

An Evaluation of Herbal Approaches for Managing Performance Anxiety in Singers

Şarkıcılardaki Performans Anksiyetesinin Yönetiminde Kullanılabilecek Bitkisel Yaklaşımlar Üzerine Bir Değerlendirme

Alper ŞAKALAR¹ , Remziye Eda KAZANCI² 

¹Kahramanmaraş Sütçü İmam University, Faculty of Fine Arts, Department of Music, Kahramanmaraş, Türkiye

²Turkish Pharmacists Association, Kahramanmaraş Pharmacists Chamber, Kahramanmaraş, Türkiye

Corresponding author/

Sorumlu yazar : Alper ŞAKALAR

E-mail / E-posta : alpersakalar@gmail.com

ABSTRACT

This study aims to investigate the effectiveness of herbal treatment approaches in managing performance anxiety, a condition commonly observed among singers. In this context, the efficacy of 19 plants has been evaluated. Performance anxiety constitutes a significant challenge for performing artists and can negatively impact their professional performance. Conventional treatment methods do not always yield satisfactory results and may cause side effects. This situation highlights herbal remedies as a natural alternative with minimal side effects.

Within the scope of the study, 19 plants used in the management of performance anxiety were examined. The anxiolytic, neuroprotective, cognitive function-supporting, sleep-regulating, antioxidant, and anti-inflammatory effects of these plants were assessed. The findings indicate that these plants may potentially help alleviate performance anxiety; however, side effects such as sedation, dizziness, and gastrointestinal discomfort should be carefully monitored during performance. Moreover, it is emphasized that the usage and timing of these herbal treatments should be planned with the support of a healthcare professional.

The research suggests that herbal therapies could provide a significant alternative for singers experiencing performance anxiety, though individual responses to these treatments may vary. Future studies could explore the long-term effects of these plants and individual differences more comprehensively, contributing to the development of safer and more effective protocols for performing artists. In this regard, the study offers practical recommendations for the safe and informed use of herbal approaches and makes a notable contribution to the literature.

Keywords: Music, Stage, Anxiety, Herbal solution

Submitted / Başvuru : 03.10.2024

**Revision Requested /
Revizyon Talebi :** 13.11.2024

**Last Revision Received /
Son Revizyon :** 26.11.2024

Accepted / Kabul : 29.11.2024

**Online Yayın /
Published Online :** 05.12.2024



This article is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0)

ÖZ

Bu araştırma, şarkıcılar arasında yaygın olarak görülen performans anksiyetesinin yönetiminde bitkisel tedavi yaklaşımlarının etkinliğini incelemeyi amaçlamaktadır. Bu kapsamda 19 tane bitkinin konudaki etkinliği değerlendirilmiştir. Performans anksiyetesi, sahne sanatçıları için ciddi bir sorun teşkil etmekte ve mesleki performanslarını olumsuz yönde etkileyebilmektedir. Geleneksel tedavi yöntemleri her zaman yeterli sonuçları vermemekte ve yan etkiler yaratabilmektedir. Bu durum, bitkisel tedavi yöntemlerini doğal ve yan etkileri az olan alternatif bir seçenek olarak öne çıkarmaktadır.

Araştırma kapsamında, performans anksiyetesinin yönetiminde kullanılan 19 bitki incelenmiştir. Bu bitkilerin anksiyolitik, nöroprotektif, bilişsel işlev destekleyici, uyku düzenleyici, antioksidan ve anti-enflamatuvar etkileri değerlendirilmiştir. Bulgular, bu bitkilerin performans anksiyetesini hafifletmede potansiyel olarak faydalı olabileceğini, ancak sedasyon, baş dönmesi, mide rahatsızlığı gibi yan etkilerinin performans sırasında dikkatle izlenmesi gerektiğini ortaya koymaktadır. Aynı zamanda, bu bitkilerin kullanım şekli ve zamanlamasının bir sağlık profesyonelinin destek alınarak planlanması gerektiği vurgulanmıştır. Araştırma, bitkisel tedavilerin performans anksiyetesi yaşayan şarkıcılar için önemli bir alternatif sunabileceğini, ancak her bireyin bu tedavilere verdiği tepkinin farklı olabileceğini göstermektedir. Gelecekteki çalışmalar, bu bitkilerin uzun vadeli etkilerini ve bireysel farklılıkları daha derinlemesine inceleyerek, sahne sanatçıları için daha güvenli ve etkili protokollerin geliştirilmesine katkıda bulunabilir. Bu kapsamda, araştırma bitkisel yaklaşımların güvenli ve bilinçli kullanımına yönelik pratik öneriler sunmakta ve literatüre önemli bir katkı sağlamaktadır.

