



PROCESSING OF ROSE



AATMANIRBHAR BHARAT

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



- Rose is a woody perennial flowering plant and is one of the highest-selling flowers in International market due to its medicinal value.
- In India rose is grown in Karnataka, Tamil Nadu, Bihar, Uttar Pradesh, West Bengal, Maharashtra, Haryana, Gujarat, Punjab, Jammu and Kashmir, Madhya Pradesh and Andhra Pradesh are the major Rose farming states.

Common Name : Rose
Family: *Rosaceae*





PRODUCTION OF ROSE

Indian Production of Tube Rose

Production(000 Tonnes)

Sr No.	State	2015-16		
		Lose Value	Cut Value	Total Value
1	West Bengal	0.00	73.25	73.25
2	Tamil Nadu	62.77	3.31	66.08
3	Karnataka	17.43	3.71	21.14
4	Andhra Pradesh	18.52	0.00	18.52
5	Maharashtra	0.40	5.46	5.86
6	Assam	2.29	3.21	5.50
7	Chattisgarh	5.41	0.00	5.41
8	Madhya Pradesh	1.00	0.00	1.00
9	Haryana	0.00	0.32	0.32
10	Jammu & Kashmir	0.01	0.02	0.03
Page Total		107.83	89.28	197.11

Source: National Horticulture Board(NHB)





CLIMATE CONDITIONS

- Roses cannot grow well in humid climate.
- Temperature below 10°C will affect flowering and also develops blind shoots and bullheads.
- The ideal temperature for the growth and good yield of Rose flowers is 18-30°C and for sowing temperature varies from 25-30°C.





- Species Roses: They are also known as wild roses with five petals and are available in bright colours. They last a long time in winter. Some varieties of Species Roses are *Rosa rugose*, *Banksiae*, *Multiflora*, *Foetida*.



VARIETIES OF ROSES



- Old Garden Rose: They are more attractive and scented, these grow very easily and are disease resistant and they also sustain well in winter. Some of its varieties include *Moss Roses*, *Alba*, *Centifolia*, *Macrantha*, *Noisette*.



VARIETIES OF ROSES



- **Modern Roses:** They are most popular and are obtained from cross-breeding of hybrid tea and primrose and are available in various colors. Varieties of modern rose are *Hybrid Tea Roses*, *Landscape Rose*, *Floribunda Rose*, *Yellow Permet Rose*, *Grandiflora Roses*, *American Pillar*, *Polyantha*.





HARVESTING

- Economical yield for Rose plant is from the 2nd year of cultivation.
- Harvesting can be done by using sharp hand pruners and it is done when the colour of flower is fully developed and the first two petals of the flower start unfolding.
- Harvesting of flowers should be done early in the morning or late afternoon.
- After harvesting roses are placed in a container filled with freshwater having disinfectant and preservative.
- Flowers are then preserved in pre cooling chamber having 10-12°C for 12 hours.





- Anti-depressant
- Anti -bacterial
- Anti- septic
- Anti- Viral,
- Anti- Fungal,
- Anti-spasmodic,
- Anti-inflammatory
- Astringent
- Regulator of appetite and sedative, digestive stimulant,
- Increases bile production,
- Helps Cleansing
- It can be used as a deodorant
- Expectorant
- Acts as a kidney tonic
- Helps in menstrual regulation
- Good for heart, Liver and uterus
- Used to treat acne.



