AROMA THERAPY IN MAJOR DEPRESSIVE DISORDERS (MDD):
AN ASSESSMENT

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ABSTRACT

Major depressive disorder (MDD), which is called as recurrent depressive disorder, clinical is a mental condition that leads to a feeling of sadness and low self-esteem in an individual. Approximately 10% of the population suffering from depressive disorder at present. Treatment of depression by western psychiatry has several shortcomings viewed from the eastern point of view. Most medications for major depression have strong side effects. No effective treatment exists for people who are just feeling temporarily low. Patients need easy usable, less time consuming, compatible formulation so Aromatherapy is better option. In this, aromatic/essential oil is used that can easily administrate through inhalation and skin, and easily can be used by patient. The aim of this review is to explore the aromatherapy effect on major depressive disorders through various researches carried out on aromatherapy including its description and pharmacological activities.

KEYWORDS: Depression, Aromatherapy, Medicated aromatic oils, Pharmacological studies.

INTRODUCTION

Aromatherapy is the practice of using the natural oils extracted from flowers, bark, stems, leaves, roots or other parts of a plant to enhance psychological and physical well-being. The inhaled aroma from these "essential" oils is widely believed to stimulate brain function to promote emotional and physical health and wellbeing.\(^{[1]}\) So it is a better method of treatment...
for depression. Although, Depression is a serious medical Condition that affects, thoughts, moods, feelings, behaviour, and physical health, there are different type of depressions and the most common is MDD. MDD is also known as clinical depression, major depression, unipolar depression, or unipolar disorder; or as recurrent depression in the case of repeated episodes. It is “long-lasting” and get in the way of a person’s ability to work, study, sleep and eat.\textsuperscript{[2]}

Typically, patients are treated with antidepressant medication and, in many cases, also receive psychotherapy or counselling, although the effectiveness of medication for mild or moderate cases is questionable,\textsuperscript{[3,4,5]} while the balance of research evidence is supportive of aromatherapy as an effective treatment for MDD. A form of alternative medicine, aromatherapy is gaining momentum. It is used for a variety of applications, including pain relief, mood enhancement and increased cognitive function. Essential oils can be inhaled or applied to the skin when diluted, often through massage. Essential oils can easily absorbed through the skin, where they travel through the bloodstream and can promote whole-body healing.\textsuperscript{[1]} There are a wide number of essential oils available, which shows antidepressant effect.

\textbf{HISTORY}

Proponents of aromatherapy report that aromatic or essential oils have been used for thousands of years as stimulants or sedatives of the nervous system and as treatments for a wide range of other disorders. They link it historically to the use of infused oils and unguents in the Bible and ancient Egypt,\textsuperscript{[6]} remedies used throughout the Middle Ages and the Renaissance, and the burning of aromatic plants in various religious rites. The current applications of aromatherapy did not come about until the early 20th century when the French chemist and perfumer Rene Gattefosse coined the term “Aromatherapy” and published a book of that name in 1937. Gattefosse proposed the use of aromatherapy to treat diseases in virtually every organ system, citing mostly anecdotal and case-based evidence.\textsuperscript{[7]}

Although Gattefosse and his colleagues in France, Italy, and Germany studied the effects of Aromatherapy for some 30 years, its use went out of fashion mid-century and was rediscovered by another Frenchman, a physician, Jean Valnet, in the latter part of the century. Valnet published his book The Practice of Aromatherapy in 1982 at which time the practice became more well known in Britain and the United States.\textsuperscript{[8]}
Through the 1980s and 1990s, as patients in Western countries became increasingly interested in CAM treatments, aromatherapy developed a following that continues to this day. The research that began to appear in the 1990s was most often conducted by nurses, who tended to be the primary practitioners of aromatherapy in the United States and United Kingdom (although it is dispensed by medical doctors in France and Germany). Aromatherapists now publish their own journal, the International Journal of Essential Oil Therapeutics. Also, many studies regarding the effects of odor on the brain and other systems in animals and healthy humans have been published in the context of odor psychology and neurobiology. In the traditional British aromatherapy, the work of Marguerite Maury for utilizing essential oils on dermal application through massage oil is practiced.  