Anahtar Kelimeler: Müzik, Sahne, Anksiyete, Bitkisel çözüm

INTRODUCTION

Anxiety is a multifaceted condition that can affect an individual's mental, emotional, and physical well-being, and it is a prevalent issue in modern societies. This problem, which poses a threat to mental health, is not merely considered a psychological disorder but is also treated as a comprehensive phenomenon with a broad range of physical and behavioral consequences. Symptoms of anxiety can significantly lower an individual's quality of life, leading to impairments in social, professional, and personal performance. Understanding and managing the effects of anxiety effectively is thus of great importance.

Anxiety manifests through various physical symptoms that can appear in different regions of the body. Cardiovascular reactions, such as heart palpitations and rapid breathing, are prominent among these symptoms. Individuals experiencing anxiety frequently encounter symptoms that disrupt balance, including dizziness, a sense of faintness, and disorientation. Gastrointestinal issues, such as nausea, abdominal pain, and diarrhea, are also commonly reported physical manifestations of anxiety in relevant studies. Furthermore, musculoskeletal problems like muscle tension, trembling, and restless leg syndrome are frequently observed in cases of anxiety. Additionally, symptoms like excessive sweating and hot flashes underscore the physical dimensions of anxiety (Brown et al., 2019; Emilien et al., 2002; Isberg, 1984; Terlizzi & Villarroel, 2020).

Research into the cognitive impairments associated with anxiety indicates that persistent and excessive worry, fear about future events, and frequent panic attacks are the primary mental symptoms of this condition. Difficulty concentrating and attentional disturbances can reduce an individual's efficiency in daily life activities, while obsessive thoughts, such as safety concerns and fear of death, can adversely affect cognitive processes (Brown et al., 2019; Emilien et al., 2002; Tahmazov et al., 2021; Terlizzi & Villarroel, 2020; Wetering et al., 1999).

On an emotional level, anxiety can induce changes in an individual's emotional responses. Irritability, characterized by excessive nervousness and restlessness, is widely recognized as a condition linked to anxiety. Depersonalization, the sensation of feeling detached or unreal, is also frequently observed as an emotional symptom. Moreover, intense feelings of fear and panic can profoundly disrupt emotional stability (Emilien et al., 2002; Tahmazov et al., 2021; Terlizzi & Villarroel, 2020).

From a behavioral perspective, anxiety can lead to avoidance behaviors that disrupt daily life. Avoidance of specific situations, places, or individuals is described as a behavioral manifestation of anxiety symptoms. Symptoms such as the need for constant movement and restlessness, indicative of hyperactivity, are also noted within this context. Sleep disorders, including difficulty falling asleep or maintaining sleep, have been identified as behavioral consequences of anxiety (Emilien et al., 2002; Tahmazov et al., 2021; Terlizzi & Villarroel, 2020; Wetering et al., 1999).

Performance anxiety, particularly common among individuals involved in performing arts, is a condition that can negatively impact professional life. The intense anxiety felt before going on stage manifests in symptoms such as accelerated heart rate, trembling, nausea, and concentration loss. This situation can have particularly severe implications for singers, as maintaining focus, controlling their voice, and feeling comfortable on stage are crucial to their performance. Performance anxiety weakens these abilities, thereby reducing overall performance quality (Spahn et al., 2010).

Traditional treatment methods include options such as psychotherapy and pharmacological interventions. However, these approaches do not always yield the desired outcomes and may come with side effects (Nagel et al., 1989). For this reason, herbal remedies have been considered as a more natural alternative with fewer side effects for managing performance anxiety. However, comprehensive studies on the effects of these remedies, especially on performing artists, are limited. Evaluating the effectiveness of herbal approaches in the anxiety management processes of performers, such as singers, is critical for understanding the potential benefits and risks of these treatments (Zhukov, 2019).

