

# Food Preservation Skill Manual Grade VI



**Central Board of Secondary Education**  
Shiksha Kendra, 2, Community Centre ,Preet Vihar, Delhi 110092

# Acknowledgement

## **Advisory**

**Smt. Nidhi Chhibber** (IAS), Chairperson, Central Board of Secondary Education, Delhi

**Dr. Biswajit Saha**, Director (Skill Education), Central Board of Secondary Education, Delhi

**Dr. Joseph Emmanuel**, Director (Academics), Central Board of Secondary Education, Delhi

## **Coordinator & Curator:**

**Shri. R. P. Singh**, Joint Secretary (Skill Education), Central Board of Secondary Education, Delhi

**Smt. Niti Shanker Sharma**, Deputy Secretary (Skill Education), Central Board of Secondary Education, Delhi

**Shri. Sandeep Sethi**, Coordinator, Princess Diya Kumari Foundation

## **Content Development Committee:**

Mrs Sharmila Raheja (Principal, Uttam School For Girls)

Mrs Amita Shukla (Coordinator, Grades VI – VII)

Ms.Mehek Bhargava (TGT Social Science)

Ms.Krishna Rawat (TGT Hindi)

Ms.Paridhi Saini (TGT Social Science)

Ms.Shruti Dayal (TGT German)

## **Layout and Design:**

Mr. Arbind Kumar Singh (PGT Fine Arts)

Mr. Murari Jha (TGT Fine Arts)

Ms Ankita Sethi Sahni (TGT Computer Science)

Ms. Varnika Ruhel (TGT Science)

Mrs. Meenakshi Kaushik (TGT Science)

# **FOREWORD**

With an aim to overcome the social status hierarchy associated with Skill (Vocational) Education, the NEP 2020 has recommended integration of Skill Education Programme in mainstream education in all the educational institutions and exposing students at early ages to quality Skill Education through the middle and secondary school and smooth integration into higher education/vocation.

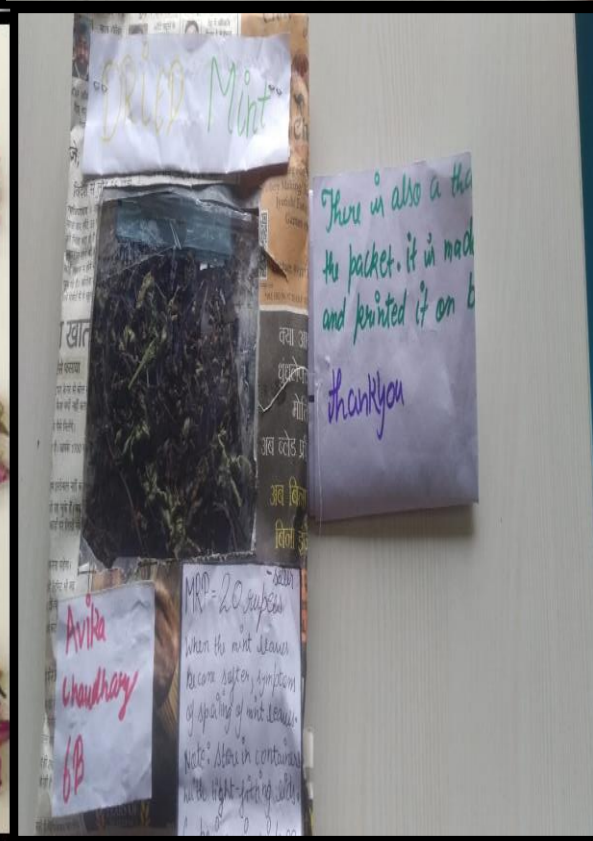
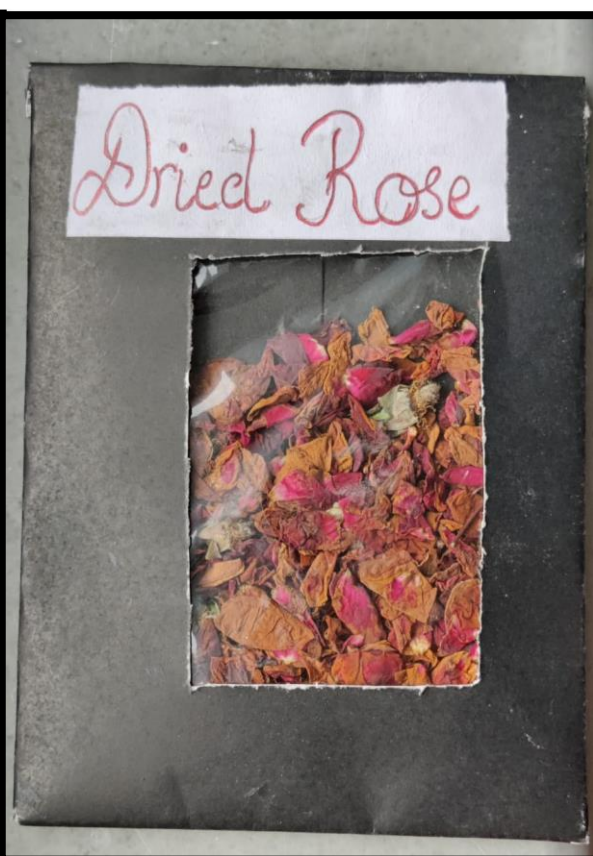
The world of academia has an important responsibility to meet the requirements of the practical world and prepare students with the knowledge and skills that they require to adapt to the new world order. In this direction, it is prudent to expose them to such concepts early on their educational journey.

We would like to congratulate Mrs. Sharmila Raheja (Principal, Uttam School For Girls), Princess Diya Kumari Foundation for their constant support to accomplish the project successfully. We would also like to thank all members of team who worked towards completion of this manual.

Due care has been taken to keep the book content simple and easy to understand. The progression of topics too is carefully designed as it transitions from the most fundamental concepts of Food Preservation in a guided manner.

We sincerely hope that the handbook is well received by the students, and they can leverage the learnings provided therein. Any suggestions for the improvement of the book are welcome.





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# Chapter 1

## Introduction to Sun Dried Products

### Learning Objectives:

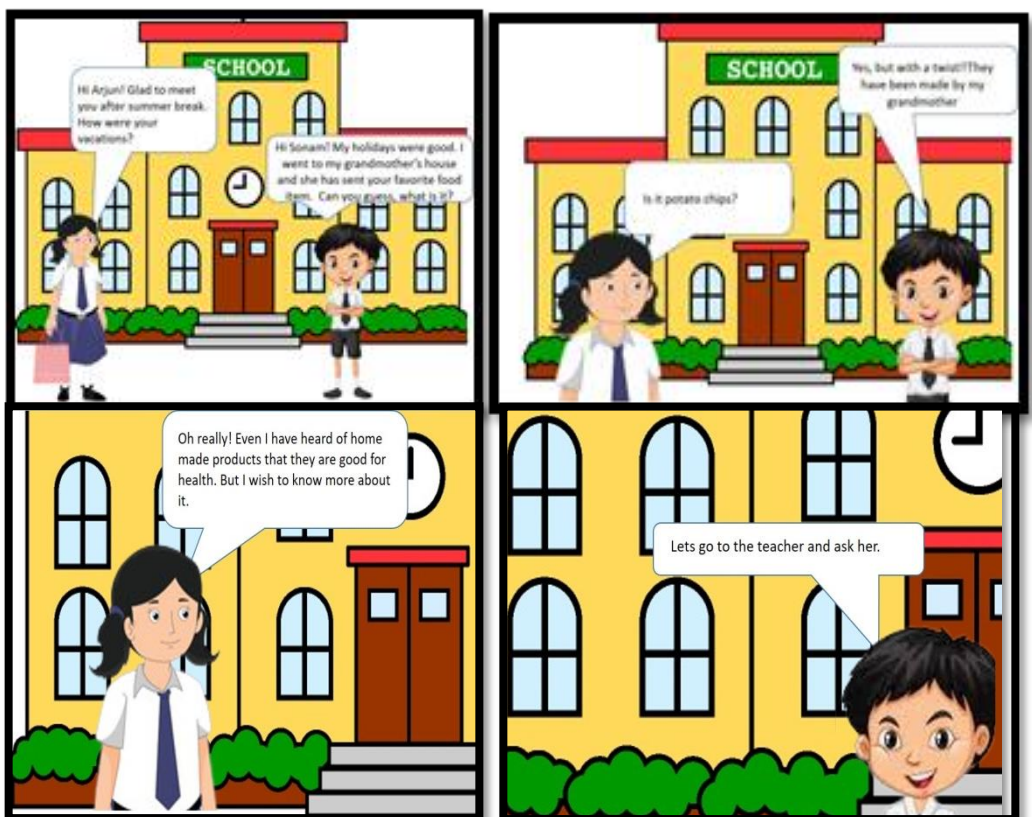
To familiarize the students with the sun drying technique, its origin and tales associated with them.

