

SCIENTIFIC EVIDENCE OF MEDICAL AROMATHERAPY

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(prepared for and dedicated to Botanica 2014)

From scientific roots to clinical brilliance of medical plants and aromas (Evidence based health promotion, cure, and care with essential oils)

Essential oils (EOs) are concentrated natural plant products which contain volatile aroma compounds. These mixtures of compounds (mainly mono- and sesquiterpenoids, benzoids, phenylpropanoids, etc.) exert different biological actions on humans, animals, and other plants. Distillation (most natural plants) and mechanical pressing (citrus fruit skin) are the common methods for isolation of essential oils (European Pharmacopoeia; ISO 9235 [1997]). Eos are popular as ingredients of perfumes, cosmetics and household cleaning products, as well as being used for flavouring food and drink. But EOs are as well very useful in the treatment of different diseases and their medicinal application has become very popular and this is also valid with many of their constituents as single-fragrance compounds [1a,1b]. Eos are popular as ingredients of perfumes, cosmetics and household cleaning products, as well as being used for flavouring food and drink. But EOs are as well very useful in the treatment of different diseases and their medicinal application has become very popular and this is also valid with many of their constituents as single-fragrance compounds. Although the perception of and reaction to essential oils seems to be slightly different between women and men, all people at all ages benefit from aromatherapy [2,3].

The complexity of essential oils should be borne in mind when referring to the therapeutic qualities of a given oil, and helps to explain why one oil can be listed at the same time as being “analgesic, anticonvulsive, antidepressant, antimicrobial, antirheumatic, antiseptic, antispasmodic, antitoxic, carminative, cholagogic, choleric, cicatrizant, cordial, cytophylactic, deodorant, diuretic, emmenagogic, hypotensive, insecticidal, nervine, parasiticidal, rubefacient, sedative, stimulant, sudorific, tonic, vermifuge, vulnerary”. This staggering array of properties (Lawless 1992) perhaps overstates the case, but demonstrates the “shotgun” holistic approach in contrast to the “single bullet” symptomatic approach [1a,1b].

Properties of essential oils

(Barbara Adorjan, Gerhard Buchbauer: Biological properties of essential oils: an updated review, Flavour Fragr. J. 2010, 25, 407–426)

Pain management

Liapi *et al.* studied the anti-nociceptive properties of 1,8-cineole and β -pinene, two monoterpenes, from the essential oil of *Eucalyptus camaldulensis* Dehnh. (Myrtaceae) leaves, in rodents (mice and rats) using the tail-flick and hot-plate tests, reflecting the spinal and supra-spinal levels. Morphine and naloxone were used for comparison. In both algogenic stimuli 1,8-cineole showed an anti-nociceptive activity compared to morphine, but naloxone did not antagonize 1,8-cineole. From this it follows that there is a significant synergism between 1,8-cineole and morphine. β -Pinene is supposed to be a partial agonist of the μ -opioid receptors; however, as one of the authors stated, this activity as a morphine analogue is very weak. It leads to supra-spinal antinociceptive actions in rats only and reversed the anti-nociceptive effect of morphine and naloxone [4].

Sakurada *et al.* studied the capsaicin-induced anti-nociceptive activities of bergamot (*Citrus bergamia*, Risso) essential oil, Rutaceae, (BEO) by intra-plantar injection into the mouse hind paw. An intense and short-lived licking or biting response toward the injected hind paw is produced by an this injection of capsaicin. After the intra-plantar injection of BEO the capsaicin-induced nociceptive response was reduced significantly. The main compounds of BEO are monoterpene hydrocarbons, such as limonene, μ -terpinene, β -pinene and oxygenated derivatives, linalool and linalyl acetate. The studies also showed the antinociceptive effect of *Salvia sclarea* L., linalool chemotype of *Thymus vulgaris* L., *Lavandula angustifolia* Mill. and *Lavandula hybrida* Reydovan on the capsaicin-induced nociceptive response, while testing the essential oil of *Citrus sinensis* L. (Osbeck) was without effect. Another result of this study is the pharmacological activity of linalool, which, in addition to an antinociceptive effect, also shows anti-hyperalgesic, anticonvulsant and anti-inflammatory effects. The study confirms the importance of linalool as a TRPA1 agonist or linalyl acetate in BEO or these compounds as constituents of other essential oils in anti-nociceptive therapy [5].