This study adopts a qualitative approach to explore the effects of herbal remedies on performance anxiety in singers. Within this context, the research acknowledges that the active substances in the herbs mentioned may vary depending on their cultivation methods and origins. The findings of this study aim to establish a significant foundation for assessing whether herbal approaches provide a safe and effective alternative for managing performance anxiety. Furthermore, the research is expected to offer practical recommendations for performing artists, particularly singers.

In this study, the effects of 19 herbs on performance anxiety were examined, and their potential benefits and side effects were analyzed in detail. The study aims to evaluate the effectiveness of herbal approaches in managing performance anxiety and to provide recommendations on the safe use of these remedies by singers. The results have the potential to offer valuable insights not only for singers but also for other individuals experiencing performance anxiety, particularly those engaged in music performance.

RELATED RESEARCH

Performance anxiety is a prevalent psychological issue faced by performing artists in their professional lives. This condition is particularly significant for singers, as it can directly impact the quality of their performances. Characterized by intense anxiety and stress symptoms, performance anxiety makes it challenging for artists to perform on stage confidently and comfortably. Therefore, developing effective management strategies for individuals experiencing performance anxiety is of utmost importance.

Traditionally, techniques such as psychotherapy, pharmacological interventions, and breathing exercises have been employed to address performance anxiety. Psychotherapy focuses on enhancing individuals' ability to cope with anxiety symptoms, while pharmacological treatments often involve anxiolytic medications and beta-blockers (Brugués, 2011; Osborne & Franklin, 2022; Kenny, 2011). However, these treatment methods do not always yield the desired outcomes and may sometimes lead to side effects. For instance, pharmacological treatments can cause issues such as sleep disturbances, low energy levels, and dependency in some individuals. Such adverse effects can have undesirable consequences for performing artists.

In this context, herbal remedies are increasingly gaining attention as a natural and less side-effect-prone alternative for managing performance anxiety. Herbal treatments have been utilized throughout history in various cultures to address anxiety and stress. Modern science has conducted research into the efficacy of herbal remedies, and some studies suggest that certain herbs can be effective in alleviating anxiety symptoms. However, most of these studies focus on generalized anxiety disorders, leaving the specific effects on singers experiencing performance anxiety insufficiently explored.

Herbal approaches not only alleviate anxiety symptoms but may also offer additional benefits such as supporting cognitive functions, improving sleep patterns, and maintaining overall health. For example, some herbs may enhance memory, increase mental sharpness, and support the cognitive resilience required during performances. Others may combat insomnia, helping artists to rest better before and after performances. These effects provide significant advantages in managing performance anxiety for stage artists.

Herbs such as lavender (*Lavandula angustifolia*), passionflower (*Passiflora incarnata*), St. John's wort (*Hypericum perforatum*), skullcap (*Scutellaria lateriflora*), and lemon balm (*Melissa officinalis*) are commonly used in the treatment of anxiety and depression. The calming and antidepressant effects of these herbs are supported by various studies (Akhondzadeh & Maleki, 2007; Lakhan & Vieira, 2010; Yeung et al., 2018). However, their usage is not without potential side effects. For instance, while lavender and passionflower are generally considered safe, they may cause dizziness, stomach upset, and sedation (Lakhan & Vieira, 2010; Yeung et al., 2018). Similarly, St. John's wort is known for its potential to cause photosensitivity and interactions with other medications, which can lead to severe side effects (Yeung et al., 2018). Although lemon balm and skullcap are generally well-tolerated, their effects, such as excessive relaxation and sedation, may lead to undesirable outcomes during performances (Bakhshaei, 2017; Limanaqi et al., 2020).

Adaptogenic herbs, including *Rhodiola rosea*, ashwagandha (*Withania somnifera*), and ginseng (*Panax ginseng*), are known for their ability to help individuals cope with stress, boost energy levels, and improve mental performance

(Lakhan & Vieira, 2010; Limanaqi et al., 2020). However, high doses of these herbs can have stimulant or sedative effects, which may negatively impact performance (Lakhan & Vieira, 2010; Yeung et al., 2018).

Herbs like Ginkgo biloba, Bacopa monnieri (brahmi), and Centella asiatica (gotu kola) are recognized for their cognitive-enhancing properties. While these herbs have the potential to improve memory and cognitive performance, their side effects—such as gastrointestinal issues and sedation—may limit their use (Keegan et al., 2023; Lakhan & Vieira, 2010; Stough et al., 2001).