**DEPRESSION**

Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest. Also called major depressive disorder or clinical depression, it affects how you feel, think and behave and can lead to a variety of emotional and physical problems.  

Sign and Symptoms: Depression varies from person to person, but there are some common signs and symptoms. Those are as follows.

- Loss of interest, Persistent sad, Anxious, or hopeless mood.
- Nervousness, feeling of guilt, fear, or worthlessness
- Significant weight loss or gain due to appetite change, overtiredness
- Unable to sleep or too much sleep, unexplained crying spells
- Difficulty concentrating, remembering and making decisions
- Thoughts of death or suicide.  

**Cause of depression:** The causes of depression are not fully understood and may not be down to a single source. Depression is likely to be caused by a complex combination of factors:

Genetic: First-degree relatives of depressed patients are themselves at higher risk, and occurrence of depression between identical twins is high. Genetic factors may influence individual responses to events that trigger depression.  

Biological - Depression is related to the chemical imbalance in the brain with low level of norepinephrine and serotonin neurotransmitters, membrane channels do not open(B), in normal condition these are opened(A) (as shown in fig-1); as a result, nerve messages are not
passed on, and areas of the brain that affect emotions may not receive stimulation. This process may result in depression.\textsuperscript{[14]}

Environmental: Unfavourable environment can cause depression and Seasonal affective disorder (SAD) is a form of depression in which depressive episodes come on in the autumn or winter, and resolve in spring.\textsuperscript{[15]}

Psychological and social/psychosocial: Unemployment, divorce, poverty, although these events lead to lasting, severe depression usually only in people predisposed to it.

**Areas of the Brain Affected by Depression**

Some areas of the brain are underactive in depression, while other areas are over-active. These changes contribute to the emotional and physical symptoms of depression.\textsuperscript{[14]}

Thalamus: Controls a person’s degree of arousal and awareness, including sleep and hyper vigilance. It stimulates the amygdala. The thalamus is highly active in people with depression. \textsuperscript{[14]}

Hypothalamus: Produces the neurotransmitters that are involved in mood and emotional expressions. Serotonin pathways in the hypothalamus help regulate mood and appetite while norepinephrine pathways help regulate emotions and energy level.\textsuperscript{[14]}

Amygdala: Responsible for negative feelings; it is active in people with depression.\textsuperscript{[14]}

Anterior Cingulate Cortex: Helps associate smells and sights with pleasant memories, It also has a role in emotional response to pain and the regulation of anger. This area is highly active in people with depression.\textsuperscript{[14]}
Prefrontal Cortex: Involved in complex thinking, personality, and social behavior. Norepinephrine and serotonin are two neurotransmitters that affect mood in this part of the brain. Norepinephrine pathways impact attention span, concentration, memory, and information processing. There is decreased activity in the prefrontal cortex in depression.[14]

**Treatment:** The three most common treatments for depression are Medication, Psychotherapy and Electroconvulsive therapy.[16]

**TREATMENT THROUGH AROMATHERAPY**
Aromatherapy is currently used worldwide in the management of depression, anxiety, some cognitive disorders, insomnia and stress-related disorders. Although essential oils have been used, reputedly effectively, for centuries as a traditional medicine, there is very little verified science behind this use. The pharmacology of the essential oils and/or their single chemical constituents, therefore, remains largely undiscovered. However, accumulating evidence that inhaled or dermally applied essential oils enter the blood stream and, in relevant molecular, cellular or animal models, exert measurable psychological effects, indicates that the effects are primarily pharmacological.[17]

Essential oils, which are the main product used in aromatherapy, are extracted from plant materials by applying steam to force out their essences into highly concentrated liquids. Essential oils are chemically very complex substance. Dr. Kurt Schnaubelt (aromatherapists), summarizes the main chemical functional group of the essential oils in his book “Advanced Aromatherapy”,[18] Essential oils have chemical components such as monoterpene, sesquiterpene, esters, aldehydes, alcohols, etc.

