

Aromatherapy: Do Essential Oils Have Therapeutic Properties?

By Gerhard Buchbauer, Institute für Pharmazeutische Chemie
der Universität Wien, Wien, Austria

A pleasant odor has always been, and still is, an important factor for people to feel good, and feeling well is synonymous with good health. Therefore, we can conclude that all substances which are able to create a certain amount of well-being and well-feeling possess therapeutic properties and, therefore, can be called therapeutic agents.

Generally we can say that a pleasant odor is therapeutically useful, whereas an unpleasant one does the contrary. But we will also see that unpleasant smells also are sometimes used in a certain therapeutic sense today. But now let's dive into the past and recite some ancient therapeutic uses of essential oils.

Historic Use of Essential Oils as Therapeutic Agents

Perhaps the most ancient way to treat a patient in the sense of aromatherapy was the fumigation which was practiced in all ancient civilizations, especially in China, India, Egypt and Babylonia.

Even if the burning of frankincense was done mostly by religious worship, it was nevertheless useful in the treatment of a patient because the air became disinfected. There was also the positive psychological influence of the good aroma which

induced a calmness and a devoted attitude to the god of the patient.

The epic poem Gilgamesch, written in the 12th century before Christ and reporting about still earlier times, informs us that fragrances obtained by burning cedarwood and myrrh, will cajole the gods and put them in a pleasant mood.

From King Solomon came this well known remark: "I've sprinkled my bed with myrrh, aloe and cinnamon." Surely he knew about the relaxing effect of the odor of these fragrance materials. In the ancient Egyptian Papyrus Ebers, about 1600 BC, more than 100 prescriptions of essential oil medicines are noted.

The famous, beautiful and seductive Egyptian Queen Cleopatra used pillows filled with rose petals in order to facilitate falling asleep. The Greeks and Romans also knew about the sedative or stimulating effect of the odors from fresh or dried plant material.

And finally the Greek writer Plutarch reported upon myrrh in his philosophical essay "Moralia," "because of the pleasant, refreshing fumes . . . the human body is readier for the delight of sleep. Sorrows which oppress him during the day will get banished."

From the Roman Ages to the Middle Ages and on to the 18th and 19th century, the use of essential oils as therapeutic agents is well documented as those were the only therapeutic medicaments available at that time.

*This paper was presented at the IFEAT-MLI International Conference on Essential Oils, Flavors and Fragrances, Beijing (October, 1988).

Aromatherapy: Do Essential Oils Have Therapeutic Properties?

The disinfectant effect of fumes were often used in those days and people tried to banish the bad air in sick rooms by igniting good smelling candles (fragrance candles, as we would call them today). The doctors tried to protect themselves against infection by sniffing essential oils each time they thought it was necessary.

It is also said that in the 17th century, the English town, Bucklersbury, was spared from the plague because Bucklersbury was a center of the trade with lavender and its air always was, so to speak, perfumed.

The "pomander", a short form of the French word "pomme d'ambre", was like an apple or a little ball of amber and was a mixture of wine, honey, spices and fragrances. It was formed to a paste and put into a little spherical and perforated container, which was carried like a collar around the neck or on a belt around the waist.

The "sachet", a little linen sack or bag, filled with good smelling herbs was used to put under the pillow to facilitate falling asleep, and also used in closets where clothes were stored to "clean" the air. "Smelling salts", with ammonium carbonate, camphor and essential oils, was used, especially in the romantic age, to re-awaken someone who had fainted.

Aromatherapy

Modern Perspective: The term aromatherapy is strictly defined as the therapeutic use of volatiles to cure or to mitigate or to prevent diseases, infections and indispositions only by means of inhalation.

Aromatherapy is not:

- the application of medicines via aerosols, or
- the application of essential oils and fragrances in cosmetics, or
- the use of essential oils as massage oils or perfume ingredients.

Use as Bath and Massage Additive: The percutaneous absorption of essential oils as bath and massage additives is very good. The rate of this percutaneous absorption has been determined previously. It has been shown that the skin permeability of terpenes, for instance, as the main constituent of most of the essential oils is 100 times faster than water and that α -pinene, for instance, can already be detected in expired air 20 minutes following exposure to the fragrance. You see, also in these two cases, the incorporation by inhalation is possible and is real, even if it is indirect.

Use as Therapy for Coughs: Now I want to tell you something about recent uses of essential oils as aromatherapeutic agents. The main range of application of aromatherapy is the therapy of coughs and unspecific infection of the respiratory tract. The essential oils used for this purpose cause a reduction

of the coughing irritation and coughing impulses and bring about a secretolytic effect without an increase of the broncho motoric activity, which in summary leads to an easier "coughing away" of the liquid secretion.

