



Contents lists available at ScienceDirect

Journal of Traditional and Complementary Medicine

journal homepage: <http://www.elsevier.com/locate/jtcm>

Original article

Aromatherapy with two essential oils from *Satureja* genre and mindfulness meditation to reduce anxiety in humans

Marilú Roxana Soto-Vásquez ^{a,*}, Paúl Alan Arkin Alvarado-García ^b^a Faculty of Pharmacy and Biochemistry, National University of Trujillo, Trujillo, Peru^b Integral Psychotherapy Center, Trujillo, Peru

ARTICLE INFO

Article history:

Received 3 March 2016

Received in revised form

30 May 2016

Accepted 11 June 2016

Available online xxx

Keywords:

Anxiety

Aromatherapy

Mindfulness

Essential oils

*Satureja brevicalyx**Satureja boliviana*

ABSTRACT

The goal of this study was to verify whether association of aromatherapy with essential oils of *Satureja brevicalyx* or *Satureja boliviana* and mindfulness meditation can reduce anxiety levels in humans. A randomized experimental trial was carried out with 108 participants who were divided into 6 groups, comprising a waiting list control group and five experimental groups. Aromatherapy was carried out by inhalation of essential oils while mindfulness intervention program was focused on “flow meditation”. The anxiety index was evaluated by State-Trait Anxiety Inventory (STAI). Measures were taken two times: pretest and posttest. State and Trait anxiety scores showed a decrease in posttest study phase in comparison with pretest in all experimental groups ($p < 0.005$), especially in those where aromatherapy and mindfulness meditation were used together. All Cohen's *d* scores were over to 1 that means a large size effect in anxiety variable. Percentages of change showed reductions of anxiety variable ranging between 20% and 47%. All treatments used isolated or associated, may be considered alternative treatment options for anxiety.

Copyright © 2016, Center for Food and Biomolecules, National Taiwan University. Production and hosting by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Anxiety is one of the most prevalent health problems around the world.¹ It encompasses a feeling of intense and indeterminate fear or apprehension with physical signs such as heart palpitations, sweating and tension. Anxiety is a normal reaction in humans because let us to avoid potential threats. However, it can be considered a problem when it becomes associated with cues that are not a real danger and escaping of these feared cues becomes chronic and habitual.²

Although patients usually respond well to short-term treatment of medication, the magnitude of improvement on chronic treatment is disappointing; besides anxiolytic drugs produce various side effects and indiscriminate use.¹ That is why there is a great interest on complementary and alternative medicine treatments such as aromatherapy and mindfulness. The first one is a natural

treatment utilizing essential oils as the main therapeutic agents, which are extracted from flowers, leaves, stalks, fruits, seeds, roots and resins.³ Essential oils have various applications such as massage, inhalation, compress, and baths.⁴ Some research teams have found that using aroma inhalation can reduce anxiety, stress and even have the synergistic effect with the drugs used in the treatment of central nervous system disorder.^{5–7} In the other hand, mindfulness meditation, originated from Buddhist Vipassana, has grown in popularity over the past 30 years. Effective interventions based on mindfulness have been developed, such as Mindfulness-Based Stress Reduction (MBSR), Mindfulness-Based Cognitive Therapy (MBCT) and Acceptance-Based Behavioral Therapy (ABBT).⁸ Findings support the use of mindfulness meditation to reduce stress and anxiety levels as well as reduce the risk of depressive relapse.^{9–11}

Satureja brevicalyx and *Satureja boliviana* are two species from *Satureja* genre distributed in South American Andes from southern Peru until Bolivia and northeast Argentina. Both were used from ancient times for Andean people.¹² *S. brevicalyx* is used traditionally as analgesic, anti-inflammatory, antimicrobial and for gastrointestinal conditions. Their leaves are chemically composed by resins, reducing sugars, catechins, sesquiterpene lactones, triterpenes, steroids, saponins, tannins, flavonoids and essential oil. Different

* Corresponding author. Faculty of Pharmacy and Biochemistry, National University of Trujillo, Juan Pablo II avenue s/n, Trujillo, Peru.

E-mail address: msoto@unitru.edu.pe (M.R. Soto-Vásquez).

Peer review under responsibility of The Center for Food and Biomolecules, National Taiwan University.

<http://dx.doi.org/10.1016/j.jtcm.2016.06.003>

2225–4110/Copyright © 2016, Center for Food and Biomolecules, National Taiwan University. Production and hosting by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

laboratories have determined its analgesic, antioxidant, anti-inflammatory, neuroprotective, hepatoprotective, anti-Helicobacter pylori and anxiolytic effects.^{13–16} For its part, *S. boliviana* is traditionally used for colic, altitude sickness, respiratory diseases, rheumatism and migraines. Its leaves are mainly composed by phenolic compounds and essential oil. It was proved its antimicrobial, anti-inflammatory and gastric cytoprotective activities.^{17–19}

The present study was conducted to examine whether aromatherapy with essential oils of *S. brevicalyx* and *S. boliviana* and mindfulness meditation can reduce anxiety levels in humans, as well as explore the synergistic effect of aromatherapy and mindfulness meditation.