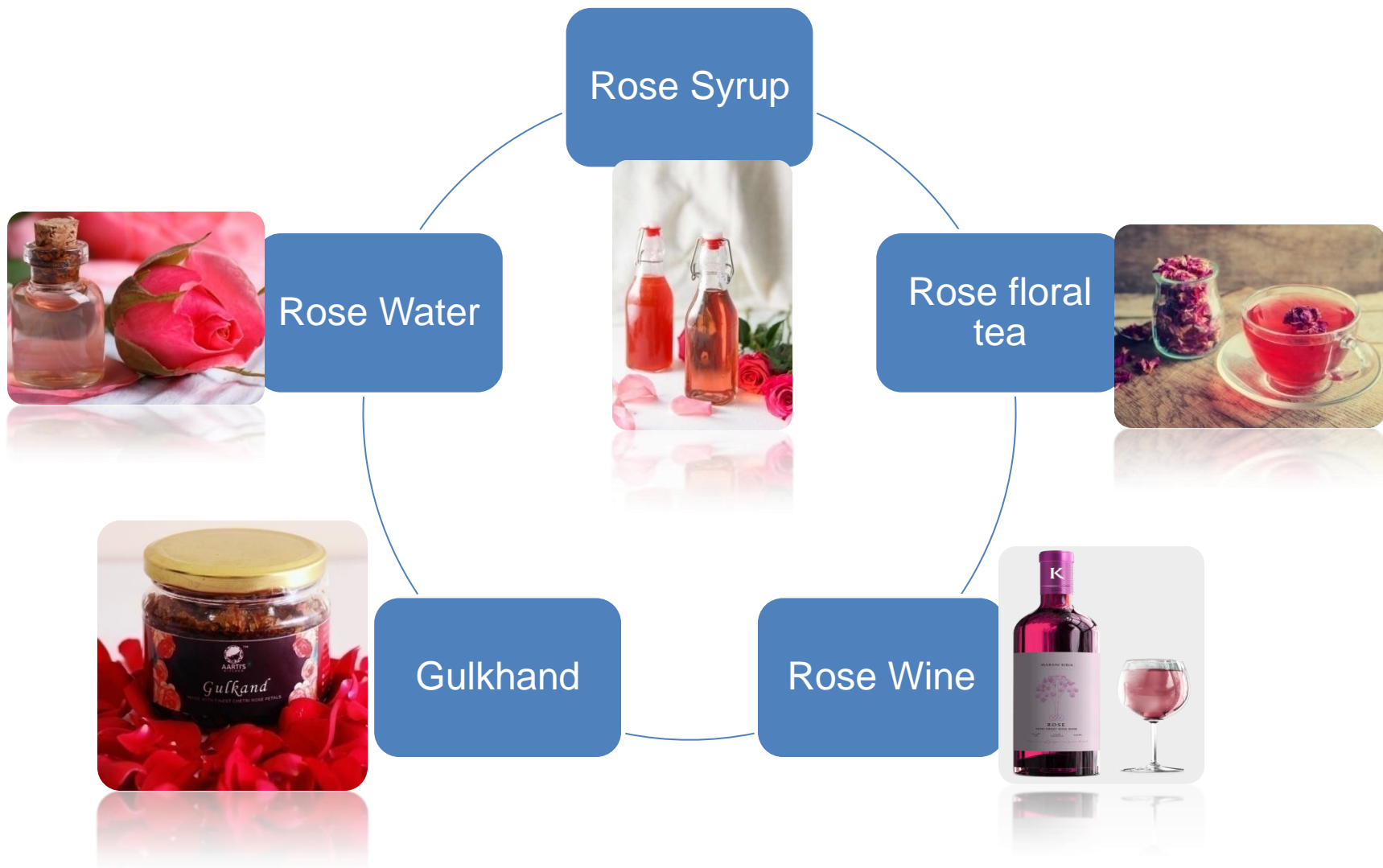


PROCESSING

Flowers especially rose provides opportunities to convert them into value added products from fresh flower to products like Rose Petal Jam, Rose syrup, Rose floral tea, Rose RTS, Rose Wine and Rose Water.



VALUE ADDED PRODUCTS





- Gulkhanda is a sweet product made of rose petals
- Rose petals of *R. bourboniana* and *R. damascena* are used



- Rose petals and sugar are placed in wide mouthed steel pot or galvanised steel box



- Stir the contents in the box with a wooden stick
- When the process is over Gulkhanda is placed indoors tightly



Gulkhanda can be used for making snacks like Gulkhanda Shahi Gujiya and Cakes.



GULKHAND HEALTH BENEFITS

- Gulkhand is a highly nutritional product, as it reduces heat in the body as it is beneficial for heat related problems like tiredness, lethargy, itching, Rashes and pains.
- It reduces eye inflammation and redness
- It also strengthens teeth and gums.