The antibacterial activity upon germs is well known and last, but not least, an antiphlogistic effect upon the irritated bronchial mucosa is described in the literature. The volatile molecules and, therefore, the aromatherapeutic agents act directly upon the bronchial and tracheal mucosa, causing an increase in secretion.

The most commonly used essential oils for aromatherapeutic treatment of coughs and unspecific irritations of the respiratory tract are: anise oil, camomile oil, eucalyptus oil, fennel oil, spruce needles oil, dwarf pine oil, turpentine oil and thyme oil, and as aroma chemicals are used mostly, camphor, menthol, cineol, thymol and guaiacol.

Use Against Halitosis: Another important aromatherapeutic application is the use against halitosis (bad breath). This application has been practiced for a long time, as we learn from the literature that this "foetor ex ore" caused the expulsion of a person from the priesthood, and that a visitor to the Roman Emperor Nero had to wash his mouth with a fragrant water before entering the imperial rooms. Today halitosis can even be a cause for a divorce.

Essential oils and aroma chemicals for this treatment mostly are: peppermint oil, rose oil and eucalyptus oil and menthol. These aromatherapeutic agents have antibacterial and antimicrobial activities and also in a more cosmetic sense possess deodorizing effects.

There is also the disinfection and deodorizing of sick rooms. This method was recommended by the Roman writer Plinius, who advised that peppermint plants should be hung in the sick room.

As a Cure for Cacosmia: A real symptomatic and until now in a lot of cases the only possibility of an effective therapy to cure cacosmia is the application of essential oils and fragrances. This malady is a special form of parosmia where the poor patients always smell unpleasant odors even if they sniff on a bottle with perfumes.

This malady is a subjective disperseiving of odors caused by tumors in the nose, or by destruction of the nervous olphatic system by an accident, or by serious suppurations in the nose or by psychiatric symptoms. The best methods to help these patients is the insertion of little wads of cotton wool soaked with a solution of the fragrance material into the nose.

Use of Unpleasant odors as aromatherapeutics: Naturally this is also a limited field of application but a real modern one. The appetite is strongly in-

fluenced by odor impressions. You know that anosmia lowers the appetite and often such patients refuse food even if they are very hungry. Today this phenomenon is used to suppress the appetite of persons who are overweight.

Thus, unpleasant odors like various organic mercaptans, cresols, quinolines, pyridines, various amines and even the faecal smelling skatol and indol are used in food control. In an investigation, the appetite of test persons could be suppressed up to 70%. Thus, aromatherapy can be used in weight reduction and maintenance regimes.

On the other hand, good aromas are used to enhance the appetite of persons without an appetite, often resulting from chronic diseases. This has been known since ancient times and is still used today in the form of appetizers, aromatic wines, spice liquors, and so on.

Aromatherapeutic Treatment for Nervous System: The second important use of aromatherapeutic agents is the influence on the nervous system. We know that essential oils and fragrances act upon the nervous system in a sedative or stimulating way.

The stimulating effect of essential oils and fragrances is used to reawaken people who have fainted, and to refresh tired and exhausted people. In the first case, the inhalation is supported by a light massage of the temples and of the forehead with an alcoholic solution of an essential oil.

The fresh feeling which is caused by the evaporating alcohol and the sniffing of menthol, or camphor containing essential oils quickly helps the fainted person to consciousness. This effect is based upon a stimulation of the medullary centres, especially respiration and circulation centres via the "nervus olfactorius".

A similar treatment is the massage of people who are tired and exhausted with the oil of rosemary after great sport and work effort. But better known is the use of the oil of rosemary as a bath additive. Peppermint oils and lavender oil are also used for stimulating purposes.

Also fragrance candles and the so called "freshen-up pillows" which are sachets filled principally with dry herbs of lavender, rosemary, marjoram. The effect in all these cases is caused by inhalation. To some extent, the better feeling after such a treatment is also caused by a psychic influence similar to a thymoleptic activity of the fragrance.

We explain the better feeling after a tranquilizing bath or after the use of a sleeping pillow to a certain extent by its psychic influence. These treatments are applied particularly to patients who have difficulty falling asleep and for the persons who are too tense.

Besides the psychic component, the effect is also

caused by a direct activity of the fragrance molecule upon the cerebral cortex. It is to some extent a classical sedative effect, but also shows the character of a soporific, spasmolytic, relaxant and tranquilizing influence with a light suppression of the spontaneous motility which makes it easier to fall asleep.