Suggested formulations

The warming mixture is suitable for osteoarthritis while the cooling mixture is suitable for inflammatory arthritis. Basically the patient's subjective sensation and the patient's therapeutic response in the course of treatment determine the type of mixture to be used.

Warming oil mixture

2 drops of clove bud, 2 drops of Andean myrtle, 3 drops of black pepper, 2 drops of tonka bean, 3 drops of lemon in 30 ml of macadamia nut oil

Application: Rub in gently or use as an oil compress 3 times daily.

Cooling oil mixture

3 drops of cajeput, 2 drops of spike lavender, 4 drops of Indian frankincense, 3 drops of lemon eucalyptus in 15 ml of St. John's Wort oil and 15 ml of aloe vera oil

Application: Rub in gently 3 times a day; curd cheese pad: 1 teaspoon of the oil mixture in 1 tablespoon of curd cheese.

Cancer Management

Lukas *et al.* investigated the composition of essential oil compounds from different Syrian populations of *Origanum syriacum* L. (Lamiaceae). The main compounds are carvacrol and/or thymol, depending on the populations. Thymoquinone is also an important compound of *O. syriacum* L. which shows very promising anticancer activity. Thymoquinone was found in extracts in a wide range between 0.04% and 23.7%. This high concentration of thymoquinone has the potential for use in anticancer therapy but further studies are necessary [6].

Essential oils and constituents for which chemopreventive/chemotherapeutic activity has been reported, either in vitro or in vivo: target organ breast (Tisserand R, Young R, *Essential Oil Safety – A Guide for Health Care Professionals*, 2014, second edition, Churchill Livingstone Elsevier, 179-183)

- Curry leaf [7]
- Melissa [8]
- Orange [9]
- Ascaridole [10]
- Benzyl isothiocyanate [11]
- Bergamottin [12]
- Carvacrol [13]
- Diallyl disulfide [14]
- Diallyl sulfide [15]
- Geraniol [16]
- β -Ionone [17]
- (+)-Limonene [9,18]

- (-)-Menthol [18]
- Methyljasmonat [19]
- Perillylalkohol [20]
- Sclareol [21]

Anti-emetic Effect

Angelica root (*Angelica archangelica*)
 Ginger (*Zingiber officinale*)
 Cardamom (*Elettaria cardamomum*)
 Melissa (*Melissa officinalis*)
 Patchouli (*Pogostemon cablin*)
 Peppermint (*Mentha x piperita*)
 Sandalwood (*Santalum album*)
 Spearmint (*Mentha spicata*)
 Lemon (*Citrus x limon*)

Suggested formulations

“Sniff” in case of nausea

1 drop of peppermint (or any essential oil with an antiemetic effect)

Application: Prepare a 10% dilution of the essential oil in jojoba wax and drip on the palm, then inhale intensively. If necessary use several times a day.

Anti-emetic massage

2 drops of angelica, 2 drops of cardamom, 3 drops of peppermint 5 drops of lemon in 30 ml of almond oil.

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Inflammatory diseases

In 2008 the common household plant *Rosmarinus officinalis* L., Lamiaceae, popularly named rosemary, was analysed by Takaki *et al.* [22]. As *R. officinalis* is used in folk medicine in many parts of the world because of its antispasmodic, analgesic, anti-rheumatic, carminative, cholagogue, diuretic, expectorant and anti-epileptic effects, rosemary essential oil (REO) was evaluated. To analyse the anti-inflammatory activity of REO, the inflammatory exudate volume and also the leucocyte migration in carrageen-induced pleurisy and carrageen-induced paw oedema tests in rats were used. An administration of REO at doses of 500 mg/kg led to a significant reduction of the volume of pleural exudate and to slight decrease of the number of cells that had migrated compared with the control animals. A promising inhibition of carrageen-induced oedema 1–4 h after injection of the phlogistic agent were obtained by 250, 500 and 750 mg/kg of REO. This study showed that REO possesses promising anti-inflammatory and peripheral anti-nociceptive activity, evaluated by using the acetic acid-induced writhing and hot-plate test in mice.

