AROMATHERAPY AS COMPLEMENTARY AND ALTERNATIVE MEDICINE-SYSTEMATIC REVIEW

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ABSTRACT
Aromatherapy is truly holistic therapy taking into account mind, body and spirit. It can provide a useful and most popular complementary medical service both in healthcare and in private practice too. Aromatherapy and Aromatology can bring real complementary help to many patients, and hence it is come under the one of the ‘Complementary’ therapies. Essential oils are pivotal materials in aromatherapy which are usually combine with the Carrier oils. Aroma hand massage, Aromatherapy with light Thai massage, Self-aromatherapy massage, aromasticks, the “m” technique®, Aromatherapy acupressure and other methods are present which give the effective results. Aromatherapy massage seems to be a helpful, non pharmacological and pharmacological method that exerts positive effects. By knowing this scenario following review was frame out which consolidates different reported activities of aromatherapy.

KEY WORDS: Aromatherapy, Essential oils, Massage, Lavender oil, Cancer.

INTRODUCTION
Aromatherapy- the use of aromatic oils for healing. Aroma- a pleasant smell and Therapy-treatment for a physical or mental disorder.[1] The term “aromathe´rapie” was coined by the French chemist Rene´ Maurice Gattefosse´, who published a book on the same name in 1937.
He is considered by many to be the father of modern-day aromatherapy. The term aromatherapy is so loose that many associate essential oils purely with the beauty and cosmetics industry cared, by not understanding their important therapeutic potential.\[2\]

Aromatherapy has been defined as ‘the art and science of using of essential plants oils in treatments a truly holistic therapy taking in to account mind, body and spirit’\[3\] but the recognized definition states that “aromatherapy is the use of essential oils for therapeutic purposes”\[4\] and the definition of Clinical aromatherapy (as used in nursing) is more specific: “The use of essential oils for outcomes that are measurable”\[5\] the definition of essential oils is also very specific: “Essential oils are the steam distillate of aromatic plants”.\[6\] The therapeutic use of fragrances or at least of mere volatiles to cure or to mitigate or to prevent disease, infections, and indispositions only by means of inhalation’.\[7\] Tisserand classifies aromatherapy range as, Medical aromatherapy, nursing aromatherapy, aesthetic aromatherapy, psycho-aromatherapy and essential back up services of chemical analysis, oil extraction and plant cultivation.\[8\]

Aromatherapy, a form of inexpensive and non invasive complementary and alternative medicine (CAM), uses of essential oils, the scented, volatile liquid substances extracted from plants using steam or pressure, which dates back centuries for the purpose of altering a person’s mind, mood, cognitive function, or health. Is increasingly being used in primary care settings also.\[9,10\] It is hardly surprising that there is confusion about aromatherapy. The term “aromatherapy” is used to sell anything from toothpaste to shampoo, and because of its marketability, the term “aromatherapy” is used even if the product itself has never been near an essential oil. There is a national fascination with aromatics and aromatherapy, hence the 18,000 web sites now dedicated to the subject.\[11\]

**Aromatherapy Organization Council**

Aromatherapy Organization Council (AOC) is the UK governing body for complementary therapy of aromatherapy. It is composed of both aromatherapy association and training establishment but does not have individual membership. The Aromatherapy Trade Council (ATC) was formed by responsible essential oil suppliers, initially under the umbrella of the AOC, as result of a seminar held in 1992 on 'Essential Oils and Public Safety’ to address common issues of public safety. The AOC is committed to maintaining dialogue between the aromatherapy profession and the essential oil trade and the ATC Chairman has seat on the
AOC’s Executive Committee.[12] The Aromatherapy Organisations Council (AOC) acts as an umbrella organisation for 12 professional aromatherapy associations.[13]