The Pharmacology behind the actions of many essential oils remains undefined and it is certain to be a long and complex path to full medicinal and pharmacological understanding, paralleling that of medical herbalism and unlike any conventional medicinal substance. Essential oils can be absorbed into the body in three ways: (i) through the olfactory and respiratory systems (vapour inhalation); (ii) transdermally via lotions or compresses, often involving massage and during bathing; or (iii) orally, via ingestion of essential oils in capsules or as additives to food or medical preparations, for example. The latter option belongs more to the realm of herbal medicine than aromatherapy.

The effects of an aroma can be instantaneous and include both direct and indirect psychological effects even thinking about a smell may have a similar effect to the smell itself.
However, accumulating evidence that inhaled or dermally applied essential oils enter the bloodstream and, in relevant molecular, cellular or animal models, exert measurable psychological effects, indicates that the effects are primarily pharmacological. This conclusion is supported by increasingly reported benefits of aromatherapy using specific essential oils in the management of chronic pain, depression, anxiety and some cognitive disorders, as well as insomnia and stress related disorders.\[19\]

**Table. I Subjective effects and chemical constituents of aromatic essential oils relevant to cerebral function**[17]

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Essential oil with Latin Name</th>
<th>Psychological effects</th>
<th>Main Chemical Constituents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bergamot (Citrus bergamia)</td>
<td>Antidepressant, calming, relaxing, sedative, Anxiolytic [20,21,22]</td>
<td>Limonene 38%, linalyl acetate 28%, linalool 8%, gamma-terpinene 8%, beta-pinene 7%</td>
</tr>
<tr>
<td>2.</td>
<td>Chamomile-Roman (Chamomelium nobilis)</td>
<td>Relaxing, sedative [23,24,25]</td>
<td>Isobutyl angelate 36%, 2-methylbutyl angelate 15%, methyl angelate 9%, Linalyl acetate 49%, linalool 24%, germacrene D 3%, alpha-terpineol 3%, geranyl acetate 3%</td>
</tr>
<tr>
<td>3.</td>
<td>Geranium (Pelargonium graveolens)</td>
<td>Antidepressant, mood uplifting [21,23,26]</td>
<td>Citronellol 21%, geraniol 17%, linalool 13%, citronellyl formate 8%, geranyl formate 8%</td>
</tr>
<tr>
<td>4.</td>
<td>Jasmine (Jasminum grandiflorum)</td>
<td>Antidepressant, relaxing, stimulating [27]</td>
<td>Benzyl acetate 22%, benzyl benzoate 15%, phytol acetate 10%, linalool 6%, methyl cis-jasmonate 3%</td>
</tr>
<tr>
<td>5.</td>
<td>Juniper (Juniperus communis)</td>
<td>mentally clearing [28]</td>
<td>Alpha-pinene 33%, myrcene 11%, beta-farnesene 11%, gamma-elemene 3%, beta-caryophyllene 3%</td>
</tr>
<tr>
<td>6.</td>
<td>Lavender (Lavandula angustifolia)</td>
<td>antidepressant, anticonvulsant, anxiolytic, calming, hypnotic, relaxing, sedative [29-35]</td>
<td>Linalyl acetate 40%, linalool 32%, (Z)-beta-ocimene 7%, beta-caryophyllene 5%, lavandulyl acetate 4%</td>
</tr>
<tr>
<td>7.</td>
<td>Lemon (Citrus deliciosa)</td>
<td>Sedative, mood uplifting [17]</td>
<td>Limonene 71%, gamma-terpinene 19%, alpha-pinene 2%, alpha-sinensal 0.2%, octanal 0.2%</td>
</tr>
<tr>
<td>8.</td>
<td>Marjoram (Origanum majorana)</td>
<td>Anxiolytic, comforting [36,37]</td>
<td>Terpinen-1-ol 15%, Sabinene 8%, mycene 5%, gammasedating terpine 17%, linalool 5%</td>
</tr>
<tr>
<td>9.</td>
<td>Melissa (Melissa officinalis)</td>
<td>Anxiolytic, calming, hypnotic, sedative, stimulating, mood uplifting [38,39]</td>
<td>Geraniol 40%, neral 35%, 6-methyl-5-heptan-2-ol 3%, beta-caryophyllene 2%, citronellal 2%</td>
</tr>
<tr>
<td>10.</td>
<td>Neroli (Neroli bigarade)</td>
<td>Sedative, mood uplifting [40]</td>
<td>Linalool 37%, limonene 26%, beta-pinene 12%, geraniol 4%, linalyl-acetate 3%</td>
</tr>
<tr>
<td>11.</td>
<td>Patchouli (Pogostemon cablin)</td>
<td>Calming, sedative, mood uplifting [41]</td>
<td>Patchouli alcohol 33%, alpha-patchoulene 22%, betacaryophyllene 20%, betapatch-</td>
</tr>
</tbody>
</table>
PHARMACOLOGICAL STUDIES

