

Aromatic Waters in Herbal Practice

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Joe Nasr D Phyt, DO, MNIMH - © 2018 Joe Nasr

In this workshop I shall define an aromatic water, briefly discuss its distillation and chemistry, and then demonstrate a small-scale distillation of chamomile water.

WHAT ARE AROMATIC WATERS?

Aromatic Waters, produced through a specific water distillation process, offer the practitioner of herbal medicine a gentle and effective therapeutic tool. These precious healing waters provide a safe medium through which, organic volatile components of aromatic herbs can be prescribed internally and externally to great clinical advantage.

Distilled plant waters have been in widespread use as medicines for many centuries, long before the utilisation of essential oils in perfumery, the food and drinks industry and medicine. They have a long record of safety unlike essential oils, which are inherently toxic.

Many waters have a long history of efficacy and are steeped in tradition and folklore. Standing high on their list of honour are the delightful waters of Damask Rose (*Rosa damascene*), Bitter Orange Blossom (*Citrus aurantium var. amara*), Greek Sage (*Salvia triloba*), Which Hazel (*Hamamelis virginiana*), Lemon Balm (*Melissa officinalis*), Lavender (*Lavendula angustifolia*), and Rose Geranium (*Pelargonium graveolens*).

What Are NOT Traditional Therapeutic Aromatic Waters

The terminology used to describe various products, which may be confused with true aromatic waters includes, prepared waters, fragrant waters, concentrated waters, spirits, essences, and perfumed or scented floral waters.

Prepared or Fragrant Waters: They are produced by one of the following methods:

- 1 - Adding essential oils or absolutes to water using agitation, with or without the aid of emulsifiers or dispersing agents.
- 2 - Distilling essential oils in water
- 3 - Dispersing water-soluble fractions of essential oil (0.001 – 0.05%) mechanically with the aid of emulsifiers

Concentrated waters: Are created by adding essential oils or absolutes to a mixture of ethanol and water with agitation

Spirits: Are produced by distilling essential oils in ethanol or a mixture of ethanol and water

The above 3 products lack the presence of **water-soluble** volatiles (which are found in aromatic waters), the importance of which we shall visit later.

Perfumed, Scented or Floral Waters: These are made by dissolving synthetic fragrances in water, or a mixture of water and ethanol.

Apart from being totally useless therapeutically, these cheap and inferior products must certainly never be taken internally. They are used in the production of cheap cosmetic toners, facial washes, 'refreshing' spritzers, and room sprays.

Distilled non-aromatic herb waters: Distilled waters of **non-aromatic** plants such as *Plantago lanceolata*, *Urtica dioica* and many others were used in medicine since the 17th Century. They do not contain essential oils or much volatile constituents and their mode of action cannot yet be determined.

Hydrosols/Hydrolats: These are usually **by-products** of large scale, harsh, rapid, steam distillation of essential oils from aromatic plants, and as such are of inferior quality.

However, hydrosols/hydrolats are the same as aromatic waters when they are water distilled on a small-scale designed primarily for their production, as defined in the next paragraph.

Aromatic Waters

Aromatic waters may be defined as distillates of aromatic plants produced through a small scale, gentle, prolonged, and purposeful water distillation.

They are the **primary products** of the distillation process, and their production is an art as well as a science.

They contain a wide spectrum of **water-soluble volatiles**, which are simply not present in the essential oil that is separated from the waters after distillation. These water-soluble volatiles allow for the more rounded action of the water, which is closer to that of the whole plant, and one that is more in harmony with the body's internal fluid make-up.

THE THREE ORGANIC VOLATILES

It is important to realize that distillation of aromatic plants results in the formation of **three** categories of organic volatile components. Not just the essential oil as we know it.

These include, the essential oil that floats on top of the distilled water that is commonly known as **the** essential used in aromatherapy. I will refer to it here as the floating essential oil floating (EOF).

Another essential oil that is formed during distillation remains finely and permanently dispersed within the body of the water. It does not separate from the distillate, and does not float to join the EOF. I will refer to it here as the essential oil water (EOW).

The third category of volatile molecules that condenses with the water of distillation is composed of water soluble components that are actually dissolved in the aromatic water, just like sugar or salt dissolve in water. I will refer to these as the water-soluble volatiles (WSV).