### Learning Outcomes:

The students will become aware about sun-drying, its origin and process since older times.

### Development of Skills and Competencies

1. Citizenship, Effective Communication
2. Thinking and Comprehension



## HISTORY & TALES

The astonishing fact about food preservation is that it permeated every culture at nearly every moment in time. To survive ancient man had to harness nature. In frozen climates and in tropical climates he froze seal meat on the ice and dried other foods in the sun. Food by its nature begins to spoil the moment it is harvested. Food preservation enabled ancient man to make roots and live in one place and form a community. Each culture preserved its local food sources using the same basic methods of food preservation.

The importance of the Sun as a vital source of energy has been incorporated in various scriptures and texts. In fact, archaeological sites in Egypt and Mesopotamia show proof that food has been preserved using these methods since the year 4,000 B.C. Even in the Middle East, evidence prove that sun drying was used as a method of food preservation as early as 12,000 B.C. The Romans are also said to have a special corner for sun-preserved foods such as dry fruits.

The Chettiars in Tamil Nadu hail from a bone-dry arid region and they would salt and sun-dry anything they could find — whether it was meat or cluster beans. Sun-dried vegetables are now a part of their culture — a mandatory food item served at the weddings.

In the Northeast, drying vegetables, like ash gourd, radish etc, on rooftops is a common practice and a part of their rural tradition. In Assam, edible flowers (like sewali phool, teeta phool) as well as ferns like tengesi tenga (Indian sorrel) and mejenga paat (schezwan pepper) are dried on a cotton cloth and stored for months. Once fried, you can add it in rice or even sprinkle them fresh on scrambled eggs. It lends a very umami-like flavour to the dish.





## Activity: Weight matters!

- Take 5 potatoes.
- Weigh it using a balance and note down its weight.
- Put it out in the sun and weigh it every day.
- Continue the process for a week and make the following observations in a table
- The class can be divided in groups and each group can try sun drying of the following variations
  - Peeled full potatoes
  - Slices of peeled potatoes
  - Slices of par boiled potatoes made into chips
  - Slices of par boiled potatoes in salted water, made into chips

Day	Weight(g)	Change in appearance	Temperature of the day (noted from the weather report)
1			
2			
3			
4			
5			
6			
7			

- Take a potato and microwave it for 3 minutes.
  - What changes do you observe?
  - How is drying in microwave different from sun drying?

## INTERVIEW WITH GRANDMA

Interview your grandparents and collect the following information:

- Food items that they sun dried
- Reason for sun drying
- Process (in brief) followed for sun drying
- Precautions they took while sun drying.

## Chapter 2

### Product Introduction and Technique

#### Learning Objectives:

- To list out the products which will be sun-dried along with the processes involved.
- To know the stages of sun-drying of each product along with recipes in which the final product can be used.

#### Learning Outcomes:

- The students will list out the products that can sun-dried and preserved.
- The students will know the stages each product goes through while being sun dried as well as the recipes it can be used in.

#### Development of Skills and Competencies

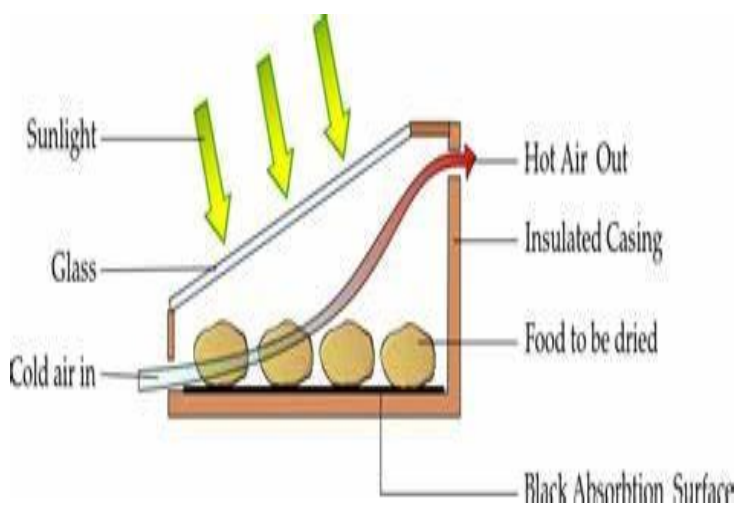
- 1.Problem Solving Skill
2. Culinary Skill



# Sun-drying technique



- This technique involves removal of water or another solvent by evaporation from a solid and semi-solid.
- Since plant and animal products contain a large percentage of water, dehydration is necessary for preserving these products. With the passage of time drying techniques have evolved from Sun drying to Press drying, Oven drying and Microwave drying.



<http://bit.ly/3KcoXCF>



<https://www.italian-feelings.com/wp-content/uploads/2016/05/disidratazione.jpg>







# Equipment used for sun drying technique

Equipment	Name & Purpose
 <a href="https://bit.ly/3Klmjhg">https://bit.ly/3Klmjhg</a>	Flat Metal Strainer used for draining out water
 <a href="https://bit.ly/3Yzzxvq">https://bit.ly/3Yzzxvq</a>	Kitchen Towel for pat drying
 <a href="https://bit.ly/3Eepi7A">https://bit.ly/3Eepi7A</a>	Knife for cutting/ chopping
 <a href="http://bit.ly/3S3Uwns">http://bit.ly/3S3Uwns</a>	Parchment sheet for covering the drying tray
 <a href="https://www.123crea.eu/en/135-silk-organza">https://www.123crea.eu/en/135-silk-organza</a>	White thin cloth to cover food items while sun drying
 <a href="http://bit.ly/3Ed2ntm">http://bit.ly/3Ed2ntm</a>	Chopping Board to chop vegetables
 <a href="https://bit.ly/3ld2q9Q">https://bit.ly/3ld2q9Q</a>	Air tight container for storing food items



# Equipment used for sun drying technique

Equipment	Name & Purpose
 <a href="https://bit.ly/3YMoi2m">https://bit.ly/3YMoi2m</a>	Spatula to spread the food items evenly
 <a href="https://bit.ly/3xqYZXV">https://bit.ly/3xqYZXV</a>	Tray to spread the food items
 <a href="https://bit.ly/3YTeOT4">https://bit.ly/3YTeOT4</a>	Grinder for grinding pulses
 <a href="https://bit.ly/3i3N3jW">https://bit.ly/3i3N3jW</a>	Icing Cone for making Badis



## REMEMBER

- Hygiene should be maintained.
- Wearing an apron and head gear is mandatory .
- Handle sharp equipment like knives, forks, peelers carefully.
- Washing of hands before cooking.
- The work-station should be cleaned and all equipment / ingredients used should be kept back in place.



## ASSESSMENT

1. State True or False:

- (i) Sun drying is a fast process.
- (ii) Drying as a method of preservation has numerous advantages.

2. Choose the correct option:

(i) Dried foods are -

- (a) Tasty and Nutritious
- (b) Easy-to-prepare, easy-to-store
- (c) Lightweight
- (d) All of the above

(ii) Drying vegetables, like ash gourd, radish etc., on rooftops is a common practice in which part of India:

- (a) South India
- (b) West India
- (c) North India
- (d) North - East India

(iii) Which of the following items cannot be sundried:

- (a) Methi
- (b) Pulses
- (c) Amla
- (d) Rose Petals

3. Drying is environment friendly since it uses the sun as the heat source and therefore produces no \_\_\_\_\_.

Products used		Locally known as
Indian Rose Petal	 <a href="https://bit.ly/3XAhGmH">https://bit.ly/3XAhGmH</a>	Gulab Pankudi
Mint	 <a href="https://bit.ly/3k0VMey">https://bit.ly/3k0VMey</a>	Pudina
Fenugreek Leaves	 <a href="https://bit.ly/3alv90d8">https://bit.ly/3alv90d8</a>	Methi Patta
Curry Leaves	 <a href="https://bit.ly/3Xv9o">https://bit.ly/3Xv9o</a> wo	Curry Patta
Black Gram Badi	 <a href="https://bit.ly/3YTdG1M">https://bit.ly/3YTdG1M</a>	Urad dal badi
Potato	 <a href="https://bit.ly/3xqC4Me">https://bit.ly/3xqC4Me</a>	Aloo
Indian Gooseberry	 <a href="http://bit.ly/3xvljzL">http://bit.ly/3xvljzL</a>	Amla
Red Chillies	 <a href="https://bit.ly/3XD7v0u">https://bit.ly/3XD7v0u</a>	Lal Mirch



[https://www.researchgate.net/figure/Dried-rose-buds-and-dried-rose-petals-used-in-study\\_fig1\\_322241352](https://www.researchgate.net/figure/Dried-rose-buds-and-dried-rose-petals-used-in-study_fig1_322241352)

## INDIAN ROSE PETALS

### *Fact Pod*

Indian Rose or desi rose petals are recommended for sun drying as they provide the required fragrance and taste when used for garnishing the dishes. Sun drying is the cheapest method of drying in which flowers are kept under sun for drying. For roses, drying technique is best in which flower shape, colour, size are maintained.