**Essential Oils and Aromatherapy**

Aromatherapy involves the therapeutic use of essential plant oils and has existed for 5000 years.[14] Essential oils are pivotal materials in aromatherapy. Essential oils are products made through distillation of either water or steam, the mechanical processing of citrus rinds, or the dry distillation of natural materials.[15] The aromatic plants are usually collected on their natural stands and used as spices in traditional food and cosmetics, in phototherapy and aromatherapy.[16] Essential oils are volatile, natural, complex compounds characterized by a strong odour and are formed by aromatic plants as secondary metabolites. They are usually obtained by steam or hydro-distillation first developed in the middle ages by Arabs. Known for their antiseptic, i.e. bactericidal, virucidal and fungicidal, and medicinal properties and their fragrance. They are used in embalment, preservation of foods and as antimicrobial, analgesic, sedative, anti-inflammatory, spasmylytic and locally anaesthetic remedies. Essential oils are extracted from various aromatic plants generally localized in temperate to warm countries like Mediterranean and tropical countries where they represent an important part of the traditional pharmacopoeia. They are liquid, volatile, limpid and rarely coloured, lipid soluble and soluble in organic solvents with a generally lower density than that of water. They can be synthesized by all plant organs, i.e. buds, flowers, leaves, stems, twigs, seeds, fruits, roots, wood or bark, and are stored in secretory cells, cavities, canals, epidermic cells or glandular trichomes. Essential oils are use for aches, pains and injuries which encompass more than 60 kinds of herbal oils.[17,18,19]

**Carrier (Base) Oils**

Aromatherapy massage involves the use of essential oils in combination with a carrier oil, to manipulate the soft tissues of the body. [20] Essential oils are used after dilution in carrier (or base) oils. These are the vegetable oils which mix with the essential oil but do not mask its aroma. They include almond oil, avocado oil evening primrose oil which contains a high proportion of linolenic acid, jojoba, soya oil, wheat germ oil and apricot kernel oils. Also widely used sweet almond oil which itself is mildly fragrant and the appropriate viscosity. Used in aromatherapy massage these base oils beneficial because of their high vitamin E and A content. They moisten skin and can be assistance a variety of mild skin condition where the skin is crack and dry.[21]
Application of Essential Oils

External application of aromatherapy involves massage, essential oils mixed with a carrier oil, via a compress, in bath, lotions, or dressings. Vaporization and Inhalation (taking into the body by breathing) both are the part of application. Essential oil may be ingredient of gargles and mouthwashes. The internal use of essential oils is very rare.\[22\] External application of the oil is most common and widely use method as compare to the internal application.

Clinical Aromatherapy

Clinical aromatherapy is the use of essential oils for expected outcomes that are measurable and is a therapy that is used as part of nursing care in Switzerland, Germany, Australia, Canada, the United Kingdom, and, more recently, the United States. Aromatherapy can also alter perceptions of chronic pain, help maintain skin integrity, and is useful in stress management. Methods of application vary depending on the site of infection and the psychological profile of the patient and can include inhalation, compresses, baths, massage, and the “m” technique\[23\].

The Aromatogram

Just like synthetic antibiotics, many essential oils are effective against particular pathogens. The skill lies in knowing which essential oil to use for which infection. Conventional medicine regularly takes wound or throat swabs, or urine or blood samples to cultivate and identify a pathogen. The French scientist R. M. Gattefosse used exactly the same principle as used in that process, which is called an antibiogram, and renamed it an aromatogram. The only difference in the procedure is that with an aromatogram an essential oil is added to the Petridish instead of an antibiotic.\[24\]

Figure No.1. The Potential Pathways of Action For Plant Essential Oils In A Clinical Aromatherapy Context.\[25\]
Pharmacological Actions

Aromatherapy and Aromatology can bring real complementary help to many patients, far beyond the anti-stress massage approach. Aromatherapy can provide a useful complementary medical service both in healthcare settings and in private practice, e.g. in cancer care, dementia, and depression. There are also many indications for the useful and successful application of essential oils, especially for men, such as stress, sleep disorders, back pain, urinary tract infections, rectal abscess, and sexual health.[24] Balacs stresses the need for extensive investigations into ‘oil pharmacology’, to avoid exposing clients to unnecessary risk.[27] Aromatherapy can be absorbed through application to the skin or through the respiratory system. There is an assumption that the aroma and the constituents in the essential oil enter the bloodstream and combine to result in a psychological and physiological response.[28] Trevelyan claims that aromatherapy enhances well-being, relieves stress and helps in the rejuvenation and regeneration of the human body and it also show the alleviation in the symptoms of physical and psychological stress but age and body mass index factors affect aromatherapy performance when person have a heavy workload.[29,30] Waldman, stated that ‘the release of endorphin may increase the pain threshold’ and he agree on the analgesic effect of the aromatherapy.[31] The essential oil extracted from Cinnamomum cassia Presl (CC-EO) and its major component, cinnam-aldehyde, possess potent anti-tyrosinase and anti-melanogenic activities that are coupled with antioxidant properties. Therefore, CC-EO may be a good source of skin-whitening agents and may have potential as an antioxidant in the future development of complementary and alternative medicine-based aromatherapy.[32] The
inhaled vapour of peppermint or ginger essential oils not only reduced the incidence and severity of nausea and vomiting but also decreased antiemetic requirements and consequently improved patient satisfaction. However, a definitive conclusion could not be drawn due to methodological flaws.\[33\] When a randomized trial of self-massage and skin care using a cream containing aromatherapy oils versus self-massage and skin care using a cream without aromatherapy oils on objective limb volume measurements and symptom relief as measured by the Measure Yourself Medical Outcome Profile 2 (MYMOP2) in a sample of people with lymph-oedema it shows that self-massage and skin care significantly improved patient-identified symptom relief and wellbeing. It also slightly, but not significantly reduced limb volume. However, aromatherapy oils, carefully chosen on the basis that they should benefit this group, did not appear to influence any improvement in these measures.\[34\] Other pharmacological actions of aromatherapy were given as follow.