This influence upon the cerebral cortex can be explained because of the easier passage through the haemato-encephalic barrier. Most of the constituents of essential oils and of fragrances are very lipophilic, a quality which facilitates transport to the brain.

Essential oils or herbs which are good for this use are: valerian oil, balm oil, hop oil, rose oil, and a few others. The method of treatment may be a massage, but is usually a relaxing bath, fragrance candles, or sleeping pillows. Fragrance candles are used readily for a light headache to loosen the tension in the forehead. Again in all cases mentioned in this treatment group, the fragrance is incorporated by inhalation.

Aromatherapy: Is it scientific?

I now want to describe how it has been possible to put the aromatherapeutic agents, which often are rejected by representatives of the classical medicine, to use on a scientific level. This example is the well-known "hop pillows" which have been used since early times in European folk medicine as a remedy against difficulties in falling asleep.

By head-space-chromatography of the air above such a hop pillow, it was possible to detect three main volatile hop constituents, namely: acetone, the monoterpene myrcene and the alcohol 2-methyl-3-buten-2-ol, also called dimethylvinyl carbinol. A pharmacological test proved a clear sedative hypnotic effect of this lower alcohol, when it is administered to rats and mice causing a 50% decline of motility.

This reduction of the animals' activity began shortly after the start of the experiment, reached its maximum after two hours and subsequently faded off very quickly. Such a sleeping pillow requires dried hop herbs, not fresh ones, because this alcohol could be detected there only in traces. Two year old dried plant samples are the best, because the concentration of this effective carbinol is nearly 0.15% at its highest value.

Conclusion

At the end, I want to answer the question, which is a part of the title of this paper. I do it with a clear "yes," essential oils and fragrances do have therapeutic properties. Aromatherapy, which has been known since ancient times for treatment of non-severe diseases, infections and indispositions, is now undergoing a real renaissance after having been nearly forgotten.

It has often been, and still is, refused by many representatives of classical medicine. But if we use the term aromatherapy properly, as the incorporation of volatiles by means of inhalation, then we open a chance for serious scientists to investigate this medical treatment and put it at the side of established medical therapies.

References

Address correspondence to Dr. Gerhard Buchbauer Institute für Pharmazeutische Chemie der Universität Wien, Währinger Strasse 10, A-1090 Wien, Austria.

- G Buchbauer and M Hafner, *Pharmazie in unserer Zeit* **14**, 8 (1985)
G Buchbauer, *Aromatherapy—do essential oils have therapeutic properties*. IFEAT-MLI International Conference on Essential Oils, Flavours and Fragrances, Beijing (October 1988)
FC Czygan, *Pharmazie in unserer Zeit* **10**, 109 (1981)
W Schweisheimer, *Medizin Klinik* **70**, 1717 (1975)
R Wohlfart, *Dtsch Apoth-Ztg* **123**, 1637 (1983)
H Isaacoff, *Cosmet & Toiletries* **96**, 69 (1981)
H Schilcher, *Dtsch Apoth-Ztg* **124**, 1433 (1984)
M Kawasaki, *Fragrance J* **15** (4), 104 (1987)
D Brandenburg, *Arzt Kosmetologie* **15**, 272 (1985)
W Klages and J Klages, *Dtsch Med Wochr* **19**, 871 (1967)
F von Meyer and E Meyer, *Arzneim-Forsch* **9**, 516 (1959)
R Schindl, *W Med Wochr* **41**, 591 (1972)
KA Kovar, B Gropper, D Friess, and HPT Ammon, *Planta Med* **53**, 311 (1987)
A Krumm-Heller, *Osmologische Heilkunde*, Verlag R. Schikowski, Berlin (1955)
H Karsten, *Duft-Farb-Ton-Therapie bei psychosomatischen Erkrankungen*, Schriftenreihe, Erfahrungsheilkunde, Band 6, 3. Auflage, KF Haug Verlag, Heidelberg (1983)
M Henglein, *Die heilende Kraft der Wohlgerüche und Essenzen*, Schönbergers Verlag, München (1985)
J Valnet, *Aromatherapie. Gesundheit und Wohlbefinden durch pflanzliche Essenzen*, Heyne Buch Nr. 1480, W. Heyne Verlag, München (1986)
St van Tollen and GH Dodd, *Perfumery. The Psychology and Biology of Fragrance*, Chapman & Hall, London, New York (1988)