Other herbs, such as black cohosh (*Cimicifuga racemosa*), chamomile (*Matricaria recutita*), saffron (*Crocus sativus*), and vervain (*Verbena officinalis*), offer potential benefits for treating various ailments. Black cohosh has been found effective in alleviating menopausal symptoms and managing anxiety but carries risks of liver toxicity and cardiac effects (Azimipour et al., 2017; Amsterdam et al., 2009; Enbom et al., 2014). Chamomile is widely used to reduce anxiety and stress, improve sleep quality, and possesses anti-inflammatory and antioxidant properties. However, it also carries risks such as allergic reactions and drug interactions (El-Alfy et al., 2017; Sebai et al., 2014; McKay & Blumberg, 2006). Saffron is noted for its anxiolytic and antidepressant effects but should be used with caution due to potential side effects like hypotension and sedation (Mazidi et al., 2016; Ghaderi et al., 2020; Joukar et al., 2013). Vervain has shown promise in treating anxiety and depression but may have risks such as mutagenic and genotoxic effects (Khan et al., 2016; Lai et al., 2006; Fateh et al., 2019). While these herbal remedies offer potential benefits, it is evident that they must be used cautiously in performance-focused professions, and their side effects must be carefully considered.

Certain key considerations must be addressed when using herbal remedies. Firstly, individual responses to herbal treatments can vary significantly, making it essential to tailor these approaches to personal needs. Additionally, the side effects and interactions of herbal remedies with other medications must be evaluated carefully. For singers experiencing performance anxiety, the use of sedative herbs that may impair alertness and focus during performances can be particularly risky. Therefore, the dosage and timing of herbal treatments should be meticulously planned. While existing literature generally highlights positive findings regarding the efficacy of herbal approaches, it is clear that more research is needed, especially concerning their effects on singers.

Our study aims to address this gap by evaluating the effectiveness of herbal approaches in managing performance anxiety and offering safe usage recommendations for singers.

METHOD

This research was conducted to evaluate the effectiveness of herbal approaches in managing performance anxiety among singers. A systematic assessment was carried out by reviewing the existing scientific literature and analyzing the data using the content analysis method.

Research Design

The study was structured within the framework of qualitative research methods, chosen for its ability to provide an in-depth understanding of human behaviors and experiences (Krippendorff, 2013). The content analysis method was used for data collection and analysis. Content analysis is a systematic approach for examining texts to identify specific themes, categories, and meanings (Neuendorf, 2017).

Data Collection Process

In the initial phase of the research, existing scientific literature on the management of performance anxiety in singers was reviewed. This literature review focused on studies addressing performance anxiety, singers' performance-related stress, and herbal treatment methods used to manage these issues. The study included an evaluation of 19 herbs with anxiolytic, neuroprotective, cognitive-enhancing, sleep-regulating, antioxidant, and anti-inflammatory properties. The effects and potential side effects of these herbs, particularly for singers, were also considered. The herbs analyzed in the study were:

- Bacopa monniera (Bacopa)
- Centella asiatica (Gotu kola)
- Citrus aurantium (Bitter orange)
- Eschscholzia californica (California poppy)
- Lavandula spp. (Lavender)
- Matricaria recutita (Chamomile)
- Passiflora incarnata (Passionflower)

- *Gelsemium sempervirens* (Yellow jasmine)
- *Humulus lupulus* (Hops)
- *Crocus sativus* (Saffron)
- *Valeriana officinalis* (Valerian)
- *Ginkgo biloba*
- *Nepeta cataria* (Catnip)
- *Panax ginseng* (Ginseng)
- *Curcuma longa* (Turmeric)
- *Cimicifuga racemosa* (Black cohosh)
- *Glycyrrhiza glabra* (Licorice root)
- *Withania somnifera* (Ashwagandha)
- *Rhodiola rosea* (Golden root)

The literature review was conducted using relevant academic databases and electronic resources. Priority was given to articles, reviews, clinical studies, and meta-analyses published within the past decade, ensuring that the information was current and reliable. Keywords such as “performance anxiety,” “singers,” “herbal treatment,” “anxiolytic herbs,” and “performance management” were used during the literature search.