**Table No. 2. Other Pharmacological Actions of Aromatherapy.**

<table>
<thead>
<tr>
<th>Aromatherapy</th>
<th>Disease / condition in which aromatherapy applied.</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aromatherapy</td>
<td>Effective for hypertension.</td>
<td>[35]</td>
</tr>
<tr>
<td></td>
<td>Effective in lowering systolic blood pressure and sympathetic nerve system activity.</td>
<td>[36]</td>
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<tr>
<td></td>
<td>Gentle and non invasive which may explain its popularity among HIV infected families. This natural therapy helps to induce relaxation and encourage self healing when use alone or to complement the orthodox treatment.</td>
<td>[37]</td>
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<tr>
<td></td>
<td>Helps to ameliorate the immunologic state of human body.</td>
<td>[38]</td>
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<tr>
<td></td>
<td>Well tolerated by people with Idiopathic Environmental Intolerance (IEI) (Did not suggest any specific effects on IEI condition.)</td>
<td>[39]</td>
</tr>
<tr>
<td></td>
<td>Useful in both anxiety and depression scales with the postpartum woman with minimal risk.</td>
<td>[40]</td>
</tr>
<tr>
<td></td>
<td>Improved levels of mood, relaxation, anxiety and depression in the short term with the medium-term effects being less marked.</td>
<td>[41]</td>
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<tr>
<td></td>
<td>In an adult outpatient of cancer Reflexology was found to be no less effective than Aromatherapy massage</td>
<td>[42]</td>
</tr>
<tr>
<td></td>
<td>Help to relieve constipation and it improves quality of life in physical and support domains of the aroma massage group in patients with advanced cancer.</td>
<td>[43]</td>
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<tr>
<td></td>
<td>Higher effective in reducing psychological symptoms than massage.</td>
<td>[44]</td>
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<tr>
<td></td>
<td>Complementary and alternative therapy for patients with depression and secondary depressive symptoms arising from various types of chronic medical conditions.</td>
<td>[45]</td>
</tr>
<tr>
<td></td>
<td>“comforting” or “relaxing and enjoyable” in an acute ward and a Mental Health Centre clients.</td>
<td>[46]</td>
</tr>
<tr>
<td></td>
<td>An efficacious non-pharmacological therapy for dementia.</td>
<td>[47]</td>
</tr>
<tr>
<td>Aromatherapy, foot-soak, and reflexology</td>
<td>Effective for alleviating fatigue in terminally ill cancer patients.</td>
<td>[57]</td>
</tr>
<tr>
<td>Swedish massage and aromatherapy massage</td>
<td>Immediate anxiety relief in cancer patients.</td>
<td>[58]</td>
</tr>
<tr>
<td>Aroma hand massage</td>
<td>A positive effect on pain and depression in hospice patients of terminal cancer</td>
<td>[59]</td>
</tr>
<tr>
<td>Aromatherapy with light Thai massage</td>
<td>Increase the number of lymphocytes and can help to reduce the severity of common symptoms in colorectal cancer patients</td>
<td>[60]</td>
</tr>
<tr>
<td>Aromatherapy and massage</td>
<td>Effective in Adolescents with mental health difficulties.</td>
<td>[41]</td>
</tr>
<tr>
<td></td>
<td>Significantly greater improvement in reduction of antenatal anxiety.</td>
<td>[61]</td>
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<tr>
<td></td>
<td>Effective treatment in menstrual pain (Verified that positive effects derived from the aromatherapy, the massage, or both.)</td>
<td>[62]</td>
</tr>
<tr>
<td></td>
<td>An immediate effect in reducing anxiety, but that this may not be sustained over time. (Wilkinson comment)</td>
<td>[20]</td>
</tr>
<tr>
<td>Lavender oil and</td>
<td>Effective on emotions and aggressive behaviour of elderly with dementia of the Alzheimer's type.</td>
<td>[63]</td>
</tr>
<tr>
<td></td>
<td>Effective as an adjunctive therapy in alleviating agitated behaviours in dementia. Patient population particularly vulnerable to side effects of psychotropic medications.</td>