Because carvacrol is the most important component of thyme oil, it was investigated by Hotta *et al.* Carvacrol is able to activate peroxisome proliferator-activated receptor- α and - γ (PPAR). These receptors are ligand-dependent transcription factors and are involved in the control of COX-2 expression, which plays an important role in inflammation. The biological properties of carvacrol were investigated especially in thyme oil. PPAR- γ dependent suppression of COX-2 promoter activity was observed in response to carvacrol treatment. Carvacrol suppressed LPS-induced COX-2 mRNA and protein expression in human macrophage-like U937 cells. This led to the result that carvacrol regulates COX-2 expression through its agonistic effect on PPAR γ [23]. Furthermore, the essential oils of clove (*Syzygium aromaticum* (L.) Merril & Perry, Myrtaceae), rose (*Rosa sp.*, Rosaceae), eucalyptus (*Eucalyptus sp.*, Myrtaceae), fennel (*Foeniculum vulgare* Mill., Apiaceae) and bergamot (*Citrus limon* L., Rutaceae) were investigated. The study showed that also these oils led to a

suppression of COX-2 promotor activity in cell-based transfection assays using bovine arterial endothelial cells.

Suggested formulations

Mixture for inflammatory bowel disease

3 drops of German chamomile, 6 drops of lavender, 3 drops of West Indian lemon grass in 30 ml of almond oil

Application: Gently massage the mixture in clockwise direction on the abdomen or use as an oil compress

Mixture for intestinal spasms

3 drops of sweet fennel (*Foeniculum vulgare* ssp. vul. var. dulce), 3 drops of cumin, 6 drops of lavender, 3 drops of clary sage in 30 ml of almond oil

Application: Gently massage on the abdomen in clockwise direction or use as an oil compress

Infectious diseases

The essential oil of another Myrtaceae species, namely *Eucalyptus globulus* Labill. was investigated by Cermelli *et al.* and its effect on respiratory bacteria and viruses assessed. The activity of *E. globulus* essential oil was determined for 120 isolates of *Streptococcus pyogenes*, 20 isolates of *S. pneumoniae*, 40 isolates of *S. agalactiae*, 20 isolates of *S. aureus*, 40 isolates of *Haemophilus influenzae*, 30 isolates of *H. parainfluenzae*, 10 isolates of *Klebsiella pneumoniae*, 10 isolates of *Stenotrophomonas maltophilia* and two viruses, a strain of adenovirus and a strain of mumps virus. The antibacterial activity was tested by the Kirby–Bauer paper method, minimum bactericidal concentration and minimum inhibitory concentration. The Kirby–Bauer paper method, also called the agar diffusion test, is used for measuring the effect of an anti-microbial agent against bacteria grown in culture. By using the MTT test the cytotoxicity was evaluated on VERO cells. The most influenced were *H. influenzae*, *H. parainfluenzae*, *S. maltophilia* and *S. pneumoniae*. Moreover, only a mild activity on mumps virus was found [24].

Some essential oils from the family Myrtaceae, like cajeput (*Melaleuca leucadendron* L.), clove (*Syzygium aromaticum* (L.) Merril & Perry), kanuka (*Kunzea ericoides* (A. Rich.) Joy Thoms), and manuka (*Leptospermum scoparium* J.R. Forster & G. Forster) were analysed by Schnitzler *et al.* A focus of this study was to evaluate the oils' cytotoxicity in a standard neutral red assay (NRU). This is a cell survival assay based on the ability of viable cells to incorporate and bind neutral red (NR). Maximum non-cytotoxic concentrations for *M. leucadendron* oil and *S. aromaticum* oil were determined at 0.006%, *K. ericoides* oil and *L. scoparium* oil were more cytotoxic with a maximum noncytotoxic concentration of 0.001%. Moreover, the results of this study showed that manuka essential oil possesses a high capacity of virucidal activity against HSV-1 as well as against drug-resistant HSV-1 isolates in viral suspension tests [25].