Data Analysis

The collected data were analyzed using Maxqda Analytical Pro software, a tool developed specifically for qualitative data analysis. The software was employed to systematically identify themes, codes, and categories within the texts. The data were categorized to highlight the effectiveness of herbal approaches in managing performance anxiety. During the content analysis process, the effects of herbal approaches, the contexts in which these effects occurred, and potential side effects were examined.

Each herb was evaluated individually, and these evaluations were structured to contribute to the general findings of the research. Herbs were categorized based on their effects, such as anxiolytic, neuroprotective, cognitive-enhancing, sleep-regulating, antioxidant, and anti-inflammatory properties. For each category, the effects of the herbs on performance anxiety and how these effects translated into the singers’ performances were detailed.

Reliability and Validity

The reliability and validity of the study were ensured through the rigorous application of methods and alignment of findings with the existing literature. Only credible and scientific sources were included in the literature review, and an objective and systematic approach was adopted for data analysis. To ensure consistency in the findings, data from various sources were cross-checked and analyzed.

These methodological approaches ensured the research objectives were met and supported the validity of the findings. The results of this study provide an in-depth understanding of the effectiveness of herbal approaches for singers experiencing performance anxiety and lay the groundwork for future research in this area.

RESULTS

In this section, 19 plants were analyzed and evaluated in terms of their diverse mechanisms of action and potential side effects, highlighting their potential benefits and risks for singers. The findings were categorized into five main groups based on the effects of these plants: anxiolytic effects, neuroprotective and cognitive effects, sleep-regulating and restorative effects, antioxidant and anti-inflammatory effects, and stress-coping and energy-enhancing effects.

Findings Related to Anxiolytic Effects

Table 1. Anxiolytic effects of herbs and potential side effects for singers

Herbs	Effects	Potential side effects	References
<ul style="list-style-type: none"> • Bacopa (Bacopa monniera) • Citrus aurantium (Bitter orange) • Eschscholzia californica (California poppy) • Gelsemium sempervirens (Yellow jasmine) • Gotu kola (Centella asiatica) • Hypericum perforatum (St. John's wort) • Lavender (Lavandula spp.) • Chamomile (Matricaria recutita) • Passionflower (Passiflora incarnata) • Saffron (Crocus sativus) • Hops (Humulus lupulus) • Valerian (Valeriana officinalis) 	Alleviates anxiety symptoms, provides calming effects	Sedation, dizziness, stomach disorder, hormonal changes, allergic reactions	<ul style="list-style-type: none"> • Bhattacharya, Ghosal, 1998 • De Olivera vd.,2022 • Rolland vd.,1991 • Dutt, Sharma, 2010 • Bradwejn vd., 2000 • Ben-Eliezer, Yechiam, 2016 • Chavanne, Robinson, 2020 • Amsterdam vd., 2009 • Janda vd., 2020 • Ghajar vd., 2016 • Kyrou vd., 2017 • Pinheiro vd.,2014

Table 1 presents plants used in herbal therapies aimed at alleviating symptoms of anxiety and providing calming effects. The potential effects and side effects of these plants on singers represent critical factors to consider in the management of performance anxiety.

The primary purpose of the plants in this category is to reduce anxiety symptoms, enabling individuals to feel calmer and more relaxed. Anxiolytic effects are particularly beneficial in mitigating negative emotions such as tension, fear, and panic experienced before or during performances. For singers, these plants can help lower stress and anxiety levels prior to performances, allowing them to take the stage feeling more prepared and confident. Reduced anxiety levels can also positively impact voice control, breathing, and overall stage presence. Additionally, these plants may exhibit mild sedative effects, further aiding in the reduction of anxiety symptoms while promoting a sense of calm and relaxation.

Many of these plants with anxiolytic properties also possess sedative effects, such as inducing drowsiness and relaxation. While these effects can alleviate anxiety, they may also lead to unintended consequences during performances. For singers, this could manifest as reduced energy levels, impaired focus, prolonged reaction times, and an overall decline in performance quality. Therefore, proper dosage and timing are critical when using these plants. Sedative effects may negatively influence alertness and concentration during performances, while side effects such as dizziness and gastrointestinal discomfort could become bothersome on stage. Other side effects, including hormonal changes and allergic reactions, must also be taken into consideration.

