Aromatic waters

- Aromatic waters provide a pleasantly flavored medium for the administration of water-soluble drugs and for the liquid phase of emulsion and suspensions.
- Aromatic water are not therapeutically potent because of the very small proportion of active ingredient present in them.

Examples of Aromatic waters

1. Aromatic waters prepared from essential oils e.g. peppermint water, have been used as carminative and as vehicle.
2. Chloroform water: was used in expectorant preparations (dose 5-15ml).
3. Several aromatic waters are not used as vehicles for oral medication. These include: Rose water, Hamamelis water and camphor water.

- ❖ Rose water used as perfume
- ❖ Hamamelis water or witch Hazel, is employed commonly as a rub and also is used as an astringent and perfume in aftershave lotion and other cosmetic products.
- ❖ Camphor water: is frequently used in eye drops for its refreshing properties

Other uses of Camphor: it is frequently used as rubefacient, Soothing eye, soothing cough

Peppermint oil and waters

Rose water


ROSE
ROSE
ROSE


ORGANIC
ROSE WATER
Dama


IMANMEHR Co.


CARLO
ROSE WATER

Camphor water and ointment

Hamamelis waters

Hamamelis waters preparations

Hamamelis water 12.5% v/v and naphazoline 0.01% w/v
Temporary relief of eye redness due to minor eye irritations

Preparation of aromatic waters

1. Distillation: most of aromatic waters can be prepared by distillation. However, it is not practical or economically feasible to use this method in most cases, since other method is of low cost and with simple apparatus required.

Note: aromatic waters which are prepared directly from fresh plant material, e.g. stronger rose water, orange flower water, and Hamamelis water can not be prepared by any method other than distillation.

The distillation method consists of placing the odoriferous portion of the plant in a suitable still with sufficient purified water and then distilling most of the water, carefully. The excess oil is separated from the distillate. The aqueous phase, which may require further clarification is the product.

Preparation of aromatic waters

The product is labeled as X's, for example XX, XXX . Each X representing one distillation. So XXXX means that four times repeated process.

This process is called re-distillation. This is done or carried on to get a saturated solution if it is not obtained from the 1st distillation.

Preparation of aromatic waters

2. Solution: for most waters excess volatile substances 2 ml or 2 g per liter be agitated with purified water for a period of 15 minutes. The mixture is then set a side for at least 12 hours, to ensure saturation, then it is filtered through wetted filter paper. The filter paper must be wet to prevent the passage of excess oil into the filtrate and to eliminate absorption of dissolved aromatic by the filter.

The disadvantage of this method is that in-spite of repeated filtration, it is difficult to obtain a brilliant clear preparation owing to the formation of extremely fine particles.

Chloroform water is prepared by solution without clarification problem exists in this case, since a slight excess of chloroform must remain in the bottle.

Preparation of chloroform water

- A saturated solution is prepared and maintained by adding an excess of chloroform to a given quantity of purified water, shaking vigorously, and a taking care that an excess of chloroform is always present . Since chloroform is heavier than water, the excess will remain at the bottom of the container.
- The high volatility of chloroform creates an equilibrium of loss and restoration of strength by evaporation .
- When it is dispensed, the bottle should not be shaken, and only the supernatant liquid should be used.

Preparation of aromatic waters

3. Alternate solution: this method has been developed to overcome difficulties in the simple solution method; *clarification* and *amount of time consumed*.

In this method the volatile material is mixed thoroughly with 15 g of purified talc, this mixture is agitated with a liter of purified water for 10 minutes, prior to filtration. The talc or other inert material functions as both a filter aid and a distribution agent.

It serves to accelerate the rate of solution by adsorbing and facilitating the breaking up of the aromatic substance into fine particles, thus increasing the surface area exposed to solvent action, and it facilitates the clarification of the solution.

Preparation of aromatic waters

Disadvantage of alternate solution method

The purified talc pass through the filter paper because purified talc is subdivided too finely.

In order to remove finely divided material other material also used purified siliceous earth and pulped filter paper.

Preparation of aromatic waters

4. Dilution: An alcoholic solution of the essential oil is mixed with water and talc. The mixture is agitated; after several hours it is filtered.

The concentrate contains between 50 and 55 percent alcohol by volume. The concentrate, containing the dilute alcohol. Soluble fraction of 2 ml of oil in each 100 ml.

One volume of concentrate is diluted with 39 volume of water, producing an aromatic water contains less than 1.5 percent of alcohol.

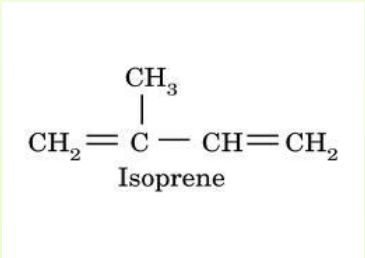
Disadvantage: aqueous preparation that contain small amounts of alcohol are prone to alterations in flavor and aroma, as a consequence of oxidative degradation of the alcohol.

Preparation of aromatic waters

- The other method to prepare concentrates is by using surface-active agent e.g., polysorbate 80 USP (Tween 80) due to solubilization by micelles formation.

Essential oils

- Essential oils are complex mixtures of hydrocarbons, alcohols, ethers, aldehydes and ketone.
- The hydrocarbon fraction of many essential oils is made up of terpenes.



Isoprene

- These components are the least water-soluble and, Consequently, constitute most of the insoluble matter removed in the clarification process. The other substances, are the "aroma carriers"

Stability of aromatic waters

- many waters support the growth of mold. No preservatives are added to aromatic waters
- Excessive exposure to light and to changes in temperature cause aromatic waters to loss some of their desirable characteristics, since

1. The solutes are volatile materials, loss of aroma occurs on prolonged exposure to atmosphere, particularly at elevated temperatures.
2. Aromatic waters are saturated solutions, lowering the temperature causes separation of the aromatic component, thus producing cloudiness.

Stability of aromatic waters

3. The aromatics may be salted out when the aromatic water is used as a vehicle for drugs which are electrolytes. The insoluble material may collect on the top of the liquid, imparting a burning taste to the first dose.
4. Many of the aroma-bearing solutes, as well as the terpenes, are oxidizable compounds. Oxidative degradation, involving dissolved atmospheric oxygen, is likely. This autoxidation can be catalyzed by light and trace quantities of metal ions such as iron (III) and copper (II). For example chloroform water is stored in light-resistant bottles since light catalyze the oxidation of chloroform to the poisonous gas, phosgene. Other example, bitter almond water, deposits crystals of benzoic acid which result from the autoxidation of benzaldehyde.

Terpeneless oils

- Terpeneless oils are commercially available. They are prepared by fractional distillation and/ or extraction.
- They are concentrated products which, therefore, are stronger in aroma and more soluble; also, they may be more stable than the natural essential oil.
- Their use in the preparation of aromatic waters should result in less difficulties in clarification, but the greater cost.