Also, the antiviral activity of lemon balm oil, the essential oil of *Melissa officinalis* L., Lamiaceae, against enveloped herpes viruses was investigated. The major constituents of *M. officinalis*, analysed by GC-MS, were the monoterpene aldehydes citral a, citral b and citronellal. The inhibitory activity against HSV-1 and HSV-2 was evaluated *in vitro* on monkey kidney cells using a plaque reduction assay. The results of this study showed that the IC₅₀ value of balm oil for HSV plaque formation was determined at high dilutions of 0.0004% and 0.00008% for HSV-1 and HSV-2. Moreover, lemon balm oil, at non-cytotoxic concentrations, led to a significant reduction of the plaque formation by 98.8% for HSV-1 and 97.2% for HSV-2. Another focus of this study was to analyse the mode of antiviral action by using a time-on-addition assay. This is a multi-well assay for identifying a compound inhibiting the replication cycle of a micro-organism. HSV-1 and HSV-2 were significantly inhibited by pretreatment with balm oil prior to the infection of cells. Based upon these data, it became obvious that lemon balm oil affected the virus before adsorption, but not after penetration into the host cell [26].

Suggested formulations

Lip balm for herpes blisters I

4 drops of ravintsara, 2 drops of tea tree, 4 drops of melissa in 2 g of calophyllum oil, 8 g of almond oil, 10 g of jojoba wax, 5 g of beeswax or cocoa butter and 10 g of shea butter

Application: Dab the blisters gently and rub in from the phase of incrustation. 2-4 times daily

Lip care balm

(according to Otto-Wagner-Hospital, Vienna)

4 drops of lavender, 4 drops of palmarosa, 3 drops of Damask rose 10% in 70 g of shea butter, 3 g of cocoa butter, 1 pearl of beeswax, 20 ml of jojoba wax and 5 drops of sea buckthorn oil

Application: Rub in gently 2-4 times a day

Oxidative stress

Antioxidants, such as vitamins, enzymes or Fe^{2+} , etc. are able to neutralize free radicals. They exert a health-enhancing effect on the human organism because they protect cells from oxidant damage.

Also, essential oils of Rutacean plants possess antioxidative properties. So, Misharina *et al.* reported on the antioxidant properties of essential oils from lemon (*Citrus limon* L., Rutaceae), pink grapefruit (*Citrus paradisi* Macfad., Rutaceae), coriander (*Coriandrum sativum* L., Apiaceae), and clove (*Caryophyllus aromaticum* = *Syzygium aromaticum* (L.) Merril & perry, Myrtaceae) buds. These oils were studied by capillary gas-liquid chromatography. The antioxidant activity was evaluated by oxidation of the aliphatic aldehyde hexanal to the carboxylic acid. The results showed that grapefruit essential oil has the lowest and clove bud essential oil the highest antioxidant activity. Moreover, mixtures containing clove bud essential oil strongly inhibited oxidation of hexanal [27].

Comparative activity of some DPPH radical scavenging essential oils (Tisserand R, Young R, *Essential Oil Safety – A Guide for Health Care Professionals, 2014, second edition, Churchill Livingstone Elsevier, 170*)

1. Oregano (IC₅₀: 0,17 µg/ml)
2. Thyme ct. thymol et carvacrol (0,19)
3. Sage Dalmatian (1,78)
4. Peppermint (2,53)
5. Rosemary (3,82)
6. Pimento berry (4,82)
7. Melissa (7,58)
8. Bay (W. Indian) (10,00)
9. Tea tree (29,70)
10. Palmarosa (51,42)
11. Laurel leaf (53,50)
12. Marjoram (58,67)