POLARITY

Before we proceed to explore the physicochemical nature of these three categories of organic volatiles, I shall briefly explain the phenomena of polarity.

When atoms bond together to form molecules through the process of sharing electrons in their outer shells, two broad categories of molecules result from this bonding; electrically charged (polar) molecules and electrically neutral (nonpolar) molecules.

Water is an electrically charged molecule with a high degree of polarity.

Non Polarised or Electrically Neutral Volatile Molecules are hydrophobic (water hating) and do not disperse much or dissolve in water.

These are the **Non Oxygenated Terpene Hydrocarbons** that are not present, or present in very small amounts in aromatic waters. They are generally toxic.

Polarised or Electrically Charged Volatile Molecules are hydrophilic (water loving), and therefore disperse easily, and in some instances, even dissolve readily in water.

These are the **Oxygenated Terpene Hydrocarbons** like terpenoid alcohols, acids, aldehydes, phenols, esters, oxides and ketones, which are present in abundance in aromatic waters. They exhibit gentle therapeutic effects and provide aromatic waters with their safety for internal use.

Below is a list the major organic volatile components in decreasing order of polarity, and therefore, water solubility.

The **bluish** components are found in relatively higher concentrations in aromatic waters.

The **reddish** components are almost absent from aromatic waters.

Water Soluble / Hydrophylic
+++++ Most Polar - - - - -
ELECTRICALLY CHARGED
OXYGENATED TERPENES
THERAPEUTIC

Acids

Phenols

Alcohols

Aldehydes

Esters

Ketones

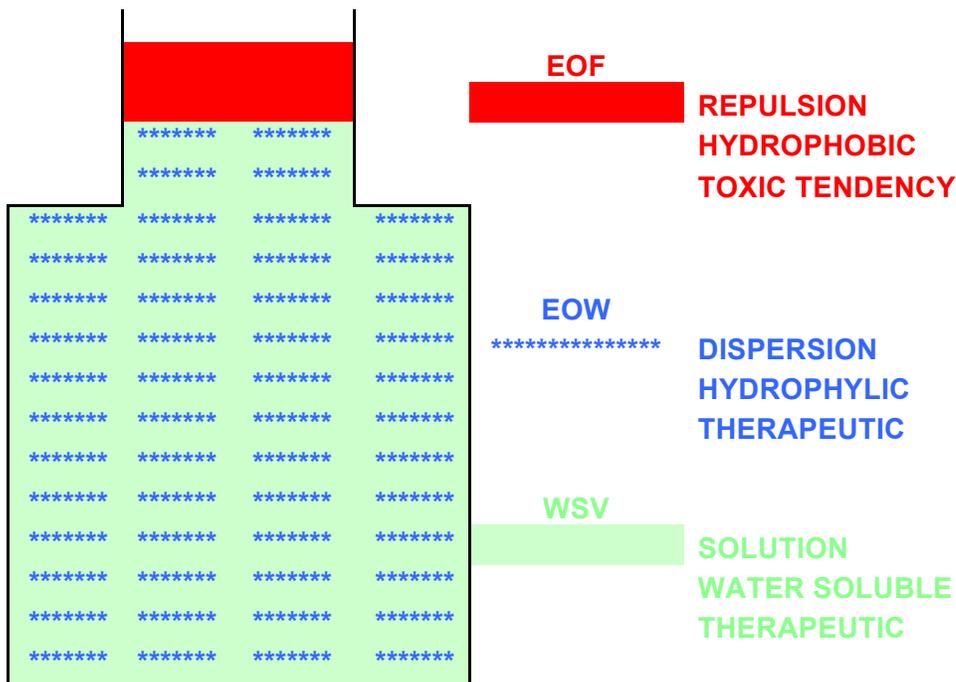
Ethers

Unsaturated Hydrocarbons

Saturated Hydrocarbons

Oil Soluble / Hydrophobic
0 0 0 – Least Polar – 0 0 0
ELECTRICALLY NEUTRAL
NON-OXYGENATED TERPENES (HYDROCARBONS)
TOXIC TENDENCY

THE THREE ORGANIC VOLATILES



EOF (Essential Oil Floating)

This is what is commonly known as *the essential oil* of an aromatic plant, and its production is the major aim of the modern production of essential oils.

It is usually made of harsh, isolated plant terpenoids that do not dissolve in water.