Pharmacological studies, combined with phytochemical analysis, have identified specific neuropharmacological actions for a variety of essential oils and their individual monoterpenoid (and other essential oil) constituents that relate to clinical monoterpene effects. Individual constituents reach the blood, cross the blood-brain barrier and enter the CNS following inhalation, dermal application, intraperitoneal or subcutaneous injection, and oral administration.\(^{44,45,46}\) In vitro and in vivo studies in animals confirm that particular essential oils have anxiolytic, sedative and anticonvulsant actions or CNS-stimulant effects that are relevant to the respective treatment of symptoms such as anxiety, agitation, sleeplessness, epilepsy, apathy, lethargy, excessive day time sleepiness and catatonia, which are present in many psychiatric disorders.

Clinical Evidence

We have some evidence from the limited number of clinical trials that have been published of ‘psychoaromatherapy in relation to psychiatric disorders’ together with evidence from mechanistic, neuropharmacological studies of the effects of essential oils in relevant in vitro and in vivo models.

Table-II: The main essential oils used in aromatherapy and their constituents that show pharmacological activities.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Essential oil/chemical constituent</th>
<th>Main CNS effect</th>
<th>In vitro &amp; in vivo Pharmacology</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>French Lavender ((Lavendula officinalis)) [linalyl acetate 45%, ((R)-(−)-linalool 38%, ((Z))-(β)-cis-octimene 10%]</td>
<td>a) Anti-convulsant</td>
<td>a) Inhalation of oil blocked pentetrazol-, nicotine- and electroshock- but not strychnine induced convulsions in mice. A dose of 33mg decreased motility of normal mice and reversed caffeine-induced over-agitation in mice; serum concentration of linalool correlated with effects on motility. b) Sedative/anti-convulsant</td>
<td>[47,48]</td>
</tr>
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<td></td>
<td>Rose (Egypt) ((Rosa damascene))</td>
<td>Antidepressant, relaxing, sedative(^{42})</td>
<td>2-Phenyl ethyl alcohol 38%, geraniol 16%, citronellol soothing, uplifting 13%, farnesol 6%, nerol 4%</td>
<td></td>
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<tr>
<td>12.</td>
<td>Rosemary ((Rosmarinus officinalis))</td>
<td>Analgesic, anxiolytic, mentally stimulating(^{43})</td>
<td>1,8-Cineole 51%, camphor 11%, alpha-pinene 10%, (Tunisia, cineole) clarifying borneol 8%, alpha-terpineol 4%</td>
<td></td>
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<td></td>
<td>Acorus gramineus, Solander (Araceae) [α- and β-asarone]</td>
<td>Anticonvulsant, neuroprotective, sedative</td>
<td>Inhibited the binding of an NMDA receptor-ion channel blocker [3H]-dizocilpine, but not a ligand selective for the glycine binding site. Rhizome essential oil 0.3 mg/mL inhibited glutamate- (but not AMPA-) induced excitotoxicity in primary cultured rat cortical neurons. Rhizome essential oil inhalation in mice delayed appearance of pentylentetrazole induced convulsions, prolonged pentobarbital-induced sleeping time and inhibited activity of GABA transaminase</td>
<td>[54,55]</td>
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<tr>