Rose Petals
1 kg



Sugar
1.25-2 kg



Silver
Foil/Cardamom seeds
2 gm

FLOW CHART FOR MAKING GULKHAND

Harvest the fully open fresh flowers from fragrant varieties in morning between 5.00-7.00 AM



Flowers are spread on sterilized clean floor for 12 hrs to reduce the moisture and for easy petals separation



Petals(1.0 Kg) and sugar (1.250 - 2.0 Kg)are mixed by light pressure with wooden hammer in steel pot or galvanized steel box.



Remove the rotten petals, anthers and pedicel with the help of fast speed blower. Petals are washed and slightly dried



Keep the mixture in sun light at least for six hours / day for the soaking of sugars continue up to 30-45 days(3 to 4 weeks).



After that add various ingredients like silver foil and cardamom seeds



Pack the product in clean glass jars or sealed in silver lined plastic bags- 0.5 to 1.0 kg



Corking and pasteurizing the bottles at 82° C



Cooling and storing the product





GALVANIZED STEEL BOX





MACHINERY FOR GULKHAND MAKING



Boiler
Steam Output :10 kg
Price : 3.5 Lakh



PACKING MACHINES



Piston Filling Unit
Capacity: 100 Litre/Hour
Price : 4.0 Lakh



Pouch Filling Unit
Capacity: 500
Pouches/Hour
Price: 2.0 Lakh



SEALING MACHINE



Induction Cap Sealer
Price: 12,500



ROSE SYRUP



Different kinds of value added products are nowadays formulated and marketed by the companies and are mostly with synthetic colour



These synthetic colours and flavours are carcinogenic and may cause allergens. For this reason, consumers are increasingly interested in natural sources with high anthocyanin contents for manufacture of products



Rose Syrup is made from the extracts of rose flower petals by adding sugar into it



Rose Syrup can be stored for a long time and can be used instead of synthetic flavour for making rose milk, cakes and marshmallows