Their powerful and specific physiological actions often border on the edge of toxicity.

Traditionally they used to be referred to as "*the fat*" which floats over the distilled water, and they were discarded as waste, or placed on top of the waters to preserve them.

EOW (Essential Oil Water)

This oil, which is an *integral part of the aromatic water*, is suspended in a hydrophilic union with the water in the form of minute droplets. It also exists partly as an emulsion, and partly in actual solution in the water.

EOW contains a higher proportion of the gentler acting oxygenated compounds such as acids, alcohols and esters. It also has a much lower content of the more toxic non-oxygenated hydrocarbons and has been shown to have interesting therapeutic properties and a much gentler action than the EOF.

WSV (Water Soluble Volatiles)

They include carboxylic and hydroxyl acids, and other water-soluble components that are *only present* in the aromatic water, and not present in the essential oils.

These soothing, healing topical agents, which may account for some of the traditional uses of aromatic waters represent a much needed research area.

DISTILLATION

I would like to start by quoting this wonderful passage about distillation taken from ‘**The Small Book of Distillation**’ written by Hieronymus Brunschwygk, a surgeon from Strasburg in the year 1500. The special purpose of this book “is the preparation of medical agents from non-essential matter by distilling waters from these substances macerated and mixed with water and alcohol”.

“distillation is the separation of the gross from the subtle and the subtle from the gross, the breakable and destructible from the indestructible, the material from the immaterial, to make the bodily more spiritual, the unlovely lovely, to make the spiritual lighter by its subtlety to penetrate with its virtues and force which are concealed in it into the human body to do its healing duty”

Distillation in its simplest form is a process used to achieve one of the following objectives:

1 – To separate two or more miscible liquids from each other. An example of this is the distillation of wine to produce brandy. Here the distillation process separates ethanol from water to produce a distillate (Brandy), which has a higher concentration of ethanol.

2 – To separate a liquid from solids dissolved in it. For example distilling sea water to produce pure drinking water that is free from the dissolved salts.

Ancient sailors boiled sea water and suspended sponges into the rising steam to imbibe it. When squeezed, the sponges exuded pure drinking (sweet) water.

This is the natural process through which light energy generated by the sun heats sea water to raise its temperature and hence its vapour pressure. The resulting water vapour rises to form clouds. When clouds cool, pure (distilled) water condenses as rain.

3 – To separate organic volatile compounds from the rest of substances found in an aromatic plant. For this process an aromatic plant is either boiled in water or permeated with steam to displace the volatile molecules (which includes the essential oil) and lift them off with the rising water vapour. This mixture of water vapour and organic volatile plant molecules is then introduced into a cold chamber or tube (condenser) that causes it to condense (return to fluid) and form the distillate.

MAJOR COMPONENTS OF Essential Oil Water (EOW)

Let us now have a closer look at the composition of the plant volatiles that ascend with the vapours and then condense as a distillate to form the aromatic water.

The EOW of 44 aromatic waters were analysed by **S. Inouye** in a study published in the International Journal of Essential Oil Therapeutics. The following major components were found:

ALCOHOLS: Pelargonium asperum: Beta-Citronellol 28% - Rosa damascene: Phenylethanol (2-phenyl ethanol / Benzene ethanol) 76% - Mentha x piperita: Menthol 50% - Lavendula angustifolia: Linalool 39% + alpha-terpineol 15% - Citrus aurantium ssp amara: Linalool 41% + alpha-terpineol 19% - Matricaria recutita: Bisabolol Oxides 81% - Anthemis nobilis: Pinocarveol 25%.

ALDEHYDES: Mainly Citral (geranial)

Cymbopogon citratus: 43% - Lippia citriodora: 53% - Melissa officinalis: 43% + p-mentha-1-en-3-acetoxy-8-ol 28%

PHENOLS: Thymus vulgaris: Thymol 25% - Eugenia caryophyllata: Eugenol 97%

ESTERS: Leptospermum scoparium (Manuka): Methyl cinnamate 24%

KETONES: Mentha spicata: Carvone 89% - Eucalyptus radiata var. phellandra: Piperitone 85%; Rosmarinus officinalis: Verbenone 23% + Camphor 22%

OXIDES: Mainly 1,8-cineol (Eucalyptol); Eucalyptus Globulous: 1,8-cineol 72% - Thymus mastichina: 1,8-cineol 75%

Price and Price in their well - researched book 'Understanding Hydrolats: The specific Hydrosols for Aromatherapy' analysed the EOW of 33 aromatic waters and came up with the following additional components:

ALCOHOLS: Lavendulol, ethanol, fenchyl alcohol, geraniol, alpha terpineol, terpinen-4-ol,

ESTERS: Linalyl acetate, bornyl acetate, lavendulyl acetate.