<td>2.</td>
<td>Artemisia annua L. (Asteraceae) [camphor 22.7%, 1,8-cineole 20.4% p-cymene 12.2%]</td>
<td>Sedative</td>
<td>470 mg/kg (IP) produced CNS depressant activity in rats</td>
<td>[56]</td>
</tr>
<tr>
<td>3.</td>
<td>Benzyl alcohol [in e.g. <em>Tilia cordata</em>]</td>
<td>CNS depressant</td>
<td>Decreased motility of mice following inhalation. Inhalation of its acetate produced no effect on pentobarbital-induced sleeping time in mice</td>
<td>[47,57]</td>
</tr>
<tr>
<td>4.</td>
<td>Cedrol [in cypresses and pines, e.g. <em>Juniperus virginiana</em> L.]</td>
<td>Sedative</td>
<td>Decreased spontaneous motor activity in normal, caffeine-treated and hypertensive rats and mice, and prolonged pentobarbital-induced sleeping time in normal and anosmic rats (408 μg/mL in air 1.0 L/min)</td>
<td>[58]</td>
</tr>
<tr>
<td>5.</td>
<td>1,8-Cineole [in e.g. <em>Rosmarinus officinalis</em>]</td>
<td>Sedative</td>
<td>30 mg/kg (IP) decreased motor activity in mice</td>
<td>[59]</td>
</tr>
<tr>
<td>6.</td>
<td>Citral [in e.g. <em>Melissa officinalis</em>]</td>
<td>Sedative, antidepressant</td>
<td>Increased duration of barbiturate-induced sleeping time and had motor relaxant effects (100–200 mg/kg IP) in rats. 0.1 mL/h significantly reduced total immobility time and potentiated the imipramine-induced</td>
<td>[60,61]</td>
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<td></td>
<td>hippocampal slice preparation following application of essential oil (IC50 65 μg/mL); effects comparable to the GABAA agonist muscimol.</td>
<td>c)Neuroprotective</td>
<td>c)Extract of flowers protected against glutamate-induced neurotoxicity in rats (100 mg/L)</td>
<td>[50]</td>
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<td></td>
<td>d)Spasmolytic</td>
<td>d)Spasmolytic action on guinea-pig ileum smooth muscle (postsynaptic, not atropine like)</td>
<td>[51]</td>
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<td></td>
<td>e)Anaesthetic</td>
<td>e)Concentrations of 0.01–10 μg/mL produced dose-dependent local anaesthetic activity 83,84 in the rabbit conjunctival reflex test. Restorative effects on stress-induced immunosuppression</td>
<td>[52,53]</td>
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<td><strong>reduction of total immobility time in a forced swimming test in rats</strong></td>
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<td>8.</td>
<td>Citronellol [in e.g. <em>Rosa centifolia</em>]</td>
<td>Anticonflict 400–800 mg/kg (IP) possessed anticonflict effect similar to diazepam in Geller and Vogel tests in mice</td>
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<td>9.</td>
<td><em>Citrus aurantium</em> L., neroli (Rutaceae) [linalool 37.5%, limonene 16.6%, β - 11.8%]</td>
<td>Anticonvulsant, anxiolytic, sedative 0.5 g/kg peel essential oil increased latency period of tonic seizures in pentylenetetrazole- and electroshock-induced convulsions in mice and 1 g/kg increased pinene the sleeping time induced by pentobarbital. Anxiolytic effect in the elevated plus maze test. Inhalation of Subsp. <em>aurantium</em> reduced motility of mice by 65%. Inhalation decreased motility of normal but not caffeine-injected mice</td>
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<tr>
<td>10.</td>