Actions of essential oils on the central nervous system

(Clara Dobetsberger, Gerhard Buchbauer: Actions of essential oils on the central nervous system: An updated review. Flavour Fragr. J. 2011, 26, 300–316)

Anxiety

The efficacy of Silexan, an innovative oral lavender oil capsule preparation, versus a benzodiazepine was studied recently in a controlled clinical trial by Woelk and Schläfke. Adults had to take Silexan or lorazepam for 6 weeks. The severity of anxiety was objectively measured by the Hamilton Anxiety Rating Scale (HAM-A total score) between baseline and week 6. At the end of the study it was demonstrated that Silexan was able to alleviate generalized anxiety and was comparable to a common benzodiazepine such as lorazepam. 'Somatic anxiety' and 'psychic anxiety', two HAM-A sub-scores, were also decreased in both groups. Other sub-scores, for example the Self-rating Anxiety Scale, the Penn State Worry Questionnaire, the Clinical Global Impressions of Severity Disorder and a sleep diary showed equal positive effects of the two medications. All in all, these data confirmed that Silexan was as effective as lorazepam in adults. It showed no sedative effects or potential for drug abuse and therefore could be a safe and well-tolerated alternative to benzodiazepines in the treatment of generalized anxiety [28].

As mentioned in the literature, aromatherapy massages can relieve anxiety in cancer patients. Between 13.9% and 25% of all cancer patients also suffer from anxiety disorders. Seventy-five per cent of these anxiety disorders are non-pathological anxieties which can seriously influence the quality of life [29]. Recently, an Italian research team reported on the neuropharmacology of the essential oil of Citrus bergamia Risso (Rutaceae, BEO). This oil is commonly used in aromatherapy to alleviate symptoms of cancer pain, mild mood disorders and stress-induced anxiety. The results of the study showed that BEO released exocytotic and carrier-mediated discrete amino acids with neurotransmitter function in the mammalian hippocampus. This supported the deduction that BEO could interfere with normal and pathological synaptic plasticity. There was also some neuroprotection in the course of experimental brain ischaemia and pain. These data explain the common use of BEO in complementary medicine, but further research and translation into clinical settings is needed [30].

Suggested formulations

Anxiety disorder

2 drops of bergamot, 2 drops of Andean myrtle, 2 drops of lavender, 1 drop of ylang-ylang in 30 ml of almond oil

Application: Gently massage the oil in the region of the solar plexus.

S.O.S. Stress Roll on, Puresentiel, France

Application: Gently massage the oil in the region of the hand pulse regions.

Sleep disorders

The treatment of insomnia, or at least difficulties falling asleep, is a main domain of aromatherapy. Thus, placebo controlled studies with human subjects have been carried out [31,32,33,34].

Additionally, other papers report on the results obtained in animal experiments. Here, dose dependent assays with either EOs or single EO constituents were performed [35,36,37], in some cases even comparisons between EOs and single fragrance compounds drawn [38,39,40] and explanations as to the mechanism given [37,40].

Nearly all of the cited papers report on the beneficial effects of the investigated EOs in view of their relaxing, sedative or sleep inducing efficiency. Only the results of a study conducted with sweet orange oil and also with (+)-limonene contradicted the before cited papers and lead to the conclusion that a systemic action is unlikely and the observed sedative effects are rather due to cognitive and/or olfactory influences [33].

Chiming in with Hongratanaworakit [31,41] is also the report by Howard and Hughes [32] that the relaxation caused by lavender aromatherapy is possibly influenced by expectation. The studies by Huang, et al. [38] and Takemoto et al. [39] use extracts and not EOs, and Takemoto et al. additionally use the very expensive EO of agarwood. Finally, Arzi et al. [34] deal with respiration frequency, an indicator of relaxation and sleep depth.