Timing and dosage are key factors for singers when using these plants. Due to their sedative effects, it may be advisable to consume the plants several hours before the performance. Starting with a low dose can help assess the body's response to the plant. Since individuals may react differently, it is essential for singers to test their tolerance before use, and consulting a healthcare professional is imperative. To minimize the risk of allergic reactions during performances, an allergy test prior to first-time use of the plants is also recommended.

In this context, the plants listed in Table 1 are highly effective for managing anxiety and reducing performance-related stress. However, given their potential side effects, they must be used with careful attention to dosage and timing. As staying alert and focused during performances is crucial, a thorough evaluation should precede their use, and the application should be tailored to individual needs.

Findings Related to Neuroprotective and Cognitive Effects

Table 2. The neuroprotective and cognitive effects of herbs and potential side effects for singers

Herbs	Effects	Potential side effects	References
<ul style="list-style-type: none"> • Bacopa (Bacopa monniera) • Gotu kola (Centella asiatica) • Saffron (Crocus sativus) • Ginkgo biloba 	It may enhance cognitive functions and strengthen memory.	Sedation, dizziness, stomach disorder, changes in blood pressure.	<ul style="list-style-type: none"> • Bhattacharya, Ghosal, 1998 • Singh vd., 2017 • Bradwejn vd., 2000 • Ghajar vd., 2016

The plants listed in Table 2 are distinguished by their ability to enhance cognitive functions, strengthen memory, and provide neuroprotective properties. These plants hold potential for singers to improve mental acuity and cognitive resilience during stage performances.

Plants such as Bacopa (Bacopa monnieri), Gotu kola (Centella asiatica), Ginkgo biloba, and Saffron (Crocus sativus) are well-known for their neuroprotective properties. These plants support brain health and can improve memory and learning processes. Bacopa may enhance memory consolidation and improve the speed of visual information processing. Gotu kola stands out for its ability to enhance cognitive functions and support brain activity, thereby improving memory and learning. Ginkgo biloba, by increasing cerebral circulation, may positively affect mild anxiety and contribute to the preservation of cognitive functions. Saffron, on the other hand, provides antidepressant effects that support cognitive functions while exhibiting neuroprotective properties.

These plants can improve mental focus, memory utilization, and learning processes during stage performances, thereby enhancing singers' overall performance quality. However, the potential side effects of these plants should not be overlooked. While offering neuroprotective and cognitive-enhancing benefits, these plants may cause sedation, dizziness, and gastrointestinal discomfort. Such side effects could lead to issues with attention and balance during performances, negatively affecting performance quality. Ginkgo biloba, in particular, with its blood circulation-enhancing effects, may increase the risk of bleeding, which could pose a hazard for singers under stage lighting. Furthermore, changes in blood pressure associated with these plants might cause sudden drops in blood pressure during performances, potentially compromising a singer's stability on stage.

Overall, these neuroprotective and cognitive function-supporting plants can be valuable for enhancing mental resilience in singers. However, individual responses and potential side effects must be carefully considered. To achieve optimal cognitive performance and focus during performances, the effects and side effects of these plants should be well understood. Consultation with healthcare professionals and meticulous application tailored to individual needs are essential for safe and effective use.

Findings related to sleep-regulating and restorative effects

Table 3. The sleep-regulating and restorative effects of herbs and the potential side effects that singers may encounter

Herbs	Effects	Potential side effects	References
<ul style="list-style-type: none"> • Eschscholzia californica (California poppy) • Nepeta cataria (Catnip) • Lavandula spp. (Lavender) • Melissa officinalis (Lemon balm) • Matricaria recutita (Chamomile) • Passiflora incarnata (Passionflower) • Valeriana officinalis (Valerian) 	It improves sleep quality and may alleviate symptoms of insomnia.	Excessive sedation, dizziness, stomach discomfort, sleep disturbances	<ul style="list-style-type: none"> • Rolland vd., 1991 • Ranjbar vd., 2018 • Chavanne, Robinson, 2020 • Amsterdam vd., 2009 • Janda vd., 2020 • Pinheiro vd., 2014

Plants with sleep-regulating and restorative effects are notable for their ability to improve sleep quality and alleviate sleep disorders. These plants can aid singers in relaxing and resting either before or after performances, thereby indirectly supporting their stage performance.