KETONES: Acetone, camphor, Camphor, Carvone, thujones.

OXIDES: Mainly 1,8-cineol (Eucalyptol), carvone oxides, linalyl oxides, caryophyllene oxides, linalyl oxide, linalool oxide, nerol oxide, rose oxide.

HYDROCARBONS: EOW contained a lot fewer non-oxygenated hydrocarbons. Small amounts of monoterpene hydrocarbons were found: Sabinene, alpha pinene, beta pinene, alpha phellandrene, beta phellandrene, Caryophyllene, and germacrane.

PLANT ACIDS: These are very polarized molecules and are therefore found exclusively as solutes in aromatic waters (WSVs). They are not found in the EOW or the EOF.

Such acids include geranic and acetic acids (rose water), cinnamic acid (cinnamon water), isovalerianic acid (valerian water)

The pharmacological actions of most of the above molecules are well researched and documented, and the reader can access a growing number of such research quite easily. We can draw upon such findings to help us explain some aspects of the traditional usage of aromatic waters, and throw some light on possible novel uses or contraindications.

ADVANTAGES OF AROMATIC WATERS

Aromatic waters have some advantages over pure essential oils and tinctures, which can be summarised as follows:

1. **A more gentle and balanced action** – Both the volatile oils (EOW) and the water soluble volatiles contribute to the medicinal effect of an aromatic water, which is therefore more akin in its action to that of the whole plant.
2. **Presenting the essential oil in an aqueous medium** – The fact that the essential oil is physically dispersed in the aromatic water improves its uptake and utilization.
3. **Traditional support for safety and efficacy** – Aromatic waters have been used internally to treat a wide range of ailments safely and effectively for many centuries and by many civilisations. For example the aromatic water of *Salvia triloba* is liberally taken internally in many Mediterranean countries, to great benefit and with unknown side effects. This in contrast to the internal usage of the essential oil of *Salvia* spp. which is not backed by any tradition and may readily lead to harmful effects.
4. **The convenience of a tincture without the alcohol** – Aromatic waters can be used instead of a tincture where alcohol is not permitted or is undesirable, and where the essential oil component of the plant is of primary therapeutic importance, yet still retain the convenience of a fluid preparation. For example, they are ideal for children, or for those dealing with alcohol dependency.
5. **A gentle but effective external application** – Aromatic waters are ideal for external application where the drying and stinging properties of alcohol are undesirable, for example, as a lotion for cuts, grazes and rashes especially for children and babies and in creams for dry, sensitive and inflamed skins. Many practitioners tend to mix tinctures into cream bases; the alcohol in tinctures is drying and irritating to inflamed skin, and destabilises the cream with separation of the liquid phase. Aromatic waters are much more compatible with a cream base and are highly effective soothing and healing topical agents.
6. **A highly convenient preparation** – Unlike infusions, decoctions, essential oils and tinctures, which all need a level of preparation before the patient can use them, aromatic waters are mostly instantly available for a range of internal and external uses. For example, a sprayer bottle of rose water in the handbag or kept at home can be sprayed over itchy rashes, urticaria, sunburn, used as a facial toner, can be taken internally for its relaxing properties or for GIT upsets, may be inhaled in hot water, or added to a babies bath....

APPLICATIONS AND DOSAGE

Internally

Aromatic Waters present a safe and effective way for prescribing the volatile principles of an aromatic plant internally.

The average adult dose of most waters is 10ml three times daily which may either be taken neat, or diluted with a little water.

To enhance the therapeutic influence of the waters through the sense of smell, the daily dose (30ml), may be added to 500ml of water and sipped throughout the day, or sprayed through an atomiser into the mouth; four sprays deliver about 1ml.

Externally

Aromatic waters like chamomile, lavender, rose, rose geranium, rosemary, and witch hazel, make outstanding topical remedies for afflictions of the skin and mucous membranes. This is related to their soothing, astringing, anti-inflammatory, antiseptic, and cooling actions.