Suggested formulations

Sleep disorder I

2 drops of bitter orange, 2 drops of Andean myrtle, 2 drops of vanilla, 1 drop of ylang-ylang in 30 ml of almond oil

Application: Gently massage the oil in the region of the solar plexus before going to sleep.

Sleep disorder II

3 drops of Atlas cedar, 6 drops of lavender, 4 drops of mandarin

Application: Electric aroma lamp

Sleep disorder III

3 drops of bergamot, 3 drops of bitter orange, 3 drops of lavender, 2 drops of Damask rose 10%

Application: Add the essential oil mixture to 125 ml of cream or 1 tablespoon of honey for a full bath.

Sleep disorder IV

3 drops of lavender, 2 drops of mandarin, 1 drop of sandalwood

Application: Apply the essential oil mixture as an "aroma patch" on a suitable carrier (handkerchief or small cotton towel).

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Dementia illness

Agitation is the most ordinary symptom in people who are suffering from severe dementia. It is defined by restlessness and aggressive behaviour which can even be dangerous for the family members or the nursing staff. Mostly, neuroleptic drugs are administered, although the efficacy is not satisfying and many side effects exist. Therefore, the potential of EOs from *Melissa officinalis* L. and *Lavandula angustifolia* Mill., both Lamiaceae in the treatment of agitation in people with severe dementia was investigated by Elliott et al. [42]. It is already proved that both possess calming and sedative properties and can enhance memory. Furthermore, a radioligand binding was conducted in order to determine the receptor binding properties. The results showed that lavender as well as balm oil (EO of *M. officinalis*) significantly inhibited the binding of radioligands to the muscarinic M1, 5-HT_{2A}, histamine H₃ receptors and GABA_A receptor channel site. Melissa oil showed a wider receptor binding profile than lavender oil and even could affect the binding to 5-HT_{1A} receptors and the agonist site of the GABA_A receptor. Thus it could be demonstrated via radioligand binding that lavender and balm oil interact with several receptors of neurotransmitters and therefore can be used to reduce the symptoms of agitation. However, balm oil additionally is able to increase the time patients were involved in constructive activities and thus reduce the time they were socially withdrawn.

Even the common household spice sweet basil (*Ocimum basilicum* L., Lamiaceae) and other species of the same genus are used to treat several diseases of the central nervous system. The CNS depressant and anticonvulsant properties of *O. basilicum* L. leaf EO in several experiments were investigated by Oliveira and her working team [43]. The principal components, among them 1,8 cineole, linalool and geraniol, showed in a general pharmacological screening that the EO was a CNS depressant at all doses, including reduction of spontaneous activity, ptosis, ataxia and sedation. In addition, all doses caused also a remarkable prolongation in sleeping time and a decrease in the sleep latency. In the PTZ and picrotoxin seizure tests, *O. basilicum* L. oil enhanced the latency for development of convulsions. In the PTZ test the effects evoked by the EO could be reversed with the

aid of flumazenil. However, the EO did not interfere with strychnine-induced epileptic seizures. These findings revealed that the EO of sweet basil had a depressant influence on the CNS and anticonvulsant qualities, probably due to an interaction with central GABAergic receptors.

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Personalized holistic treatment

The holistic approach of aromatherapy starts with the patient's aromatological medical history, which includes physical, mental, emotional and spiritual aspects, life events from the past and the present, as well as future perspectives, social and professional relationships. Preferences and dislikes of aromas are also very valuable.

Aromatherapy is a proven method of complementary medicine. Therefore, as in every other treatment, an exact diagnosis is the first step. Essential oils may be used independently to improve a person's well-being, promote health, or prevent disease. **However, acute or chronic diseases should always be treated together with an experienced physician.**

Aromatherapy follows the principles of natural medicine. Its purpose is to arouse and strengthen the vitality and self-healing powers of a person. Essential oils have deep effects on our mental equilibrium. They cause a change of moods, restore balance in imbalanced areas, and thus deprive a disease of its actual breeding ground. Essential oils affect the body and the mind in equal measure and thus act in a holistic manner.