<td><em>Citrus bergamia</em> Risso, bergamot (Rutaceae) [limonene 38%, linalyl acetate 28%, linalool 8%]</td>
<td>CNS depressant 10–40 mg/kg (IP) nonvolatile extract of essential oil reduced spontaneous activity, potentiated sodium pentobarbital-induced sleeping time and protected against pentylenetetrazole-induced convulsions in mice</td>
<td></td>
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<tr>
<td>11.</td>
<td><em>Eugenia caryophyllata</em>, clove (Myrtaceae) [eugenol 77%, β-caryophyllene 10%]</td>
<td>Anticonvulsant 0.050–0.1 mL/kg (IP) suppressed tonic electroshock-induced convulsions and mortality in mice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td><em>Laurus nobilis</em> Linn. (Lauraceae) [cineol, eugenol, sabinene, 4-terpineol]</td>
<td>Anticonvulsant, sedative Protected mice against electroshock- and pentylenetetrazole-induced convulsions and at 0.75–1 mL/kg (IP) produced sedation and motor impairment in mice, though LD50 value was 1.45 (1.22–1.71) mL/kg</td>
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<tr>
<td>13.</td>
<td><em>Matricaria chamomilla</em> L., Roman chamomile Asteraceae</td>
<td>Anxiolytic Inhalation decreased restriction stress-induced increases in plasma ACTH level in normal and ovariectomised rats in the same manner as diazepam. Effect was blocked by pretreatment with the benzodiazepine receptor antagonist flumazenil. 200–800 mg/kg (SC) exhibited no anticonflict effects in the Vogel or Geller conflict tests in mice</td>
<td></td>
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<tr>
<td>14.</td>
<td><em>Matricaria recutita</em> L., German chamomile (Asteraceae) [farnesene 27%, chamazulene 17%, (−)-α-bisabolol 14%, (−)-α-bisabolol-oxides A and B 11%]</td>
<td>Anticonvulsant Extracts of chamomile reduced the latency in the onset of picrotoxin-induced convulsions and decreased mortality rate. Flavonoids present in herb (e.g. apigenin) demonstrated a low affinity for the benzodiazepine receptor, with no effects at muscarinic or α1-adrenergic receptors, or the GABA binding site of the GABAA channel</td>
<td></td>
<td></td>
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<tr>
<td>15.</td>
<td><em>Melissa officinalis</em>, lemon balm</td>
<td>CNS depressant, Suppression of the population spike amplitude in the CA1 region of rat</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References:** [62,63], [64], [65], [66], [67], [68], [69,70], [71,72]
| 16. | Mentha longifolia, mint (Labiatae) [rotundifolone 33.2%, diosphenol 47.7%] | Sedative | CNS depressant effect (100–400 mg/kg) in spontaneous activity and curiosity test, potentiation of pentobarbital-induced sleep (50 mg/kg) in mice and rats | [73] |
| 17. | Passiflora incarnata L., [matol, 2-phenylethanol] | Sedative | Decreased motility of caffeine-induced over-agitated mice but not normal mice following inhalation | [74] |
| 18. | Terpineol [in e.g. Eucalyptus globulus], terpinyl acetate | Anaesthetic, sedative | Dose-dependent (300–600μM) reversible blockade of the compound action potential of rat sciatic nerve, suggested to be ‘clinically’ relevant (i.e. concentration reached in dermal tissues during massages with essential oils). Inhalation increased pentobarbital induced sleep time in mice | [75,76] |