## Process of drying rose petals



<https://bit.ly/3luixkw>

- You can use the flowers which you want to dry at any time during the growing season. But keep in mind, that when they are at the brightest, they will also smell their best.
- Choose fresh roses in full bloom. Avoid picking the roses that have dull petals; they will become fully brown when they dry.
- Wait for the perfect time of the day to pick your roses. This period of time is after the dew drops have dried, but before the midday sun has reached its strongest rays.
- Rose petals with any sort of moisture on them could potentially turn brown when dried because they will begin to rot. The hours before the midday sun are when most roses produce their strongest fragrance.
- Cut the petals from the stems by using scissors to snip around the base of the rose petals. Be sure that you cut the entire flower. You can also pluck the petals by gently pulling each one from the base of the stems.
- Place the petals on a drying sheet. A mesh screen such as an old window or a flat metal strainer from your kitchen will work well. Make sure that the petals are in a single layer and that are not overlapping. If they overlap while drying, they will stick together and you will have to break them apart later.

- Place the petals where they will get a lot of sunlight and air. The best place to put your petals is on a flat surface out in direct sunlight for good air circulation. Placing the petals directly in the sun with no air circulation will cause them to fade.
- Turn over the petals several times. Air drying of petals generally take a couple of days. During that time, you should turn over the petals at least once a day. Rotating your petals will ensure that both sides of each petal will get enough air exposure.
- Remove them from the drying sheet. Only remove the petals after they have become crispy (almost the texture of corn flakes.) If they are not fully dry when you store them, they will tend to get mouldy. Store the rose petals in an airtight container.





## Rose Petal and Vanilla Tea

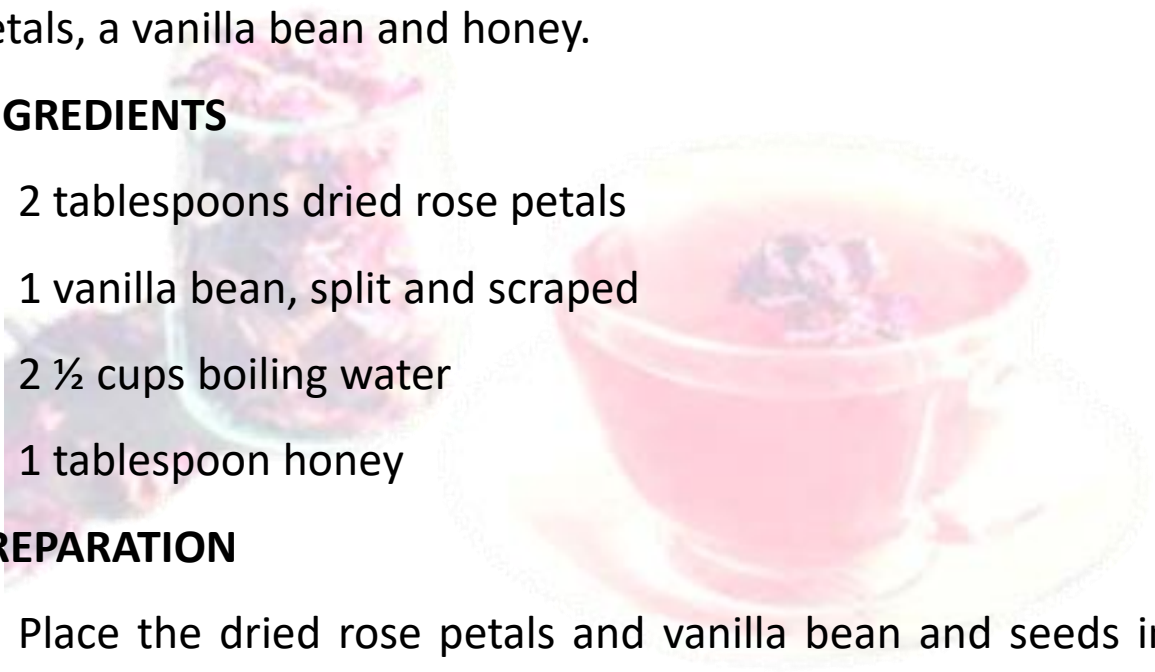
This is a sweet infusion with nothing more than dried rose petals, a vanilla bean and honey.

### INGREDIENTS

- 2 tablespoons dried rose petals
- 1 vanilla bean, split and scraped
- 2 ½ cups boiling water
- 1 tablespoon honey

### PREPARATION

- Place the dried rose petals and vanilla bean and seeds in a large measuring cup or teapot and pour on the boiling water.
- Stir in the honey, cover and let it stay for 30 minutes.
- Strain and serve warm, or reheat and serve hot.





## Rose Tea

These delicate flowers make a fragrant brew that is light-tasting, fruity and low in calories. One teaspoon of rose hips has vitamin C equivalent amount to vitamin C in 6 oranges.

### INGREDIENTS

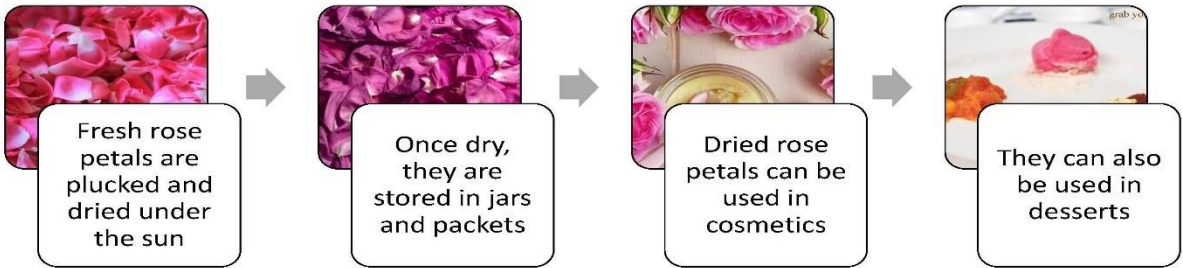
- 2 cups Water
- 2 tbsp Dried Rose Petals
- Raw honey (optional)

### PREPARATION

- In a small saucepan over medium-high heat, place the rose petals. Cover with water and bring just to a simmer.
- Let simmer for approximately 5 minutes or until the petals become discolored (darkened).
- Remove from heat and strain the hot rose petals liquid into teacups. Add honey to taste. Enjoy!



## RECAP



## ASSESSMENT 2

1. Respond to the given questions:

- What is the central idea behind drying?
- Why is sun drying an eco-friendly technique?

2. Form the names of the various techniques from the jumbled words:

- RYDNGI
- POERAVAIOTN
- RADEHYTDION
- INGARNSHIG



# ACTIVITY TIME



## ROSE SKIN TONER

To make rose water face toner by adding dried rose petals to fresh water and keeping in sun for 2-3 days and then storing in fridge

## FLORAL DRESS MAKING

Student will use flower petals to make dress for sketched figurines

## SUN-FLOWER MANDALA DREAMCATCHER

Students will get parchment paper sheets, flowers and paper plates to make their mandalas.

## HERBAL TEA

Students will get blue pea flower that can be dried for a few hours and then added to water to make blue colored tea, adding lemon changes its color to purple.