Various modes of external application include: lotions, sprays, compresses, inhalations, facial steaming, added to clay in facial packs, added to creams or a base cream, mouthwashes, gargles, and added to therapeutic baths.

SHELF LIFE AND STORAGE

No preservatives or any other substances are added to Avicenna's aromatic waters as they may interfere with their therapeutic properties.

Some waters like rose, rose geranium, bitter orange flower, rosemary and bay keep for years, and indeed improve with time when stored properly. Other waters like chamomile, and lemon balm have a shelf life of one year. Most waters have a shelf life of about 18 months.

They must be stored in sterile amber or violet glass containers in a dark cool place.

PRECIOUS TOOLS OF THERAPY

Aromatic waters, I feel, represent a missing link in the present practice of herbal medicine. They open the door for the internal use of the gentle-acting volatile components found in them, a crucial element that is largely missing from prescriptions based on or containing aromatic herbs.

These highly therapeutic distillates, which harbour the lighter principles of an aromatic plant, constitute a very **safe** and **effective** way of prescribing the water-soluble volatile principles of a plant internally and externally, and there is a wealth of traditional usage for us to rediscover and draw on.

My friendship and fascination with plants began at quite an early age. The old terraced village of my early childhood stood on a slope facing the Mediterranean in the heart of Mount-Lebanon. This area of the world is distinguished for its outstanding natural beauty and its abundant and highly diverse flora.

Many households in the village proudly owned a small distilling apparatus. In autumn, fermented grapes were distilled together with aniseed to produce a popular spirit locally known as Arak (Raki in Turkey or Ouzo in Greece). With the arrival of spring however, many villagers put their stills to the service of aromatic plants. Aromatic waters were carefully and lovingly distilled to produce an abundant supply for the year. Three very precious aromatic plants were harvested and distilled for this purpose: Bitter orange flower, Damask rose and Greek sage.

The Wonders of Bitter Orange Flower Water

March would bring with it the initial warmth of spring, rousing the sleeping buds of the bitter orange tree. Out came the Stills from their winter snooze to be loaded with handpicked bitter orange blossom. The cherished aroma of Neroli would permeate the alleyways for the good part of three weeks. Precious orange flower water would be stocked in glass bottles for the year. Before storage, the experienced distiller would always expose these bottles to the strong rays of the sun for 2-3 days. This transformed the clear water to a faintly orange-yellow colour, and is meant to improve its quality and prolong its shelf life.

This aromatic water found its way into people's diet as a delicious flavouring added to various deserts and to create a most refreshing homemade syrup from which a calming and refreshing cordial was prepared by the addition of water and ice cubes. In Lebanese folk medicine, it is unrivalled as a calming nerve. I have witnessed many occasions where its soothing action is summoned in situations of acute anxiety and distress. Its classical application is as a facial splash for fainting or extreme distress due to emotional shock or psychological strain. "Run!! Fetch the bottle of flower water!" is the first response in such situations. In milder cases, an egg cupful of the water with added sugar is sipped slowly to calm an agitated person – it always works.

Another very effective traditional use is as an antispasmodic and carminative remedy taken neat to relieve intestinal colic, bloating and to dispel 'trapped wind'. The therapeutic effects are quite immediate, which implies an action through the inhaled volatile principles.

Bitter orange flower water is used for its relaxant and antidepressant properties. It has a role in the treatment for insomnia and anxiety states, is useful for hypertensive individuals, and has value where anxiety related types of palpitations are present.

Its antispasmodic properties make it useful in gastrointestinal tract (GIT) cramp and colic and nervous bowel problems.

Caution: Avoid in cardiac insufficiency and associated hypotension.

The Healing Powers of Greek Sage Water

In April, the glorious purple flowers of Greek sage expose themselves to the strengthening sun of late spring.

The locals climb the steep pine-wooded hills to harvest this most vigorous of medicinal plants. The harvest is usually dried in the shade before being distilled, to produce the highly esteemed Greek sage water.

This remarkable healing water enjoyed the trust and loyalty of village peasants and high-flying city dwellers alike. A most popular first aid remedy, sipped in dosages of 20-30mls, for relief from griping pain and bloating.

A first class carminative, which instantly corrects digestive dysfunction and dispels wind.

