

Extraction of Essential Oil from Aniseed (SAUNF)

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Abstract- We are all familiar with the pleasant odours coming out from flowers, spices and many trees. The essence or aromas of plants are due to volatile oils present in them. These smelling volatile oils present in plants are called essential oils. Cinnamon, clove, cumin, eucalyptus, garlic, jasmine, peppermint, rose, sandalwood, spearmint, thyme, wintergreen are a few familiar examples of valuable essential oils. The term “essential oils” literally means “oils derived from the essence” of plants.

Index terms- Uses of Aniseed Oil, Aniseed Essential Oil, Extraction of Essential Oil, Ajwain

INTRODUCTION

Essential oils are mainly used for their pleasant odours and flavors in perfumes and as flavoring agents in foods. Some are used in medicines (e.g., camphor, wintergreen, eucalyptus) others as insect repellants (e.g., citronella). Chemically essential oils are composed of complex mixtures of ester, alcohols, phenols, aldehydes, ketones and hydrocarbons. They are essentially non-polar compounds and are thus soluble in non-polar solvents such as petroleum ether, benzene etc.

Essential oils may occur in all parts of the plant, but they are often concentrated in the seeds or flowers. They are obtained from the plants by the process of steam distillation and extraction. The technique of steam distillation permits the separation of volatile components from non-volatile materials without raising the temperature of the distillation above 100°

C. Thus steam distillation reduces the risk of decomposition of essential oils.

ANISEED PLANT



Aniseed Plant

Aniseed, on steam distillation, yields an essential oil, known as ‘Oil of Aniseed’, which has now replaced the fruits for medicinal and flavoring purposes. Aniseed oil is a colorless or pale-yellow liquid having the characteristic odor and taste of the fruit. The yield of oil generally varies from 1.9 to 3.1 per cent. Higher values up to 6 per cent have been reported from Syrian aniseed. Crushing of fruits prior to distillation gives better yields of oil. The material should be distilled soon after the crushing to prevent any loss of oil due to evaporation. Aniseed oil is a highly refractive liquid, which solidifies on cooling. The congealing point depends much on the anethole content and is a valuable criterion for evaluating the oil. Exposure of the oil to air causes polymerization,

and some oxidation also takes place with the formation of anisaldehyde and anisic acid.

The chief constituent of aniseed oil is anethole, which is present to the extent of 80 to 90 per cent and is mainly responsible for the characteristic flavor of the oil. The oil also contains methyl chavicol, p-methoxyphenyl acetone, and small amount of terpenes and sulfur containing compounds of disagreeable odour.

ANISEED ESSENTIAL OIL



- Common Method of Extraction:- Steam Distillation
- Color:- Clear
- Botanical Name:- Pimpinella anisum
- Aromatic Description: - Distinctive scent of licorice. Rich and sweet.
- Constituents: - a-pinene, camphene, B-pinene, linalool, cis-anethole, trans-anethole, safrole, anisaldehyde, acetoanisole.

USES OF ANISEED OIL

- In aromatherapy, aniseed essential oil is used to treat colds and flu.
- Aniseed oil can be made into a liquid scent and is used for both hunting and fishing. It is put on fishing lures to attract fish.
- Anethole, the principal component of anise oil, is a precursor that can eventually produce 2,5-dimethoxybenzaldehyde which is can be used in the clandestine synthesis of psychedelic drugs such as 2CB, 2C-I and DOB.

- Oil of aniseed is also reported to be used as an aromatic carminative to relieve flatulence, and as an ingredient of cough lozenges in combination with liquorice.
- Essential oil is also used externally as an insecticide against small insects such as head lice, mites and vermin. It also has fungicidal properties.

REQUIREMENTS

Steam generator (Copper Vessel), round bottom flask (500 ml), conical flask, condenser, glass tubes, iron stand, sand bath, separatory funnel, tripod stands, burners, Ajwain(Carum), Petroleum ether(60-80°C),Saunf(Aniseed) .

PROCEDURE

1. Set the apparatus as shown in the picture of Experimental Setup. The apparatus consists of a steam generator connected to the round bottom flask through a glass inlet tube. The flask is connected to a water condenser through a glass outlet tube. Condenser is further attached to a receiver through an adaptor.
2. Take about 750 ml of water in the steam generator and start heating to produce steam.
3. In the round bottom flask take about 75 gm of crushed saunf.
4. A vigorous current of steam from steam generator is passed through the round bottom flask.
5. A part of the steam condenses in the round bottom flask. As more and more steam is passed, the steam volatile components of saunf pass through the condenser along with steam. These contents on condensation are collected in the receiver.
6. The contents in the round bottom flask may be heated by a bunsen burner to prevent excessive condensation of steam.
7. The process of steam distillation is continued for about half an hour.
8. Transfer the distillate to a separating funnel and extract with 20 ml portions of petroleum ether 3 times.
9. Combine the petroleum ether extracts in a 250 ml conical flask and dry it with the help of anhydrous sodium sulphate.

10. Remove the solvent from the dried filtrate by careful distillation in a water bath. The essential oil is left behind in the distillation flask.
11. Find the weight of the extracted essential oil. Note the colour, odour and weight of the essential oil.

OBSERVATIONS

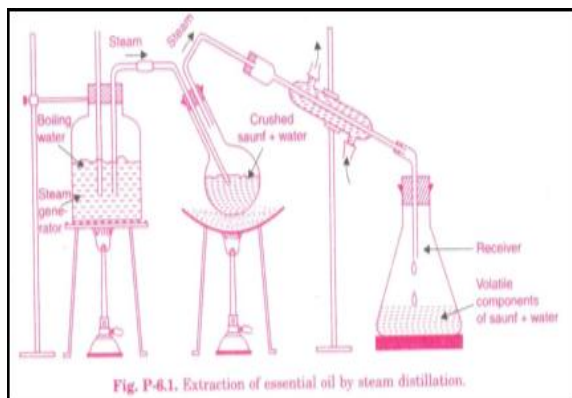
1) Saunf (Aniseed):

- Weight of Saunf taken = 100 gm
- Initial Weight of the bottle = 10gm(x)
- Weight of bottle + essential oil = 11.25 gm(y)
- Weight of essential oil extracted = (y-x) = 1.25 gm
- Percentage of essential oil = $(y/100) \times 100 = 1.25 \%$
- Colour of the oil = Colourless
- Odour of the oil = Saunf like smell.

2) Ajwain (Carum):

- Weight of Saunf taken = 75 gm
- Initial Weight of the bottle = 10 gm(x)
- Weight of bottle + essential oil = 11 gm(y)
- Weight of essential oil extracted = (y-x) = 1 gm
- Percentage of essential oil = $(y/75) \times 100 = 1.33\%$
- Colour of the oil = Colourless
- Odour of the oil = Ajwain like smell.

EXPERIMENTAL SETUP



REFERENCES

- [1] <http://en.wikipedia.org/wiki/Anise>
- [2] <http://www.essentialoils.co.za/essential-oils/aniseed.htm>

AUTHOR PROFILE



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