INGREDIENTS



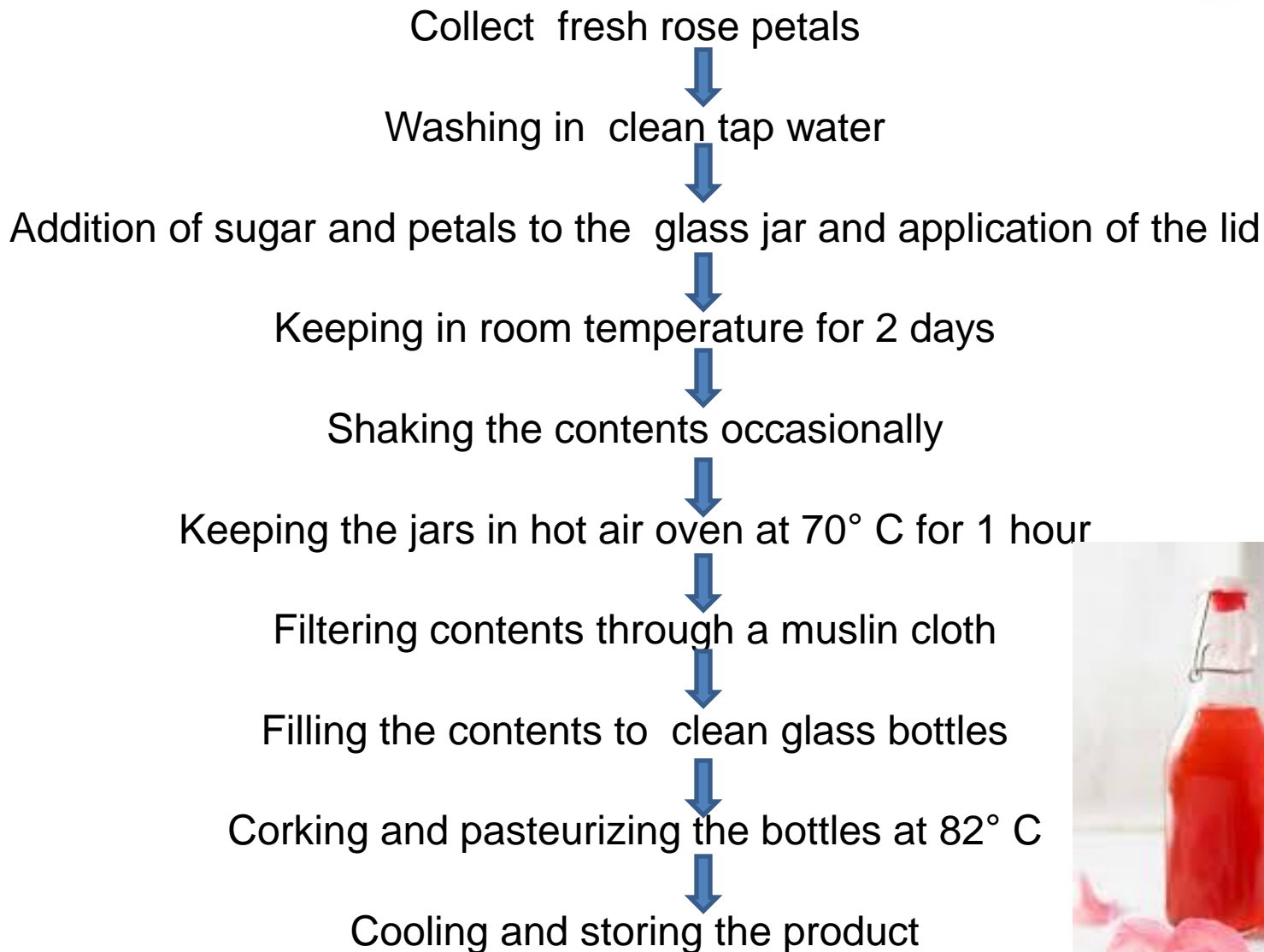
Rose Petals
1 kg



Sugar
1.5 kg



FLOW CHART FOR MAKING ROSE SYRUP





MACHINERIES FOR ROSE WATER SYRUP



Hot Air Oven
Price: 25,000/-



Piston Filling Unit
Capacity: 100 Litre/Hour
Price : 4.0 Lakh



Boiler
Steam Output :10 kg
Price : 3.5 Lakh



SUGAR SYRUP (LOW COST METHOD)