2. Material and methods

2.1. Plant material

The leaves of *S. brevicalyx* were collected from Condorcunca mount at 3500 m elevation, located in Quinoa district, Ayacucho Region, Peru; while leaves of *S. boliviana* were collected from Sun Island at 4000 m elevation, located in Titicaca Lake, Manco Capac province, La Paz department, Bolivia. The sample collection was conducted in the months of January to February, 2015. Voucher specimens were prepared and identified by Eric Frank Rodríguez Rodríguez, PhD, and deposited at the Herbarium Truxillense (HUT) of National University of Trujillo, under registration numbers 58165 and 58166 respectively.

2.2. Essential oils extraction

The powdered plant material (100 g) of the leaves of *S. brevicalyx* and *S. boliviana* were hydrodistilled for 4 h using a modified Clevenger-type apparatus. Then the oil was dried over anhydrous sodium sulfate and stored in the refrigerator at 4 °C for further use in experiments.²⁰

2.3. Determination of essential oil composition

The essential oils were analyzed by gas chromatography–mass spectrometry (GC/MS) using Hewlett-Packard 6890/5972 GC/MS system with the following conditions: fused silica HP-5 column, carrier gas He (1.1 ml/min), temperature programme: 3 °C/min from 60 °C to 240 °C; the injection port temperature was 250 °C; detector temperature was 280 °C. Ionization of the sample components was performed in the EI mode (70 eV). The identification of essential oil constituents was accomplished by visual interpretation, comparing their retention indices and mass spectra with literature data, by computer library search (HP Chemstation computer library NBS75K.L, NIST/EPA/NIH Mass Spectral Library 2.0 and Mass Finder 3 Computer Software and Terpenoids Library).^{21,22}

2.4. Study design and sample

An experimental study with measures at pretest–posttest was conducted, using five experimental groups and a waiting-list control group. 108 participants, between 25 and 45 years old (mean age = 31.5 years) took part of this study. Participants were randomly divided into 6 groups of 18 participants (9 male and 9 female) comprising a wait-list (WL) control group, experimental group 1 (EG1) treated with mindfulness meditation program, experimental group 2 (EG2) treated with aromatherapy based on *S. brevicalyx* essential oil, experimental group 3 (EG3) only treated with aromatherapy based on *S. boliviana* essential oil, experimental group 4 (EG4) treated with mindfulness meditation program and aromatherapy with *Satureja brevicalyx* essential oil, and finally

experimental group 5 (EG) treated with mindfulness meditation program and aromatherapy with *S. boliviana* essential oil.

2.5. Study procedure

A free meditation and aromatherapy course was offered through local press to recruit participants. 121 people were enrolled and 108 took part in this research (Inclusion criteria included participants men and female between the ages of 18–45 and they were required to have a State-Trait Anxiety Inventory score of greater than 20 in both scales; meanwhile exclusion criteria were participants with previous practice of meditation, tai chi or yoga, psychiatric treatment and pregnancy).

18 participants for each group were randomized. After the control and intervention groups were formed, an anxiety self-report instrument was administered (pretest) and filled by all participants. 5 schedules were disposed for each intervention group (2 in the morning and 3 in the afternoon). Control group (WL) participants were informed they were going to take the course after 2 weeks due to schedule was full. Psychotherapy room (4 × 4 m size) of Integral Psychotherapy Center was used for experiments. Windows were closed hermetically during stimulus administration and participants sat in ergonomic chairs forming a circle. EG1 participants were treated with the mindfulness intervention program focused on “flow meditation” where attention is focused in breathing in abdomen area while a mantra is repeated.²³ EG2 participants were treated with aromatherapy with *S. brevicalyx* essential oil. 5 environmental diffusers were used for administering oil by inhalation. These were placed one in each corner of therapy room and one in the middle of the circle of participants. The essential oil dose required to saturate the experimental room was 2 drops of 2% essential oil = 0.1 mL.¹⁶ EG3 participants were treated with aromatherapy with *S. boliviana* essential oil and EG4 and EG5 participants were treated at once with aromatherapy with *S. brevicalyx* and *S. boliviana* essential oils respectively and mindfulness meditation program. All groups had 30 min intervention sessions from Monday to Saturday during two weeks (12 sessions). After that, an anxiety self-report instrument was administered (posttest) to all participants (Fig. 1).

When the entire intervention program finished, all participants were informed about the investigation program goals and signed a consent form in which confidentiality and anonymity were guaranteed. This investigation was performed in accordance to the Declaration of Helsinki.

2.6. Instruments

To evaluate anxiety, the State-Trait Anxiety Inventory (STAI) was used which consists of two self-report scales measuring two distinct types of anxiety: state (actual levels of intensity and anxiety states) and trait (selects individuals who vary in their tendency to react to psychological stress with varying degrees of intensity). Both scales consist of 20 statements. The part that regards trait describes how the subjects generally feel, while the part that regards state describes how they feel at a given moment. This tool is one of the most widely used scales for the evaluation of anxiety in normal population and, to a lesser extent, psychiatric patient.^{4,24} Validations and reliability coefficients for local population were found in a previous study.¹⁶

2.7. Data analysis

Means and standard deviations (SD) were found; as well as Mann–Whitney U test was used to determine significant differences between WL group and intervention groups, while Wilcoxon

Download English Version:

<https://daneshyari.com/en/article/5635442>

Download Persian Version:

<https://daneshyari.com/article/5635442>

[Daneshyari.com](https://daneshyari.com)