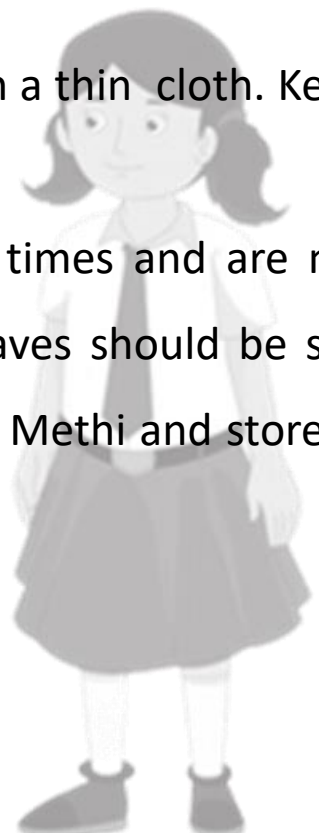
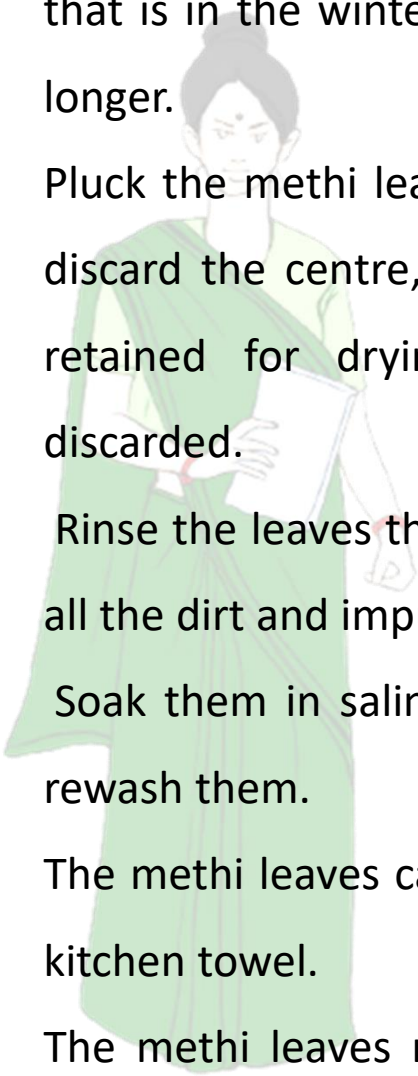
## Product – Kasuri Methi

### FACT POD

Kasuri Methi or dried fenugreek leaves lend a strong fragrance and a distinct flavour to every dish where it is added. The dried herb is more bitter and potent than its fresh counterpart. It can be added to snacks (like matthi), paratha, rice preparations, and even curries, like Butter Paneer. Sun drying technique: For methi, drying technique is best in which shape, colour, size of the leaves are maintained.

## Process


- Get fresh fenugreek leaves (500gm) during the peak season, that is in the winter months. The fresh produce tends to last longer.
- Pluck the methi leaves right from the base of the leaves and discard the centre, thick stem. The tender ones can also be retained for drying. Rotten or slimy leaves should be discarded.
- Rinse the leaves thoroughly under running water. Ensure that all the dirt and impurities have been removed off the leaves.
- Soak them in saline water for at least 10 minutes and then rewash them.
- The methi leaves can be sun dried or pat dried using a clean kitchen towel.
- The methi leaves may be chopped roughly (optional). Once again, pat it dry using a kitchen towel. Spread these over a parchment sheet or a newspaper. They may even be spread over a highly absorptive cloth.
- Place them on a tray. Cover the leaves with a thin cloth. Keep the tray out in the sun.
- Ensure that the leaves are covered at all times and are not directly exposed to the sun's rays. The leaves should be sun dried for at least 3-4 days. Sieve the Kasuri Methi and store in an airtight container.



# Aloo Methi

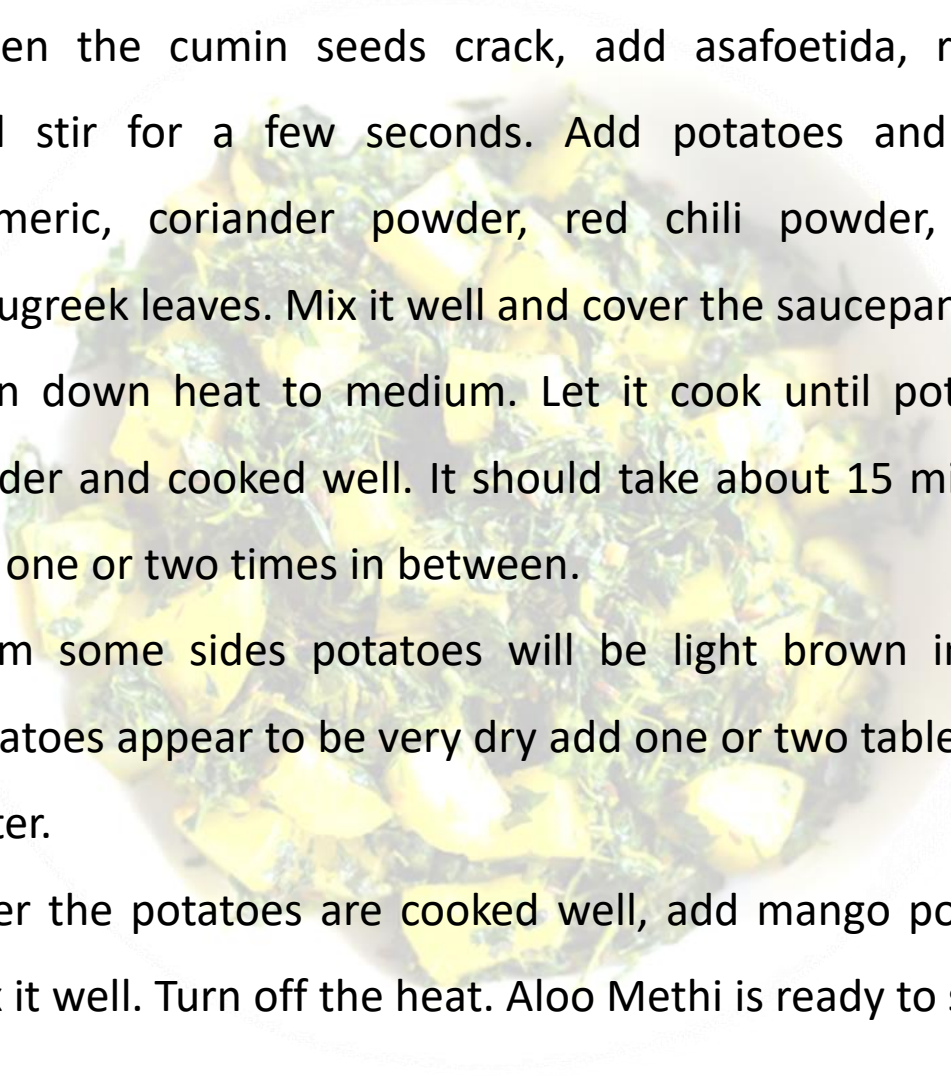
Aloo Methi is a delicious dish made with potatoes, fenugreek leaves, and a combination of spices. There are many health benefits of fenugreek. This dish is delicious in addition to being healthy!

## INGREDIENTS

- 
1. 4 medium size potatoes peeled and cubed bite size; this will make about 3 cups of cubed potatoes.
  2. 3 tablespoons oil
  3. 1/2 teaspoon cumin seed (jeera)
  4. 1/8 teaspoon asafetida (hing)
  5. 3 whole dry red chilies broken in 2 pieces
  6. 1/4 teaspoon turmeric (haldi)
  7. 1 tablespoon coriander powder (dhania)
  8. 1/2 cup dry fenugreek leaves (kasoori methi)
  9. 1 teaspoon salt
  10. 1/4 teaspoon red chili powder
  1. 1/2 teaspoon mango powder (amchoor)

## Process

- Wash, peel and cut potatoes in small cubes.
- Heat the oil in a saucepan over medium-high heat. Test the heat by adding one cumin seed to the oil. If the cumin seed cracks right away, the oil is ready.
- When the cumin seeds crack, add asafoetida, red chilies and stir for a few seconds. Add potatoes and stir, add turmeric, coriander powder, red chili powder, salt and fenugreek leaves. Mix it well and cover the saucepan.
- Turn down heat to medium. Let it cook until potatoes are tender and cooked well. It should take about 15 minutes. Do stir one or two times in between.
- From some sides potatoes will be light brown in color. If potatoes appear to be very dry add one or two tablespoons of water.
- After the potatoes are cooked well, add mango powder and mix it well. Turn off the heat. Aloo Methi is ready to serve.