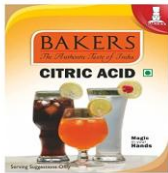
Ingredients



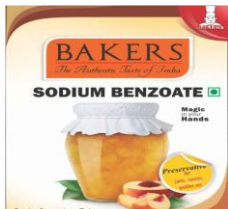
Rose Petals: 1 kg



Sugar: 1.5 kg

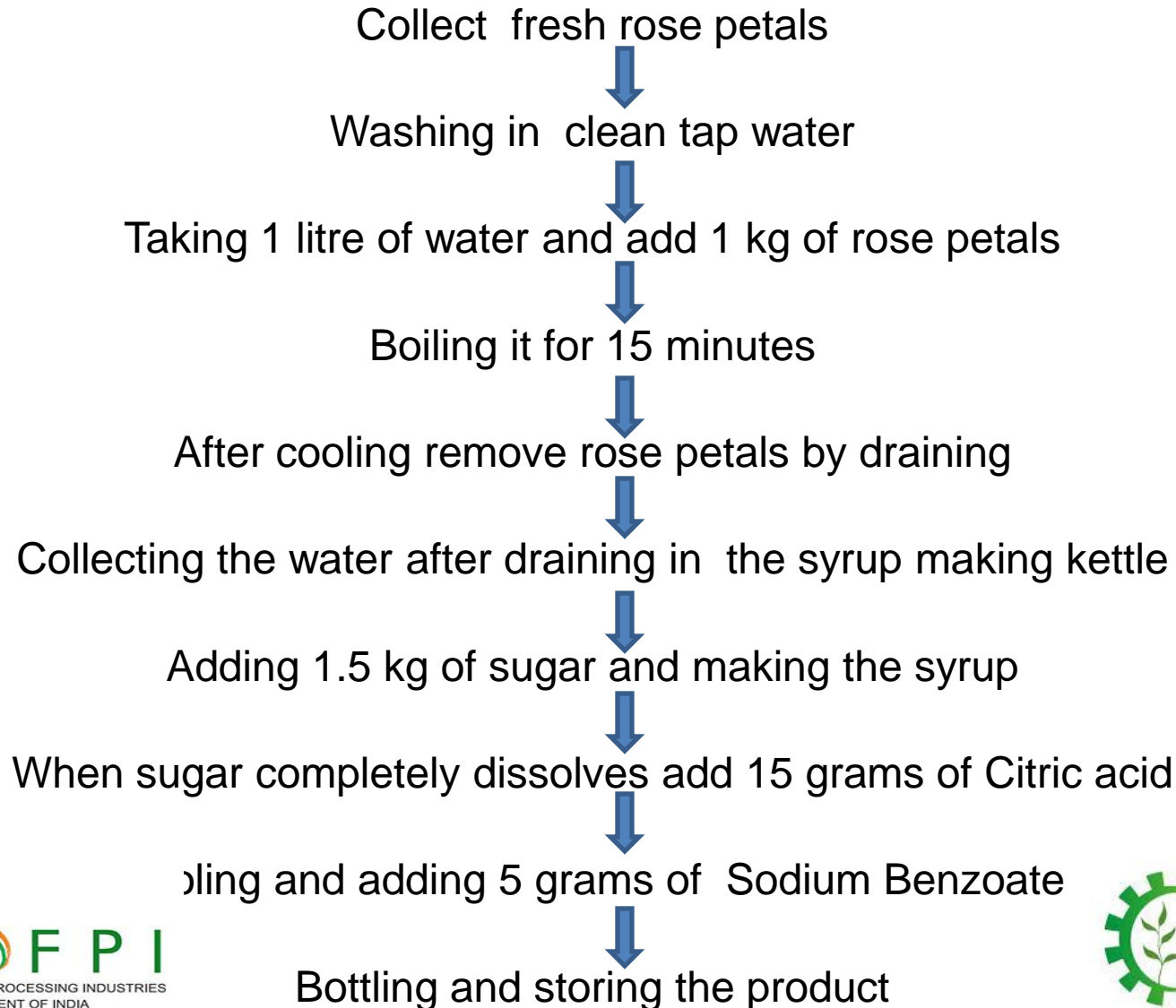


Citric Acid: 15 gm



Sodium Benzoate: 3 gm

FLOW CHART FOR MAKING ROSE SYRUP (LOW COST METHOD)





MACHINERY FOR ROSE SYRUP



Sugar Syrup Kettle
Capacity: 100 Litre/Hour
Price: 1.5 Lakh



Piston Filling Unit
Capacity: 100 Litre/Hour
Price : 4.0 Lakh



ROSE FLORAL TEA



- Rose petals are used to make rose tea which is rich in Vitamin C and Compounds that helps to reduce stomach problems like diarrhoea and bladder infection



- It also contain astringent and tannin that helps to control bleeding



FLOW CHART FOR MAKING ROSE PETAL TEA

Collect rose flowers which are not treated with pesticides



Flowers were brought to the laboratory within 3 hours after picking



Petals were detached and are spread in a thin layer on a plastic net



Petals are dried in the shade at room temperature (25 °C to 27 °C).



The air-dry material was stored in hermetically closed plastic containers
freezer at $-20\text{ }^{\circ}\text{C}$ and stored





MACHINERY FOR ROSE FLORAL TEA



Freezer
Capacity: 200 L
Price: 15,000/-



ROSE PETAL WINE

- Wine is an important traditional beverage in most of the countries, wine is getting popular in countries like India also.
- Although wine has a wide range of types, the process of wine making contains mainly addition of sugar and then yeast for fermentation.
- This process also includes addition of cloves, black pepper and cardamom.
- The addition of the compounds has increased some nutrients and it also show good effect on health.





HEALTH BENEFITS OF ROSE PETAL WINE

- Wine provides antioxidants that fight infection and protect cells against free radicals, which might effectively play a role in combating cancer and other diseases
- It promotes longevity
- It also help protect against heart disease and harmful inflammation





INGREDIENTS



Rose petals - 400-500gms



Water - 5-6 litres



Cloves- 6-7 pieces



Black Pepper/Cardamom pods- 6-7 pieces



Lemon- 2



Sugar - 1kg



Wine Yeast - 70-100gms

FLOW CHART FOR MAKING ROSE PETAL WINE

Fill the cooking vessel with fresh water or distilled water and add the rose petals, cardamom, clove

Put the vessel on the gas and boil it for 10-15 minutes.

Allow the heated mixture to cool at room temperature.

Remove the liquid from the petals and transfer liquid into another vessel.

