PET bottles. They have better gas barriers and are still cost-effective.

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BENEFITS OF PET

- Most Easily Recyclable
- PET is Lightweight
- No More Plastic Taste
- BPA Free

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FLEXIBLE PACKAGING FOR PAKKAVADA

The printed flexible pouches are generally laminates of various compositions.

Packaging As Important As the Food Inside fried Pakkavada or any snack food should be packed in flexible thermoplastic films of multi layer or monolayer construction, or their laminates with paper and/ or aluminium foil so as to provide a high resistance to the passage of oxygen, light and water vapour and to produce an effective heat seal. The air tight sealing can be done with or without nitrogen flushing to retain the contents in a fresh condition.

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BENEFITS OF FLEXIBLE PACKAGING

1. Polyester/metallised polyester/ LDPE
2. BOPP/LDPE
3. BOPP/metallised polyester/LDPE.
4. Polyester/AL foil/ LDPE

SUITABLE CONTAINER FOR AMARANTHUS PICKLE

1.GLASS CONTAINERS

Because it is odorless and chemically inert with virtually all food products. It maintains product freshness for a long period of time without impairing taste or flavor. Glass is rigid, provides good insulation, and can be produced in numerous different shapes. Glass packaging benefits the environment because it is reusable and recyclable.

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2. POUCHES

Pickles can also be packed in pouches and pet bottles also

- Centre seal formation
- Three sides seal formation
- Four sides seal formation
- Strip pack formation

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SUITABLE CONTAINER FOR AMARANTHUS CUTLET

- Packaging, or in small polythene or paper packages which contain a portion for sale.
- If required, the shelf-life may be extended considerably through the use of adequate packaging.

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PACKING MACHINE FOR AMARANTHUS SQUASH

Fully Automatic Filling Machine

Semi Automatic Filling Machine

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SUITABLE PACKING MACHINE FOR AMARANTHUS PICKLE

Fully Automatic Filling Machine for Pickle

Semi Automatic Filling Machine for Pickle

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SUITABLE PACKING MACHINE FOR AMARANTHUS PAKKAVADA

Fully Automatic Filling Machine forPakkavada

Semi Automatic Filling Machine for Pakkavada

ICAR KVK ALAPPUZHA

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FSSAI LABELLING REQUIREMENTS

- Name, trade name or description
- Name of ingredients used in the product in descending order of their composition by weight or volume
- Name and complete address of manufacturer/packer, importer, country of origin of the imported food (if the food article is manufactured outside India, but packed in India)
- Nutritional Information
- Information Relating to Food Additives, Colors and Flavors
- Instructions for Use

FSSAI LABELLING REQUIREMENTS

- Veg or Non-Veg Symbol
- Net weight, number or volume of contents
- Distinctive batch, lot or code number
- Month and year of manufacture and packaging
- Month and year by which the product is best consumed
- Maximum retail price

For More details Contact:

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