## RECAP



Fresh fenugreek leaves can be washed and wiped



They can be spread out and dried under the sun



Sun dried fenugreek leaves are commonly known as kasoori-methi and are easy to store



They can also be used for a variety of curry preparations

## Assessment 3 (Methi Leaves)

1. Choose the correct option:

a. Drying technique is best for methi because

- i) It removes the bitter flavour
- ii) It adds fragrance to the methi leaves
- iii) It maintains the shape, colour and size of the leaves
- iv) It makes it moist

b. Dried Kasuri Methi can be used in:

- i) Pickles
- ii) Pasta
- iii) Curries
- iv) Salad

2. Kasuri Methi is also known as \_\_\_\_\_.

3. Dried Kasuri Methi can be added to snacks like \_\_\_\_\_.

4. The peak season for methi leaves is \_\_\_\_\_.

There are many food items which are preserved by drying . Let us have a look at some of them.



<https://www.pngitem.com/pimgs/m/531-5310746-cheesesteak-factory-homemade-chips-homemade-potato-chips-png.png>



<https://tinyurl.com/4vc9cjr>

# Mint leaves



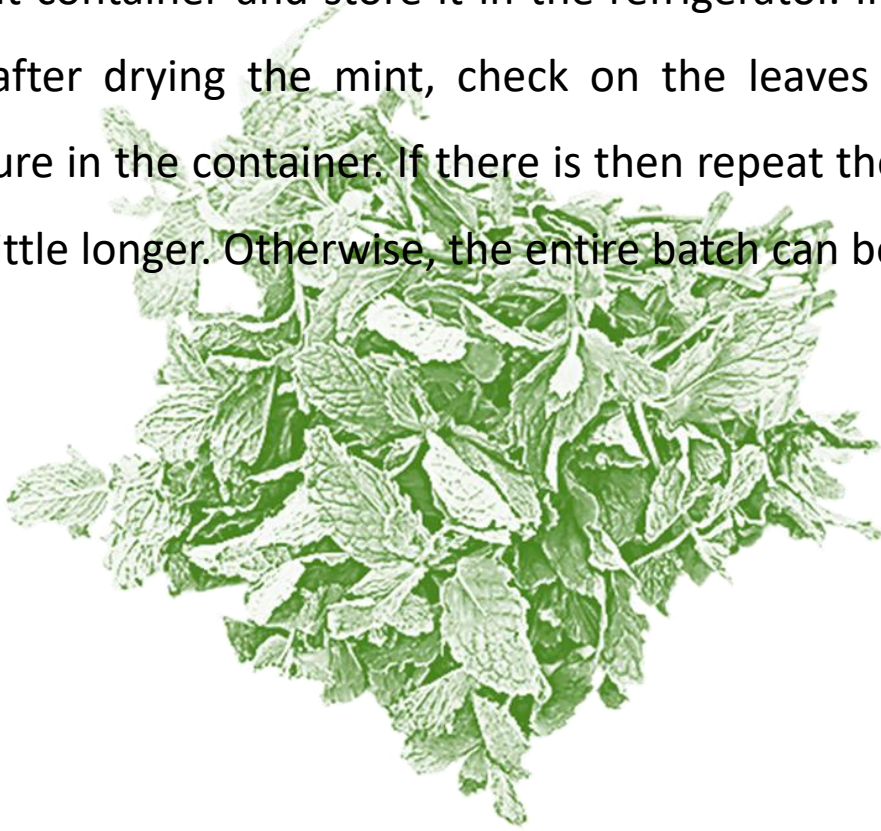
## FACT POD

Mint amps up not only the flavour but also the nutritious content of the food to which, it is added. Fresh mint has a very short shelf life, which can be extended with a few different preserving methods.

## Making

- The mint leaves should be freed of dirt, critters and germs before being dehydrated.
- Put the mint leaves in a bowl of water and wash them carefully. After rinsing, use a salad spinner to get rid of the excess water.
- Pat the leaves dry. Let them air-dry for an extra 30- 45 minutes to get rid of all the excess moisture, pat dry once more.
- After rinsing and drying the mint leaves, you can form a bunch and tie it together with a piece of twine/string at the bottom of the stems. The bunch should be hung in a warm, well-ventilated area away from the direct sunlight. This method can be used in a warm, dry climate to avoid mint becoming moldy.
- Also ensure that the leaves are dried away from the sunlight as the sun causes the leaves to become dull and brown and destroys the mint essential oils. The leaves should be dried for a couple of days, maybe a week or so till they are 'crumbly' in texture.

Due to the long drying time, it can be a good idea to cover the herbs with a ventilated 'protective covering' like a paper bag – to avoid dust settling on the herbs (and little critters). Store mint in an airtight container and store it in the refrigerator. In the immediate days after drying the mint, check on the leaves for any sign of moisture in the container. If there is then repeat the drying process for a little longer. Otherwise, the entire batch can become moldy.



## Recap



Fresh mint can be washed and wiped



They can be spread out and dried under the sun



Sun dried mint can be stored in jars



Dried mint can be crushed and used in raitas and curries

## ACTIVITY TIME



### MINT MOJITO

To make lemon mint mojito, students will get lemons, sun-dried mint, powdered sugar and cold water in the bottles

### MAKING CHAT MASALA

Students will be getting in-season fresh fruits and add their self made chat masala. Students will bring sundried mint, black salt, pepper, sundried mango (amchoor) and crush them all using a mortar pestle. This will then be added to the fruits before eating to add a refreshing flavour.





## Pudina/Mint Raita Recipe

A minty flavourful yogurt dip recipe prepared with mint leaves and curd.

### INGREDIENTS :

1. Fistful pudina / mint leaves
2. 1 cup thick fresh curd / yogurt (whisked)
3. ½ tsp kashmiri chilli powder / mirchi powder
4. ½ tsp roasted cumin powder
5. Salt to taste

### INSTRUCTIONS :

1. Firstly, take a fistful of mint / pudina leaves in a small blender.
2. Furthermore, add 1 tbsp of curd / yogurt. avoid adding water to prevent raita from turning watery.
3. Blend mint to smooth paste. add extra curd / water if required.
4. Transfer the blend pudina paste into a large mixing bowl.
5. Further, add thick curd to it.
6. Also add chilli powder, roasted cumin powder and salt.
7. Give a good mix making sure the spices are mixed well.
8. Finally, serve Mint raita or Pudina raita along with biryani or pulao.





## Curry leaves

### FACT POD

Other than its culinary usage, curry leaves, both in fresh and dry form, are of high nutritional value and have several health benefits too. This local Indian herb is rich in protein, fiber, calcium, vitamins and minerals, which may help in weight loss. Curry leaves, or as we commonly call it- kadhi patta specifies the flavour of southern India . Although this herb is used in different dishes around the country, it gives identity to South Indian dishes.

### Process

- Remove the leaves from the stalk and wash them thoroughly in a bowl.
- Place the wet leaves on a kitchen towel and gently pat them with the towel to remove excess water.
- Place the leaves on a large tray and spread them evenly. Place the tray in a cool shade inside your home and leave them to dry.
- Cover the tray with a thin cloth. Depending upon the weather, the leaves will dry in 2-3 days. It is important to dry them in shade to retain their flavour. Sun drying is faster but will result in losing most of the flavour and aroma.
- Once dried, store the dry and crisp curry leaves in an air-tight container and use them whenever needed just like fresh curry leaves.

## RECAP



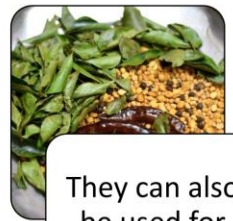
Fresh curry leaves can be washed and wiped



They can be spread out and dried under the sun



Sun dried curry leaves can be stored in jars as powders



They can also be used for tadkas and chutneys

## Assessment 4

1. State True or False for the following statements:

- a) Kadhi patta is also called methi leaves in India.
- b) Curry leaves specifies the flavor of North India.
- c) Curry leaves are rich in protein, fiber , calcium, vitamins and minerals.