Dual principle of action and holistic aspects

Essential oils, most of which are derived by steam distillation, possess unique properties which result in their dual mode of action and various possibilities of application. Due to their immediate olfactory effect on brain centers and subsequently

on regulatory mechanisms, they modulate mental and physical processes, such as recall, memory, motivation, moods and creativity on the one hand, while affecting diverse organ and metabolic functions through the involuntary autonomic nervous system on the other. In addition to this principle of action via inhalation of aromatic substances, the multicomponent mixture of essential oils unfolds its strong but balanced biochemical effects by means of its rich ingredients, which can be absorbed by the body by anointment, gentle massage, inhalation, or baths.

High-quality essential oils are particularly impressive when used by the holistic therapy approach, which is rendered possible by its two diverse mechanisms of action (olfactory and biochemical), and by the manifold effects of each essential oil in the multicomponent mixture.

The holistic approach - with the increasing importance of personalized therapy - results from the combination of olfactory and biochemical effects of an essential oil, and from the interdisciplinary and integrative combination of conservative and complementary medicine.

A holistic therapy concept is derived from a patient's aromatological medical history and from personalized selection of essential oils and application methods. The course of treatment is monitored, documented, and evaluated carefully. If necessary it is modified and discussed on an interdisciplinary basis.

Global alliance for aromatherapy and aroma care (international networking)

In an era of globalization at the social, political, ecological and economic level, global cooperation between all persons, institutions and companies involved in the use of essential oils, fatty vegetable oils and hydrolates should be a prime goal. Such a global alliance could access existing national and international structures or help in the establishment of missing regional and national infrastructures.

A global alliance for aromatherapy and aroma care would serve as a successful instrument (tested successfully in many other economic and social fields) for the implementation and enforcement of our predefined goals. One instrument of this type implemented in medicine are, for instance, the international societies of the individual specialties, by which their recognition, promotion and quality are improved markedly and consistently.

What goals can we achieve more easily with a global initiative than with a national or regional one?

- Global contact persons (WHO/EU policy, research, educational institutions, professional policies, interest groups, economy, health facilities, etc.)
- Recognition from institutions and society

- Quality standards (training and postgraduate training, products, application)
- Drafting definitions and demarcations for the terms well-being, wellness, health promotion, treatment, care, and cosmetics, with corresponding legal implications, including responsibilities and liabilities
- Drafting international recommendations
- Networking (strategies for solving problems, multicenter studies, congresses, etc.)
- Positive effects from "international" through "national" to "regional"
- Management and promotion of communication, Internet presence, research, etc.
- Joint strategic concepts for the development of aromatherapy
- Well-planned utilization of personnel and financial resources
- Joint social and ecological responsibility
- Service for member organizations

What values should the global initiative represent?

- Competence
- Creative solution strategies
- Accessibility
- The ability to respond
- Leadership skills
- Commitment
- Responsibility
- Operational support
- Social and ecological responsibility

What principles should we work on?

- Promotion by networking, with synergistic utilization of combined forces and new technologies
- Obligatory member activity
- Advances in research and teaching
- Encouragement of partnerships
- Implementation of effective methods, guidelines and concepts

What could our next steps be on our way to a global future?

- Getting to know each other
- Establishment of common goals
- Inquiring about serious and representative member organizations throughout the world
- Drafting admission criteria
- Working out a priority list and assignment of personnel
- Budget planning

Health promotion by stress and burnout prevention with essential oils for occupational groups at Otto Wagner Spital in Vienna

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Puressentiel Company, which provided the investigational product, did not influence any phase of the study.

For easier readability, the terms "participants" and "proband" are used for both genders. We would like to specifically express our appreciation of the women who participated in the study.

Abstract

Aim: More than 50% of all persons suffer from stress in their professional lives on the one hand, and due to family and personal circumstances on the other. Excessively high stress levels may cause physical, mental, or social impairment, culminating in the burnout syndrome. Regular use of premium-quality essential oils is able to markedly reduce an individual's stress levels. A health promotion project was undertaken to confirm the reduction of stress by the use of essential oils.