Add sugar to the liquid and stir it well till all the sugar dissolves

Let the mixture cool completely.

Add yeast to the liquid by sprinkling it on the top of liquid and let it dissolve for couple of hours.

Fill the wine mixture in the into sterilized jars.

Place the wine in some dark place and let this wine ferment for 2-3 weeks

Transfer (Racking) wine from fermenting vessel/tank to another vessel /tank periodically i.e. once every week for three months.

Bottle wine in Sterile glass bottles

Keep the wine for aging for at least 6 months





MACHINERIES FOR WINE MAKING



Fermentation Tank
Capacity : 100 Litre
Price: 3.8 Lakh



Piston Filling Unit
Capacity: 100 Litre/Hour
Price : 4.0 Lakh



ROSE WATER

- Rose water is a liquid made from water and rose petals.
- It is used as a perfume due to its sweet scent and also have medicinal and culinary values.
- The antioxidants in rose water protect the cells in the skin against damage. It also has anti-inflammatory properties so it can help soothe the skin and get rid of redness, Rose water is also having anti-aging properties so that reduces the appearance of lines and wrinkles.
- Rose water can be used as an eye drop to reduce eye problems. Rose water has antiseptic and antibacterial properties, which mean it can help wounds heal faster.





METHODS OF ROSE WATER MAKING

Rose Water can be made by two methods by using laboratory equipment Instrument with a water condenser and by Kitchen Equipment Instruments.

1. Laboratory equipment Instrument
2. Kitchen equipment Instruments





FLOW CHART FOR ROSE WATER MAKING USING LABORATORY EQUIPMENT INSTRUMENT

Cut the petals into strips and place them in a distillation flask with water



Turn on the condenser and heat the flask at mild temperature



Gather the distillate into a receiving flask



First three fractions are collected and the receiving flask change every sixth minute as
Different compounds may have different boiling points in which case the more
vaporisable distils first

* Laboratory equipment Instrument: Distillation equipment with a water condenser



Rose water distillation Unit

Price :1.5 – 4.7 Lakh



KITCHEN EQUIPMENT INSTRUMENTS

- A large steel pot with a lid and a configuration built at its base which allows the distillate receiving cup to be placed above water surface in the centre of the pot; flat-bottomed ceramic or stone cup turned upside down or a square tile can be used.
- A small cup is also needed for collecting the distillate and some ice is needed for the cooling.





FLOW CHART FOR ROSE WATER MAKING USING KITCHEN EQUIPMENT INSTRUMENT

Fill a quarter of the pot with water



Place the distillate receiving cup at the centre of the pot on the configuration so that the receiving cup is not in water



Cut the petals to strips and place them in the water and put the lid on it, place upside down



If the lid has a handle in the middle it acts as a good collector for the liquid from which the distillate drops directly fall into the receiving cup



Bring the water to boil



When the water starts to boil fill the lid of the pot with crushed ice to keep the lid cool and the vaporising liquid is effectively condensed on the lid's inner surface, from where it drips into the receiving cup.



Let the liquid simmer at a mild temperature. Then collect distillate from the receiving cup at even intervals for example with a syringe or a pipette.