Sage water's great antiseptic and locally healing properties made it also a useful mouthwash and gargle in many afflictions of the mouth and throat.

Furthermore it also acquired a reputation for reducing high blood pressure, fortifying the memory, and as a general tonic and blood cleanser.

This all reminds me of the old Greek saying: "How dieth a man who has sage growing in his garden" or an old English version: " He for death need not care a farden, who has got sage growing in his garden"

The Exquisite Rose Water

Around the first week of May, the delicately scented Damask rose starts to unfold its queenly beauty. How fortunate that this divine scent may be captured in a bottle as rose water to enjoy the whole year round!

The newly unfolding pretty pink flowers got picked very early in the morning before the heat of the day robbed them from their delightful scent. Then, they were put straight into a copper still to hand over their essence to water. As distillation was under way, the 'spirit' of the rose infused the surrounding air with a heady aroma, which made the birds of the sky sing with joy.

The rose has always been associated with love, compassion, perfection and beauty, and is sacred to Aphrodite, goddess of love and beauty. In Ancient Persia it was considered a panacea.

The damask rose was the first herb to be used for making an aromatic water by Avicenna in the 10th century.

Rose water has anti-depressant and anti-anxiety properties.

Strongly connected to the physiological as well as the poetic heart, it has a role in reducing high blood pressure and palpitations of nervous origin, in addition to helping people deal with bereavement and heartbreak.

It is also useful for gynaecological problems, being a uterine tonic and assisting in regulating menstruation, relieving primary dysmenorrhoea and functional menorrhagia.

Rose water is an important ingredient in cosmetic and medicinal skin preparations as a softening, soothing, and hydrating agent with substantial antiseptic qualities.

It helps restore the skin's elasticity; and its cooling, refreshing properties help reduce redness and inflammation.

An excellent toner for dry, mature skin, it can be used in face masks, steams and compresses.

It may be sipped, diluted in water, to calm the nerves and help maintain a relaxed, positive outlook.

The water may be sprayed over the face, neck etc. during menopausal hot flushes, after sun, and on long journeys to refresh and cool.

Another traditional and superb external application of rose water was in the form of a cooling and soothing eyebath for irritations and inflammations of the eye's conjunctiva.

QUEEN OF HUNGARY WATER

(Also known as Royal Hungarian Water, Hungary Water)

Roy Genders, in his book the history of scent, identifies this water as the first alcoholic perfume, made from a distillation of rosemary.

Legend has it that, in 1370, a hermit gave Queen Elizabeth of Hungary a recipe to make an aromatic water, which would preserve her beauty until her death. Some say that his recipe must have been effective since at the ripe old age of 72, the king of Poland asked for her hand in marriage. Could this have been the first instance of seduction by alcoholic perfume?

Rosemary herb is the central ingredient of this spirituous water, responsible for the fresh, uplifting fragrance. Other ingredients complementing Rosemary's action are lemon balm, lemon peel, mint, rose and orange flower.

This water was used exclusively as an external agent. According to Genders, its main use was as a face wash or as an addition to bath water. But it was also applied to a handkerchief and inhaled to refresh and invigorate.

CARMELITE WATER

(Also known as Eau de Carmes and Eau de Melisse)

This historic water has been produced in Germany since 1379 and is still in production. It was formulated and distilled by nuns of the Carmelite order at the Abbey of Saint Just. At that time, the nuns were nursing Charles V, the ageing King of France.

Eau de Carmes was given to the king as an inhalation and also added to his bath water, to help revive his spirit and refresh his intellect.

The creation of Carmelite water involved the skillful blending of the aroma of fresh Melissa herb with that of angelica root, lemon peel, cinnamon, nutmeg, coriander and cloves. These ingredients were carefully prepared and distilled with a mixture of **grape spirit** and orange flower water.

King Charles was not alone in enjoying the great benefits of this ancient form of aromatherapy. Indeed, the fame of the water spread like wild fire throughout Europe and the nuns of the Carmelite abbey were busier than ever, distilling and bottling their newly-found water for sale to the masses.

The water found its way to the chests and dressing tables of European men and women who valued it for its restorative nervine qualities, usually applied to a handkerchief and sniffed to alleviate anxiety and revive the spirit. Later, it was taken internally in drop dosages for palpitations of nervous origin and anxiety-related cardiovascular dysfunction.

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