2. Match the following :

- |                        |                                |
|------------------------|--------------------------------|
| a. Protective covering | i) can be used for weight loss |
| b. Curry leaves        | ii) very short shelf life      |
| c. Mint leaves         | iii) to avoid dust settling    |



## Curry Leaves Hair Mask for dry hair

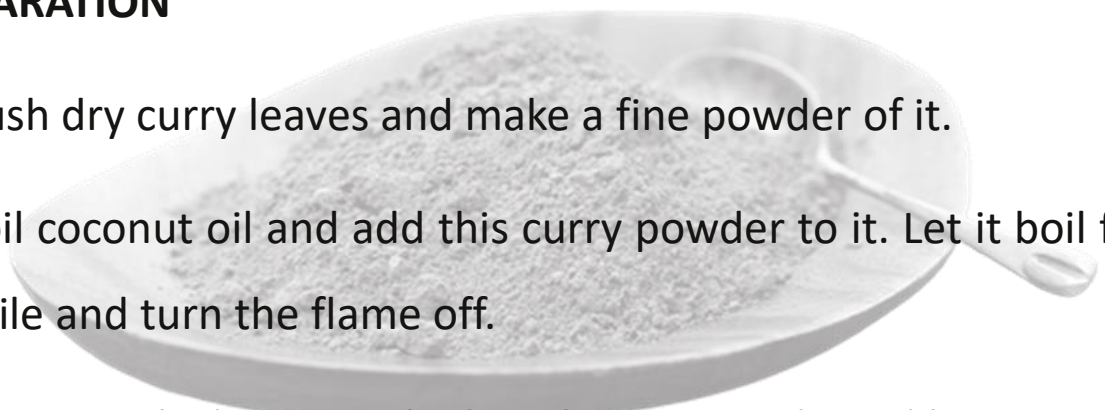
Dry hair tends to break the most and the weather has the most prominent effects on your hair condition. Dry hair causes itchy scalp. But the curry leaves will help you get rid of this dryness.

### INGREDIENT

1. Coconut oil
2. Curry Leaves

### PREPARATION

1. Crush dry curry leaves and make a fine powder of it.
2. Boil coconut oil and add this curry powder to it. Let it boil for a while and turn the flame off.
3. After it cools down, apply the oil to your scalp and hair.
4. Massage your hair and dip a towel into hot water, wring it out, and then tie your hair up with the help of the towel. Leave it until the towel cools down. repeat this process twice.
5. Leave the oil overnight or the maximum time for which you can.
6. Wash it off with lukewarm water.



## Black Gram Badi

### FACT POD

Black gram is a rich source of protein, vitamin B, potassium, calcium, iron, niacin, thiamine and riboflavin. Black gram or *urad dal* holds a high protein value than most of the legumes. It is also an excellent source of dietary fiber, isoflavones, vitamin B complex, iron, copper, calcium, magnesium, zinc, potassium, phosphorus which offers a myriad of healing health benefits.

### Process

- Soak the black gram overnight.
- Churn them till they are powdered and make a paste.
- Add salt into the paste.
- Pour it into an icing cone carefully and slowly drop them on a tray or plate.
- Leave them to dry under the sun until they are crispy.
- Store in an air-tight container and your Dal Ki Badi is ready.
- You can also put spices in the paste to give a spicy or tangy taste.





## Badi Ki Sabji

### INGREDIENTS

- ½ cup badi(wadi)
- 1½ tbsp oil/ghee
- A pinch of asafoetida(hing)
- ½ mustard seeds (rai)
- ½ cumin seeds(jeera)
- ¼ turmeric powder
- ½ tsp red chilli powder
- 1 tsp coriander powder



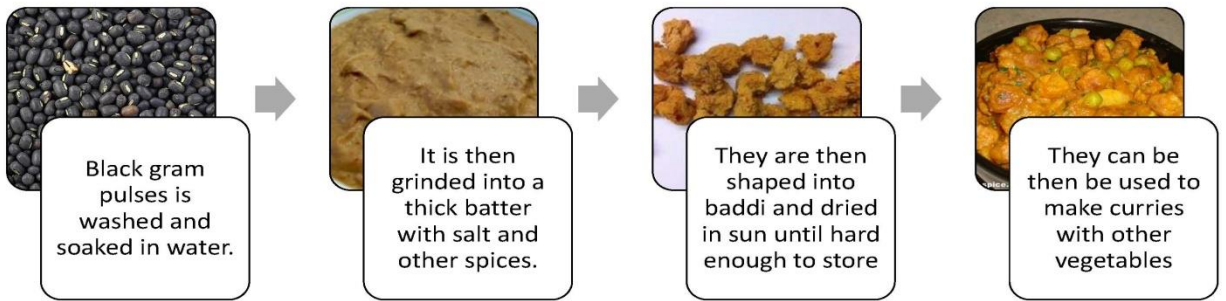
<http://bit.ly/3l43gW8>

- Salt to taste

### PREPARATION

- Crush the badi in a muslin cloth with a rolling pin or in mortar.
- Heat oil/ghee in a pan, add mustard seeds (rai), cumin seeds(jeera) and asafoetida(hing.) Sauté on medium heat for few seconds.
- Add 1 cup water, turmeric powder, red chilli powder, coriander powder and salt.
- Add the crushed badi in it and cook for few minutes till badi is cooked well (add more water if required).
- Serve hot with Roti.

## RECAP



## Assessment 5

1. Complete the following statements:

- Black gram is a rich source of \_\_\_\_\_.
- Black gram is commonly known as \_\_\_\_\_.
- \_\_\_\_\_ in black gram offers a myriad of healing health benefits.

2. Tick the correct option to complete the sentences:

- Black Gram is an excellent source of ( Vitamin A/Vitamin B).
- Black Gram hold a high value of (Protein / Potassium)
- Black Gram badi making (require / does not require) overnight soaking.



# AMLA

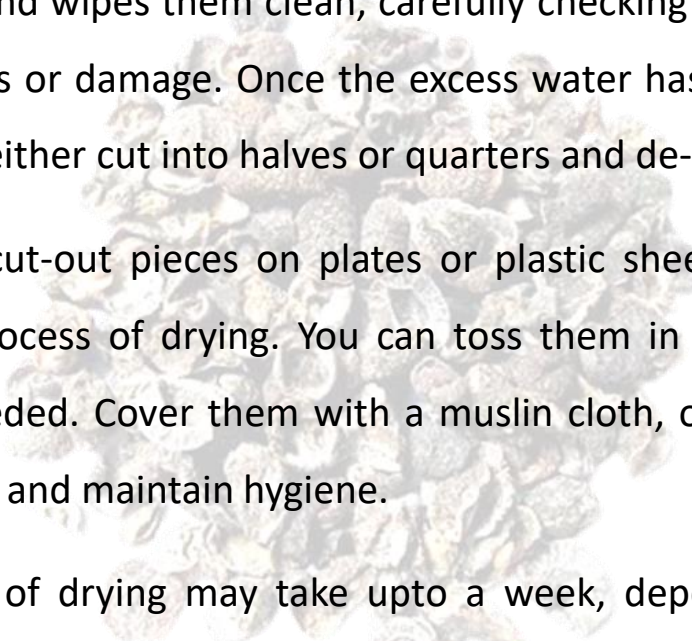
## FACT POD

Amla is an important source of Vitamin C, it can be eaten raw and cooked into various dishes and it acts as herbal food supplement. Amla has anti-ageing properties and is considered best for rejuvenating.

## Process



- Choose fresh amla for the preservation, avoiding brown marks or soft one, as they may result in improper drying or rotting. Wash them thoroughly and wipe them clean, carefully checking each one for any kind of marks or damage. Once the excess water has been wiped off, they can be either cut into halves or quarters and de-seeded.
- Spread the cut-out pieces on plates or plastic sheets in the sun to begin the process of drying. You can toss them in a bit of salt and spices, if needed. Cover them with a muslin cloth, or cotton dupatta to avoid dust and maintain hygiene.
- The process of drying may take up to a week, depending upon the intensity of sunlight. Once dried, they can be stored in dry, air-tight containers, zip-pouch or glass jars in a cool place. They can be used as they are or turned into powder and used in variety of recipes, both while cooking or in cosmetic purposes also.





## Sun dried tangy indian gooseberry mouth freshener /chatpati amla supari

There is tradition to serve mouth freshener after meals. This mouth freshener is not just tasty but also a digestive aid too.

### INGREDIENTS

- 1.Amla / Indian Gooseberry -250 gm (grated)
- 2.Ginger juice - 1 tablespoon ( 1 inch ginger)
- 3.Carom Seeds (ajwain) - 1 teaspoon
- 4.Lemon Juice - 1/2 a lemon
- 5.Table salt - 1 teaspoon
- 6.Rock salt - 1 leveled teaspoon
- 7.Asafetida - 1-2 pinch



<https://bit.ly/3YX8ZUs>



## INSTRUCTIONS

1. Wash and pat dry the fresh unblemished amla fruit.
2. Grate and keep aside.
3. In a plate, mix rock salt, table salt, ajwain (carom seeds), asafoetida and mix properly.
4. Add this to the grated amla along with little ginger juice and lemon juice.
5. Spread it out on a plate and keep this in sunlight for 5-6 days.
6. The drying time will depend on the amount of sunlight and heat it gets.
7. Once the amla changes color, shuffle it a few times in a day so that it dries evenly and no moisture remains.
8. Once the grated fruit has dried completely and turns brown in color it is ready to be stored in an airtight container to be used any time you desire.