Gather distillate three times into different bottles at six minute intervals

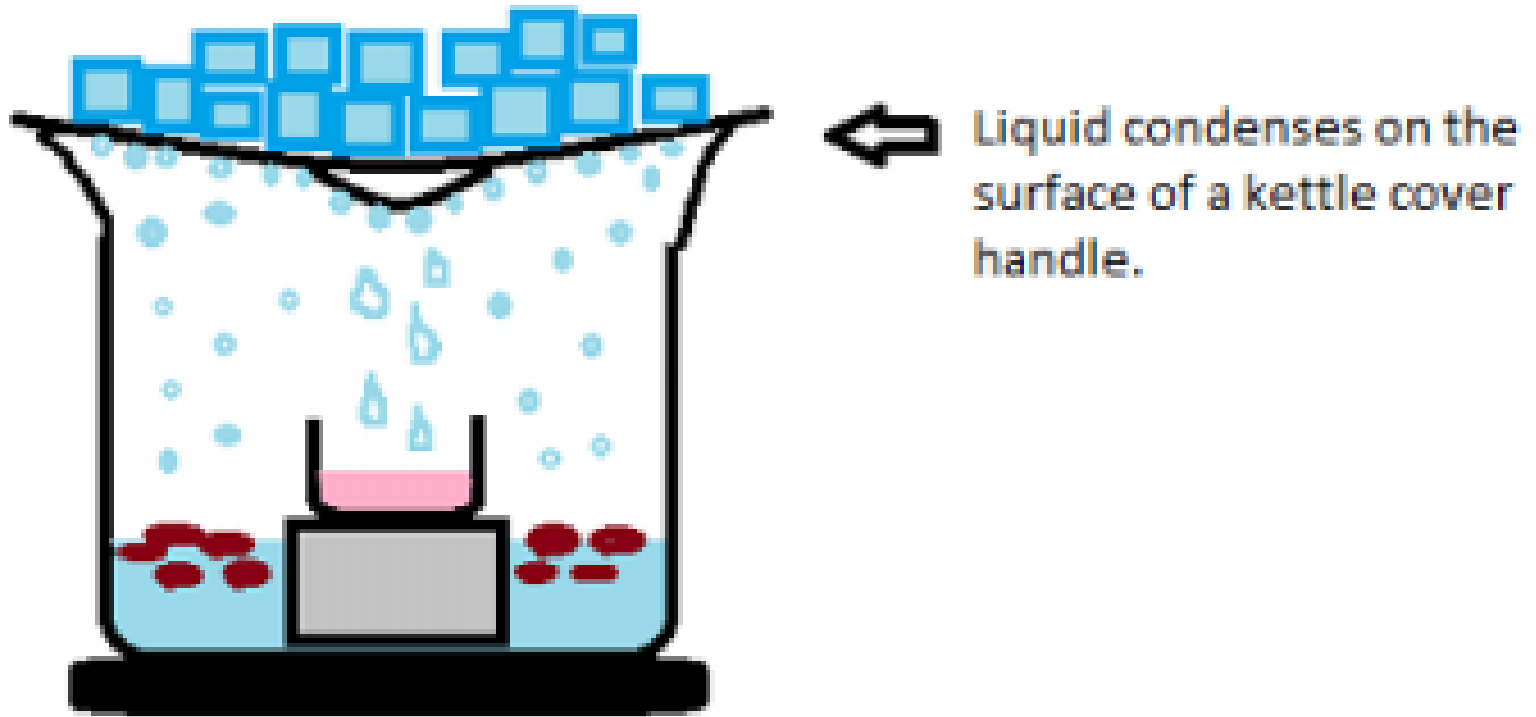


Figure 1. Rose water distillation with kitchen equipment.



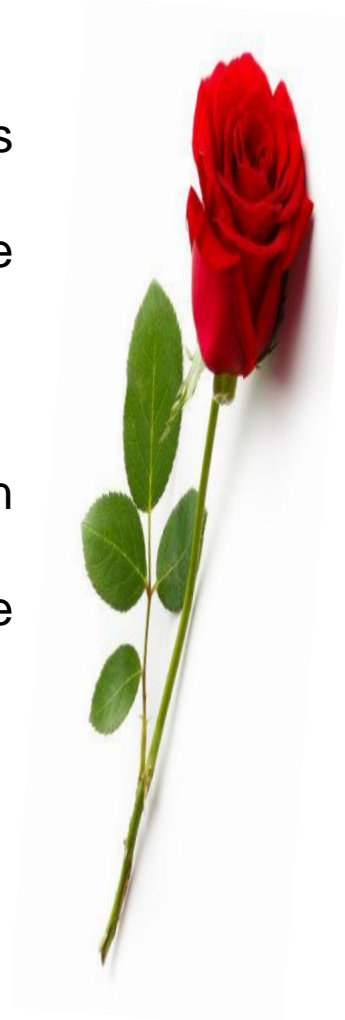
Conclusion

- Value Addition of rose increase economic value of farming community through branded products.
- Consumer acceptability must be attained by maintaining quality and through packaging diversification.
- Profit potential of rose based value added products can be increased when the raw commodity is converted to a unique product.





- Value Addition of Rose doubles farmers income as it is acceptable in both domestic as well as international market due to its medicinal value.
- In producer level production of value added products helps in employment generation which helps in avoiding wastage during glut period.





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