Plants such as *Eschscholzia californica* (California poppy), Lavender (*Lavandula* spp.), Chamomile (*Matricaria recutita*), Passionflower (*Passiflora incarnata*), Valeriana officinalis (Valerian), and Catnip (*Nepeta cataria*) are well-known for their sleep-regulating properties. These plants, particularly by facilitating the onset of sleep and enhancing sleep quality, promote relaxation. California poppy, with its strong sedative effects, helps ease the process of falling asleep and alleviates symptoms of insomnia. Lavender, when used in aromatherapy, exhibits calming effects and supports the transition to sleep, especially in cases of mild anxiety. Research suggests that lemon balm (*Melissa officinalis*) may have calming and antidepressant effects. Chamomile, traditionally used to address sleep issues, provides relaxation and makes falling asleep easier when consumed as tea. Passionflower, with its anxiolytic effects, can improve sleep patterns, leading to deeper and more restorative sleep. Valerian, widely used for insomnia, calms the nervous system and facilitates peaceful sleep. Catnip offers calming effects, aiding in the management of both anxiety and sleep disturbances.

The sleep-regulating effects of these plants can help singers achieve better sleep before performances, enabling them to take the stage feeling refreshed and prepared. After performances, these plants may help mitigate insomnia caused by intense stress and fatigue, allowing singers to recover physically and mentally more quickly. However, important precautions must be observed when using these plants. Due to their potent sedative effects, excessive doses can lead to undesirable outcomes during performances. Over-sedation, if experienced before a performance, could impair alertness and focus, leading to concentration problems on stage. Additionally, these plants may cause side effects such as dizziness and gastrointestinal discomfort, which could be disruptive during performances. While effective in addressing sleep problems, these plants are not recommended for use during performances because of their sedative effects. Their use is more appropriate for relaxation purposes before or after performances, but dosage and timing must be carefully managed, and consultation with a healthcare professional is essential.

Overall, the plants listed in Table 3 can support singers' performance indirectly by improving sleep quality. However, given their strong sedative effects and potential side effects, they should be used cautiously and responsibly. Singers should test their individual responses to these plants before use and determine appropriate timing to maintain optimal alertness and focus during performances.

Findings related to antioxidant and anti-inflammatory effects

Table 4. Antioxidant and anti-inflammatory effects of herbs and potential side effects for singers

Herbs	Effects	Potential side effects	References
• Ginseng (<i>Panax ginseng</i>)	It reduces cellular damage and prevents inflammation	Stomach disorder, dizziness, hormonal imbalances, liver toxicity	• Xu vd., 2021
• Black cohosh (<i>Cimicifuga racemosa</i>)			• Schmid vd., 2009
• Licorice root (<i>Glycyrrhiza glabra</i>)			• Frattaruolo vd., 2019
• Turmeric (<i>Curcuma longa</i>)			• Memarzia vd., 2021

Table 4 comprises plants with antioxidant and anti-inflammatory properties. These plants are notable for their abilities to reduce cellular damage, prevent inflammation, and improve overall health. By protecting the body against performance stress and physical strain, these plants can indirectly support singers' overall health and, consequently, their performance quality.

Plants such as Ginseng (*Panax ginseng*), Turmeric (*Curcuma longa*), Black cohosh (*Actaea racemosa*), and Licorice root (*Glycyrrhiza glabra*) are well-known for their potent antioxidant and anti-inflammatory effects. These plants contribute to cellular protection and regeneration by reducing oxidative stress in the body. Additionally, their anti-inflammatory effects promote tissue healing and maintenance of health. Ginseng not only enhances energy levels and strengthens the immune system but also helps mitigate the adverse effects of stress. Turmeric, known for its brain health-supporting and depression-alleviating properties, also exhibits strong anti-inflammatory effects that help reduce inflammation. Black cohosh, primarily used to alleviate menopausal symptoms, is also recognized for its antioxidant and anti-inflammatory benefits. Licorice root reduces inflammation and supports cognitive function in individuals under stress through its antioxidant and anti-inflammatory properties.