## RECAP



Amla (Indian gooseberry) are washed thoroughly and wiped



They can be either sliced, grated or cut into pieces



Sun-dry the amla pieces



These can be stored for a long time and eaten or used as powder

## Assessment 6

1. Fill in the blanks :

- a. Amla is a rich source of \_\_\_\_\_.
- b. Amla is also known as \_\_\_\_\_.

2. State whether the statements are true or false:

- a. Amla cannot be stored for a long time.
- b. Amla can be used only in powder form.
- c. Amla takes around 7-8 for sun drying.
- d. Amla tastes sweet in taste



## ACTIVITY TIME

### LET'S DO: AMLA HAIR MASK

Crush sundried amla in a mortar pestle.  
Add this powder to pre-packed henna packs and apply on your hair.

# RED CHILLIES

## FACT POD

Chillies are natural pain killers as it produces endorphins which act as a pain killer. Chillies are loaded with vitamin A, a potent antioxidant and boost the immune system. When we eat chilli we sweat, nose starts running our head clears and juices starts flowing which improves our digestion system.

## Process

- A piece of advice before touching the red chillies. Please wear gloves to avoid any burning sensations.
- Choose fresh red chillies, available in your area. They should be vibrant and without any damage. Wash them thoroughly and shake off the excess water.
- Spread them on a cotton sheet or plastic, out in the sun, to initiate the drying process. It may take upto 10-15 days to completely dry them, depending upon the intensity of the sunlight.
- Once sun-dried, store in dry airtight containers or glass jars. We can even use ziplock pouches.
- These dried chillies can be turned into chilli powder or chilli flakes to be added in various recipes. They can be used whole also for tempering.



- Keep them soaked overnight , take them out next morning, spread on a plate in a single layer and dry in direct sunlight.
- Keep the remaining buttermilk in the refrigerator till next use.
- In the evening, once again soak the dry chillies in the butter milk and repeat the procedure for 4 days.
- After 4 days, discard the yogurt and sundry the chilies for 3-4 days out till they are dried completely .
- Dried chillies can be shallow fried or deep fried on low heat till dark brown in colour and become crisp.
- The leftover fried chilies can be stored for a few days in an airtight jar.
- Serve with curd rice, sambhar rice, khichdi or with anything of your choice.



<https://bit.ly/3lzpBmN>





## Curd Chillies

### INGREDIENTS

- 200 gms Green chilies/ Hari Mirch
- 2 cup Sour Yogurt/ Khatta Dahi
- 1/2 tsp Roasted Fenugreek Powder
- Pinch Asafoetida/ Hing
- Salt To Taste

### INSTRUCTIONS

- Wash the green chilies and then slit from the centre.
- Take Yogurt in a bowl and add some water to dilute it. Add salt, asafoetida, roasted fenugreek powder and mix it well
- Now add the slit green chilies in the prepared buttermilk and mix.
- Put a small plate over the chilies so that they will submerge in the buttermilk, else they will float on the top.

## Potato Chips

There are hundreds of potatoes grown around the world, and new ones are being created all the time. Potato consists of 20% solids and 80% of water! It is the world's fourth most produced staple food – after wheat, corn and rice.

### Process

- 'Chipsona' variety of potatoes will be taken for the process. Let's say, we take 1 kg of this variety of potato.
- Wash them thoroughly and shake out the excess water. Using a slicer, carefully slice each potato (with peel). The slices will be put in water as soon as they are sliced to avoid browning of the potatoes.
- Once all the potatoes have been sliced, they will be washed again and excess water will be shaken off. Post this process, each slice will be carefully placed on a plastic sheet in the sun and covered with a muslin cloth or dupatta to avoid dust.
- These slices would then be dried in the sun, for 10-15 days, depending upon the intensity of the sun and then stored in dry, airtight containers.
- Whenever you feel like munching , fry them in hot oil and season.

## RECAP



Fresh red chillies are washed and let to dry off the water



Once water dries, they are put out in the sun to dry them



Dried red chillies can be stored easily for a very long time

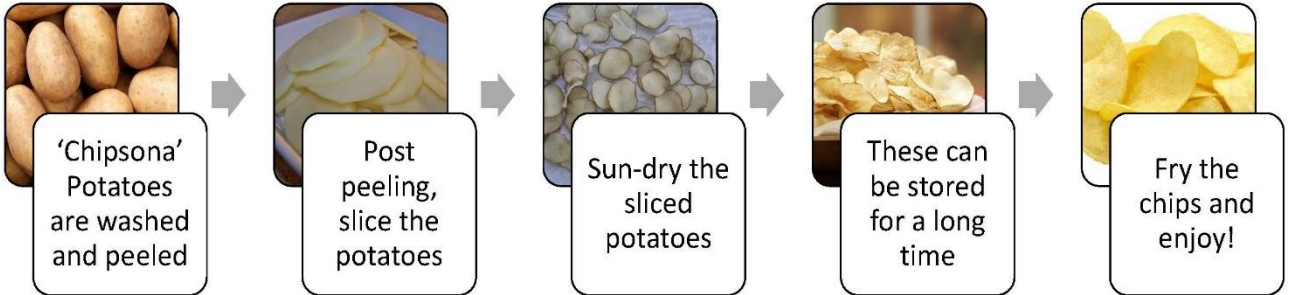


They can be used to make spicy sauces, chutneys/dips and tadkas; also powdered and used

## ASSESSMENT

1. State whether true or false
  - a. Red Chillies can be dried under the clouds also.
  - b. We can use whole red chillies for tempering.
  - c. Sun dried chillies can be crushed to form chilli flakes.
  - d. We can sundry green chillies also.

## RECAP



## Assessment 8

1. Choose the correct option:

i) How does sun rays help in food preservation?

- a. They evaporate the nutrient content.
- b. They evaporate the water in food product.
- c. They are natural disinfectant.
- d. They do not help in any manner.

ii) Which process is involved in Sun Drying of food products?

- a. Distillation
- b. Dehydration
- c. Condensation
- d. Evaporation

iii) Which of the following is an example of Sun-dried potato?

- a. Chips
- b. Potato Curry
- c. Potato Tikki
- d. Baked Potato



## Seasoned Potato Chips



<https://bit.ly/3KoiXpr>

### Ingredients:

- Sun dried potato chips
- Seasoning : salt, pepper, dry mint powder
- Refined oil

### Procedure:

- Heat oil in a deep kadai
- Once the oil is hot, fry the desired amount of chips till golden brown.
- Drain the excess oil.
- Season with salt and mint powder or pepper and serve.