<td>[64]</td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
<td>Reference</td>
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<tr>
<td>Aromatherapy</td>
<td>Reduced serum cortisol and improved CFVR in healthy men. (Have beneficial acute effects on coronary circulation.)</td>
<td>[65]</td>
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<tr>
<td></td>
<td>Can be used to reduce the demand for opioids in the immediate postoperative period. Further studies are required to assess the effect of this therapy on clinically meaningful outcomes.</td>
<td>[66]</td>
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<tr>
<td></td>
<td>Can significantly decrease heart rates after an acute stress response and signal a shift from the sympathetic nervous control from the parasympathetic system in Horses.</td>
<td>[67]</td>
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<tr>
<td></td>
<td>Decreases the number of required analgesics following tonsillectomy in paediatric patients.</td>
<td>[68]</td>
</tr>
<tr>
<td></td>
<td>Turkish Students shows effectiveness in reducing dysmenorrhoea and also the effect of aromatherapy massage on pain was higher than that of placebo massage.</td>
<td>[69]</td>
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<tr>
<td></td>
<td>A child with autism shown has no beneficial effect on the sleep patterns of children.</td>
<td>[70]</td>
</tr>
<tr>
<td></td>
<td>Women receiving aromatherapy experienced a significant improvement in sleep quality after intervention and lavender inhalation may have a persistent short-term effect on heart rate variability with an increase in parasympathetic modulation.</td>
<td>[71]</td>
</tr>
<tr>
<td></td>
<td>Effective technique to reduce pain following needle insertion into a fistula in haemodialysis patients.</td>
<td>[72]</td>
</tr>
<tr>
<td></td>
<td>May offer a practical alternative treatment for travel-induced excitement in this species. (In the form of diffused lavender odour)</td>
<td>[73]</td>
</tr>
<tr>
<td>Peppermint aromatherapy or Aromatherapy</td>
<td>Help to initiated controlled breathing without delay as an alternative to prescribed antiemetics and provide relief in postoperative nausea and/or vomiting.</td>
<td>[75,74]</td>
</tr>
<tr>
<td>Aromatherapy massage of the abdomen</td>
<td>Decreases menstrual pain and the level of anxiety.</td>
<td>[76]</td>
</tr>
<tr>
<td></td>
<td>Effective in Constipation and stress (Contribute to the reduction of use of stool softeners, suppositories, or enemas.)</td>
<td>[77]</td>
</tr>
<tr>
<td>Aroma inhalation</td>
<td>A very effective stress management method for students.</td>
<td>[78]</td>
</tr>
<tr>
<td></td>
<td>Effective on Reduction of anxiety level</td>
<td>[79]</td>
</tr>
<tr>
<td>Aromasticks</td>
<td>Similar in design to the Vicks® Vapour Inhaler®. Helping patients manage anxiety, nausea and sleep disturbance. (The aromastick may be directly proportional to the frequency of their use.)</td>
<td>[80]</td>
</tr>
<tr>
<td>Aromatherapy massage with music</td>
<td>It has potential to increase the job satisfaction of the staff and decrease the number of sick leave. (Reduced nurse’s anxiety levels.)</td>
<td>[81]</td>
</tr>
<tr>
<td>Aromatherapy and massage intrapartum service</td>
<td>Appears to have a positive impact on reducing rates of all types of intrapartum anaesthesia.</td>
<td>[82]</td>
</tr>
<tr>
<td>Aromatherapy acupressure</td>
<td>Exerts positive effects on hemiplegic shoulder pain, compared to acupressure alone, in stroke patients.</td>
<td>[83]</td>
</tr>
<tr>
<td>Aromatherapy, sleep, music and touch therapies</td>
<td>it is beneficial to patients of Fibromyalgia which is a chronic disease characterized by sensitive points on the body that manifest common musculoskeletal pains, fatigue, and low pain threshold.</td>
<td>[84]</td>
</tr>
</tbody>
</table>
Safety Issues With Aromatherapy