**Note** - The principal chemical constituents are listed in order of concentration, highest first; note that proportions may vary according to source and that many oils contain hundreds of terpenoids.
ACTH = adrenocorticotropic hormone; IC$_{50}$ = concentration that caused 50% inhibition; IP = intraperitoneal; LD$_{50}$ = dose lethal to 50% of animals; SC = subcutaneous.

RESULT AND DISCUSSION

The essential oils with reputed sedative actions such as lavender, lemon balm and neroli etc. have pharmacological actions consistent with reducing CNS activity (in vitro and in vivo activities as shown in table 2). Thus, there are no apparent contradictions between the anecdotal and scientific literature, or clinical effects and pharmacological profiles but one of the major challenges in conducting controlled trials of aromatherapy is the issue of individually, not only in terms of treatment response but also the selection of the essential oil on the basis of subjective preference and context. Individuality Aroma therapeutic practice tailors the application to the individual as opposed to standardized symptomatic treatment; this poses obvious challenges acceptance bridging the gap between preferences and practices between nursing and medical practitioners. This study proves aromatherapy has strong effect on Major depressive disorders but still need research and development to overcome the problem in conducting controlled trials. Although, Today, number of organizations, publications, colleges working on Research and development of Aromatherapy. Many researches have done in all over the world in the last 10 years. Some of the organizations, school colleges, publications are as follows.

Table-III Aromatherapy and essential oil resources$^{[77]}$

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Name</th>
<th>Web Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizations</td>
<td>National Association for Holistic Aromatherapy</td>
<td><a href="http://www.naha.org">http://www.naha.org</a></td>
</tr>
<tr>
<td></td>
<td>Aromascent Journal (Canada)</td>
<td><a href="http://www.aromascentsjournal.ca">http://www.aromascentsjournal.ca</a></td>
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<tr>
<td></td>
<td>Aromatherapy Thymes (United States)</td>
<td><a href="http://www.aromatherapythymes.com">http://www.aromatherapythymes.com</a></td>
</tr>
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<td></td>
<td>Aromatherapy Journal (United States)</td>
<td><a href="http://www.naha.org/journal.htm">http://www.naha.org/journal.htm</a></td>
</tr>
<tr>
<td></td>
<td>Aromatherapy Today (Australia)</td>
<td><a href="http://aromatherapytoday.com">http://aromatherapytoday.com</a></td>
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<tr>
<td></td>
<td>International Journal of clinical Aromatherapy (France)</td>
<td><a href="http://www.ijca.net">http://www.ijca.net</a></td>
</tr>
<tr>
<td></td>
<td>International Journal of Essential oil Therapeutics (France)</td>
<td><a href="http://www.ijeot.com">http://www.ijeot.com</a></td>
</tr>
<tr>
<td>Aromatherapy education and certification programs</td>
<td>The Aromahead Institute, School of Essential Oil Studies</td>
<td><a href="http://www.aromahead.com">http://www.aromahead.com</a></td>
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<td></td>
<td>The College of Botanical Healing Arts</td>
<td><a href="http://www.cobha.org">http://www.cobha.org</a></td>
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<td></td>
<td>The Institute of Integrative Aromatherapy</td>
<td><a href="http://www.aroma-m.com">http://www.aroma-m.com</a></td>
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<td>R.J. Buckle Associates LLC</td>
<td><a href="http://www.rjbuckle.com">http://www.rjbuckle.com</a></td>
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<td>Essential oil distributors</td>
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CONCLUSION
It is concluded that aromatherapy provides a potentially effective treatment for MDD as it clinically shows promise as a safe alternative or complement to traditional health care interventions to relieve stress, reduce anxiety, and improve mood; however, more research is needed. Suggestions for future research include replication studies using rigorous study designs and appropriate sample sizes; studies on the use of aromatherapy in various populations (i.e., children, older adults, ethnic or cultural groups); and studies that combine aromatherapy with guided imagery, meditation, or hypnosis to augment the management of emotional distress. In addition, its wide adaptability and ease of use make it easy to tailor to diverse inpatient and outpatient settings. Effective use requires adequate knowledge and skills and the ability to safely tailor interventions to the unique needs of each client. The art of nursing requires a balanced and integrative approach to healing. Aromatherapy is a healing practice that blends the “essence” of science with the holism inherent in the art of nursing.

REFERENCES