ACTIVITY TIME



## **VISIT TO CHIPS FACTORY**

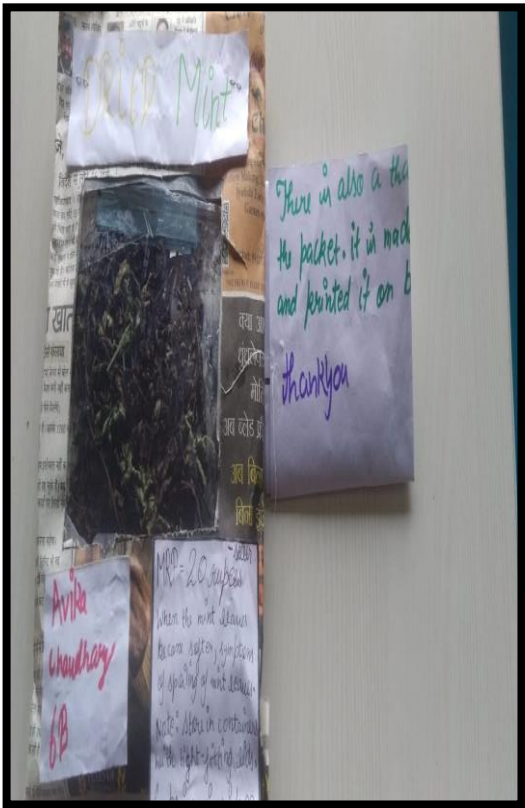
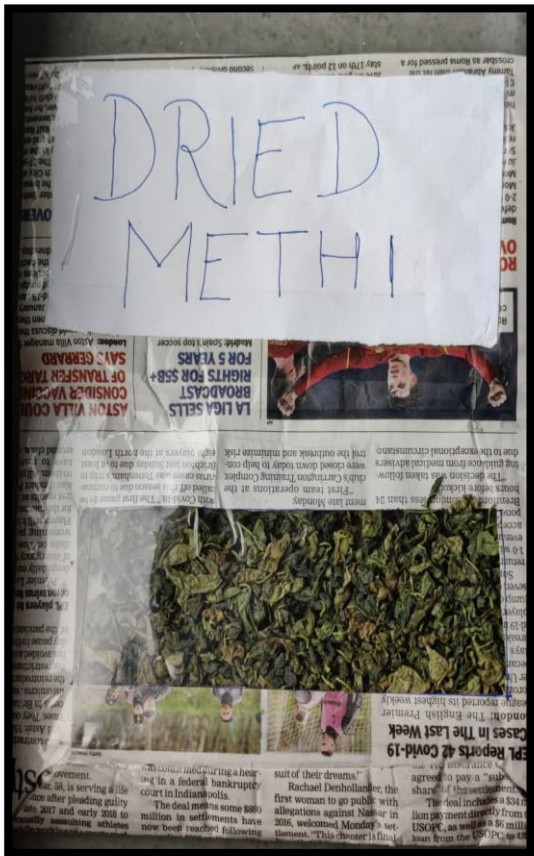
Visit to Haldiram's Factory in Noida to see how potato chips are sun-dried/heat-dried and processed.

## **GROUP ACTIVITY**

Potato Light Bulb wherein students will make an electric circuit using fresh potatoes



Final Products



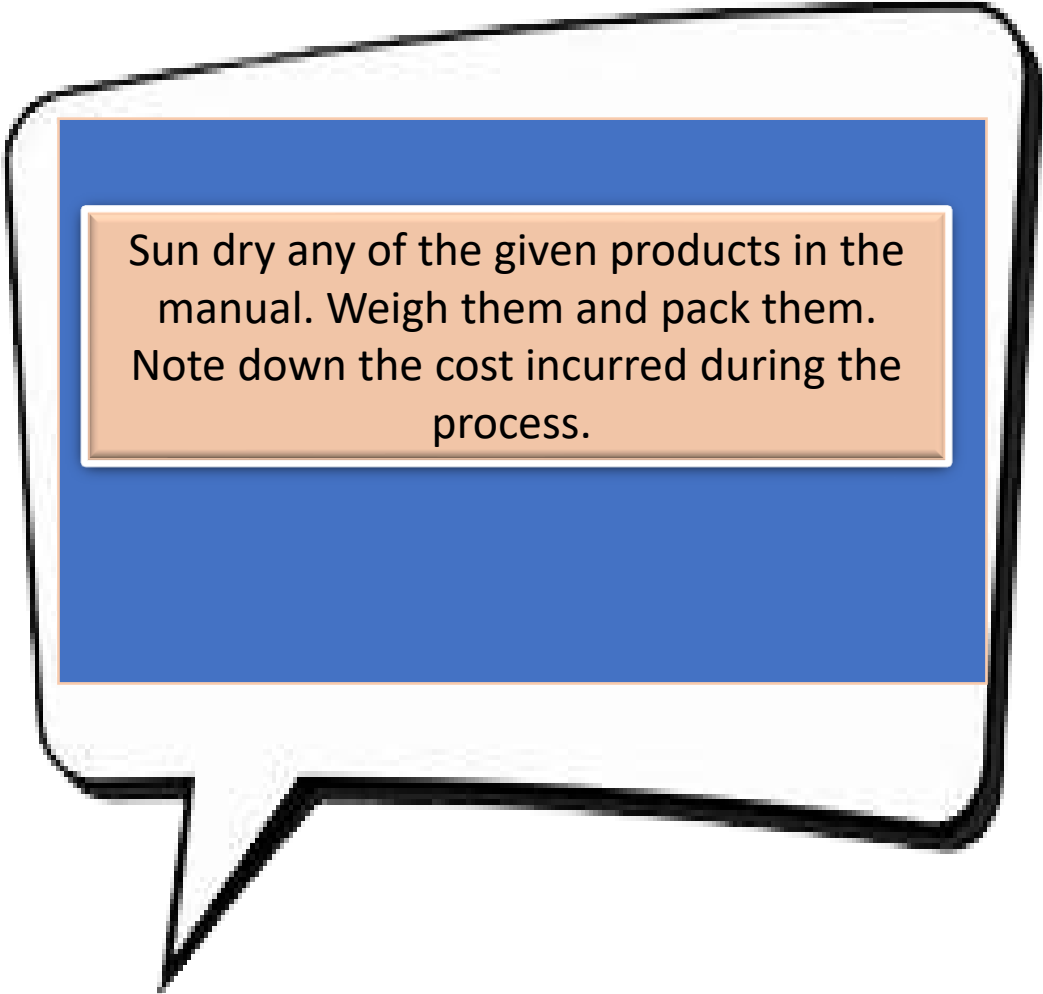
COSTING

Material required	Fruit and Vegetable	Avg. market price ranges from Rs.15/kg to Rs.90/kg
Packaging	Zip lock bag	Rs.15/piece
	Glass Jars (200-400ml)	Rs.40/piece
Logo	Design and printout	Rs.100/50 stickers
Advertisement	Pamphlet, online marketing	Rs.10/pamphlet, online marketing free
Storage	Refrigeration and Sterilization	Unit wise cost
Final Cost price	Zip Pouch	Rs.40-60
	Bottles	Rs.80-100
Final Selling price	Zip Pouch	Rs.50-70
	Bottles	Rs.100-120

## **Revival & Future Aspects**

- Preservation through sun drying is being revived by farmers, food technologists and entrepreneurs alike. This technique of preserving food products has miles to go, as it requires less investment and is also environment friendly.
- India is a Sun intensive country, with the problem of post harvest losses to farmers. Agri- preservation can be achieved by this method with no extra cost added.
- Moreover, this renewable energy can be utilized extensively in rural areas of the country and help in sustainable living. This can increase employment in areas of food preservation, packaging and entrepreneurship.

# PROJECT WORK



Sun dry any of the given products in the manual. Weigh them and pack them. Note down the cost incurred during the process.

## ASSESSMENT

State True or False for the following statements:

- (i) Sun Drying uses Sun's rays which are renewable source of energy
- (ii) Methi leaves are also called kadhi patta in India.

2. Choose the correct option:

- (i) The other name of Fenugreek is
  - a) Mint
  - b) Rose
  - c) Methi
  - d) Curry
- ii) The process of Sun Drying food products involves which process?
  - a) Distillation
  - b) Dehydration
  - c) Condensation
  - d) Evaporation
- (iii) Which of the following sentences is true regarding sun rays helping in food preservation?
  - a) They evaporate the nutrient content.
  - b) They evaporate the water in food product.
  - c) They are natural disinfectant.
  - d) They do not help in any manner.

# ACTIVITY TIME



## **PARTNER TALK**

One student will taste the fresh product while the other will taste the sun-dried product and then discuss their flavours and the benefits of each of them. Their findings can be represented in form of a table or presentation.

## **MOM'S KITCHEN**

Students will observe what all dried products do their mothers use while cooking. They will find out their costing and preferred brands.

## **SUN-TIME**

Choose any five items and observe the sun drying process of these food items, their time of drying and the procedure.

## **SHELF LIFE AND BRANDING**

Explore different ways of packaging to increase shelf life of food products. Also, research about the brand name they are available in.

## **BRANDING**

Design a logo for branding your dried food products



## **REVIVAL ACTIVITY**

Students will get a sundried leaf product and add it to water followed by observing its revival process in terms of time, color of product, flavour. The observation will be represented in a tabular form. This will help them understand the process of osmosis.

## **VISIT TO CLOUD KITCHEN/PIZZA STORE**

Students will visit either a cloud kitchen or any pizza store to observe what all sundried products do they use, flavor and availability.

# SUMMARY

- The process of Sun Drying raw food products has survived thousands of years and is still relevant in modern times. Its significance has been realized for a clean and sustainable form of preserving food products with no or less cost of the technique.
- The process has been demonstrated by students of Uttam School for Girls in a channelized manner. They learnt the technique of preserving the given food products along with their packaging and cost of production.
- The Sun drying process is making its way with newer technologies using solar drying method, for a cleaner, greener and sustainable globe.

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