Potential hazards from essential oils exist due to their chemical constituents. High proportions of aldehydes and phenols may cause problems with skin irritation. Photo-toxicity may be a problem following the application of citrus oils which have been expressed by the peel up to 1 hour after application. This is because the presence of psoralens or furanocoumarins. Ketones, while being excellent wound-healing agents, can risk neurotoxicity to sensitive patients such as epileptics, pregnant women, and babies. Other oil constituents are thought to be potentially carcinogenic such as safrole in sassafras oil or beta-asarone in calamus oil which has been the result of animal studies.\(^\text{[85]}\) These oils tend not to be used in aromatherapy, although the risk to humans is thought to be low. One area which has been remarked upon in the literature is the possible contact allergic response experienced after exposure to essential oils. Four patients were reported to have experienced allergic contact eczema from exposure to tea tree oil while other papers report one case of allergic airborne contact dermatitis and three cases of contact allergy to essential oils.\(^\text{[86,87,88]}\)

The formation of secondary air pollutants, formaldehyde and secondary organic aerosols (SOAs) in aromatherapy workplaces in which aromatic and volatile organic compounds were the dominant handling materials. To control the exposure of secondary air pollutants we have to provide various control strategies which involve but not limited to the improving ventilation systems, indoor decorations, or materials in aromatherapy workplaces.\(^\text{[89]}\)

In the implication of aromatherapy, the use of essential oils and approaches to safety often appear to be overlooked. The P. Fowler, M. wall suggest that, "Little attention has been given to this matter within the context of The Control Of Substances Hazardous to Health (COSHH) and The Chemical (Hazard Information and Packaging for Supply) (CHIPS) regulations, and that this could place employers and therapists in a vulnerable position if not demonstrating appropriate safety risk assessment".\(^\text{[90]}\)

Adverse Effects of Aromatherapy

Aromatherapy probably reflects its Western origin whilst the other therapies referred to have more in common in Eastern philosophy of healing, whose concepts and values may not be so familiar or acceptable to some.\(^\text{[91]}\) Aromatherapy does not include the environmental use of synthetic fragrances, which are man-made and are a recent development, There is very little research on the effects of synthetics on humans, and the extended use of synthetics has been linked to an increase in asthma.\(^\text{[92]}\)
Aromatherapy has the potential to cause adverse effects some of which are serious. Their frequency remains unknown. Lack of sufficiently convincing evidence regarding the effectiveness of aromatherapy combined with its potential to cause adverse affects questions the usefulness of this modality in any condition. Adverse effects ranged from mild to severe and included one fatality. The most common adverse effect was dermatitis. Lavender, peppermint, tea tree oil and ylang-ylang were the most common essential oils responsible for adverse effects. [93].

The prevalence of hand dermatitis in massage therapists is high. Significant independent risk factors include use of aromatherapy products in massage oils, creams, or lotions and history of atopic dermatitis. [94] When Yoo KM carried out Statistical analysis of aromatherapy preferences and complications for 3000 otolaryngology patients it was found that, Among the 3000 patients, 1.67% have experienced some form of complication induced by essential oils used in aromatherapy, including skin eruptions, respiratory distress and other symptoms. Furthermore, 0.93% of all patients refused aromatherapy because they found the smell unpleasant or due to individual preference. [95]

CONCLUSION
In past few decades, aromatherapy has attracted much attention because of several reasons including non invasive complementary and alternative medicine which is truly useful for mankind. Aromatherapy is used worldwide including Europe, America and India etc. as it is not only helpful in improve physical symptoms but also with the psychological symptoms and able to serve the quality of mental peace in human. As we have discussed above various techniques which are available to support and develop the aromatherapy and those showing good impact on human health. Essential oil acts as backbone for the aromatherapy. To support the research in near future and to highlight the other side of coin that is Aromatherapist and customers are likely to be at risk of exposure to harmful formaldehyde and ultrafine secondary organic aerosols which review outlines pharmacological actions, safety issues and adverse effects also. However, large randomized controlled trials of the aromatherapy should take place to define their efficacy also. Future studies may reveal the benefits of different contents for many more ailments with aromatherapy.
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