Study participants: A study addressing the subject of health promotion by the prevention of stress and burnout through the use of essential oils was performed at Otto Wagner Spital in Vienna. Eighty-eight staff members of the hospital with evaluable enrollment questionnaires and 55 staff members with evaluable completion questionnaires were included in the study. 84.1% of the study participants were women; 48.9% belonged to the nursing staff, 9.1% were doctors, and 38.6% belonged to other occupational groups in the hospital; 58% of the participants were between the ages of 18 and 49 years while 38.6% were older than 50 years. Three study participants did not mention their age.

Method: After an informative interview and a compatibility test, the study participants were given the SOS stress roll-on consisting of 12 essential oils. The roll-on was applied at least three times a day on the pulse zones on the wrists. The total duration of use was one month. The questionnaires included a stress scale and 8 questions on physical impairment, 15 questions on mental or psychological impairment, and 4 questions on social impairment due to stress.

Result: At survey time point 1 on the day of enrollment in the study, the probands' stress rating on a scale from 1 (no stress) to 10 (very high stress) was on average 6.28. At the end of the observation period it was 5.24. The analysis of physical impairment due to stress (stress scale 1-8) demonstrated the significant benefit of aromatherapy among nursing staff ($p = 0,036$) and in persons older than 50 years of age ($p = 0.012$ and 0.025 , respectively). The changes in stress levels due to physical, psychological and social stress between survey time point 1 and 2 revealed marked, and partly significant, positive changes after the use of essential oils. For 27 participants, the questionnaires obtained at time point 1 and 2 could be assigned to the respective individuals. In this group, the overall stress levels as well as those in the sub-aspects showed the significant positive results of aromatherapy.

Summary: A large majority of the study participants were able to markedly reduce their stress-associated impairment by the use of essential oils in the SOS stress roll-on. No allergic reactions or incompatibilities were observed. Selected essential oils of high quality may be recommended for the prevention and treatment of stress and burnout.

Austrian Society for Scientific Aromatherapy and Aroma Care (ASSAAC = ÖGwA)

This interdisciplinary Society was founded as a non-profit association in 2006. Along with its sub-organizations (pharmacy, medicine, care and science), ASSAAC has a pioneering and future-oriented format.

Based on these "pillars" of the Society, the ASSAAC develops guidelines and recommendations for the practical application of essential oils, fatty vegetable oils and hydrolates in accordance with the highest scientific and practical standards.

High quality standards are required on the one hand for cultivation, harvesting, production, storage and marketing, and on the other hand for the training and advanced training of persons working with this gift of Nature in an ecological, economical and responsible manner, as well as for individualized and holistic application.

Based on these principles, in aromatherapy and aromatherapy care we are able to work efficiently, safely, reliably, predictably, and accountably in the areas of health promotion, prevention, treatment, care, rehabilitation, and well-being.

The ASSAAC is opposed to inappropriate applications of essential oils. It supports practical application of aromatherapy and aromatherapy care on the basis of well substantiated conclusions derived from fundamental research, clinical studies, and expert opinions.

Through public relations work and networking, which includes conventions, symposia and publications, the ASSAAC promotes, with great dedication, the acceptance and recognition of aromatherapy and aromatherapy care in the general public as well as in professional circles and public institutions.

The board of ASSAAC supports the members of the Society by providing their specialized knowledge as well as news from various disciplines. In case of queries the board provides active help and advice.

Furthermore, the ASSAAC works actively to network reputable institutions in the interest of aromatherapy and aromatherapy care. This should lead to the formation of a European parent organization that will preserve and promote the diversity of products, high quality standards, progressive goals, and licensed access to aromatherapy and aromatherapy care throughout Europe.

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Our cooperation partners: Austrian Society of Phytotherapy, Parent Organization of Austrian Doctors for Holistic Medicine, aromaFORUM Österreich (Aroma Forum of Austria), GAMED, Forum Essenzia, Danube University Krems, etc.

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