The antioxidant and anti-inflammatory effects of these plants can help singers cope with the physical stress encountered during intense performance periods. By preventing cellular damage and promoting tissue recovery, these plants facilitate quicker recovery for singers. Moreover, their positive effects on general health contribute to increased energy and endurance during stage performances. However, there are some significant side effects to consider when using these plants. Plants with antioxidant and anti-inflammatory properties may cause gastrointestinal discomfort and dizziness, which can be disruptive during performances. Ginseng, while boosting energy levels, may also lead to insomnia and irritability. Black cohosh, when used over extended periods, may cause liver toxicity, potentially resulting in severe health issues. Licorice root, known to cause hormonal imbalances, may lead to serious side effects such as hypertension. Due to their effects on the liver and hormonal systems, long-term and uncontrolled use of these plants should be avoided.

In summary, the plants listed in Table 4 can support singers' physical recovery processes before and after performances and help maintain their overall health. However, considering their potential side effects and toxicity risks, they must be used cautiously and with carefully controlled dosages. While these plants can enhance energy and endurance during performances, individual responses should be closely monitored, and consultation with a healthcare professional is recommended to avoid adverse effects.

Findings related to stress management and energy-boosting effects

Table 5. The Stress-Relieving and Energy-Boosting Effects of Herbs and Potential Side Effects for Singers

Herbs	Effects	Potential side effects	References
• Ginseng (<i>Panax ginseng</i>)	It facilitates stress management and increases energy levels	Insomnia, irritability, headaches, stomach discomfort, changes in blood pressure	• Xu vd., 2021
• Ashwagandha (<i>Withania somnifera</i>)			• Speers vd., 2021
• Rhodiola (<i>Rhodiola rosea</i> , also known as Golden root)			• Stojcheva, Quintela, 2022

The plants listed in Table 5 are distinguished by their ability to facilitate stress management and enhance energy levels. These plants hold potential for improving physical and mental resilience in singers during intense work periods or before stage performances, thereby enhancing the quality of their performances.

Plants such as Ginseng (*Panax ginseng*), Ashwagandha (*Withania somnifera*), and Rhodiola rosea (Golden root) are known for their adaptogenic properties. Adaptogens enhance the body's resistance to stress factors, mitigate the adverse effects of stress, and boost energy levels. Ginseng is notable for increasing energy levels, improving mental performance, and strengthening the immune system. Ashwagandha is recognized for its ability to reduce stress and enhance overall vitality, with the potential to alleviate symptoms of anxiety and depression. Rhodiola rosea combats mental fatigue, enhances cognitive performance, and strengthens the ability to cope with stress.

The stress-management and energy-boosting effects of these plants can assist singers in reducing pre-performance stress and providing the energy required during performances. Maintaining high energy levels contributes to a more vibrant and dynamic stage presence. Additionally, these plants' ability to mitigate the mental and physical effects of stress ensures that singers remain resilient during periods of intense performance demands.

However, there are some side effects to consider when using these plants. Ginseng, while increasing energy levels, may also cause insomnia and irritability, which could lead to unnecessary tension before performances and negatively affect performance quality. Although Ashwagandha is generally considered safe, it may cause side effects such as gastrointestinal discomfort, dizziness, and insomnia in some individuals. Due to its blood pressure-lowering effects, it should be used cautiously in individuals with hypotension. Rhodiola rosea, while generally well-tolerated, can exhibit stimulant-like effects at high doses, potentially causing unwarranted tension before performances. Overdosing on these plants may impair focus and calmness during stage performances, leading to suboptimal outcomes.

The plants in Table 5 can be beneficial for enhancing energy levels, managing stress, and improving performance quality for singers before taking the stage. However, considering their potential side effects, careful dosing and usage are necessary. To ensure optimal energy and focus during performances, the effects and side effects of these plants must be thoroughly evaluated. Singers should test their individual responses to these plants beforehand and determine appropriate timing and dosage to avoid unnecessary stimulation or tension. Consultation with a healthcare professional is strongly recommended prior to using these plants.

DISCUSSION AND CONCLUSION

This study was conducted to examine the effectiveness of herbal approaches in managing performance anxiety among singers. Performance anxiety, a prevalent issue among performing artists, can adversely affect individuals' professional performance. Traditional treatment methods do not always yield desired results and may sometimes produce side effects. Therefore, herbal treatment methods, which are more natural and have fewer side effects, have garnered attention as alternative approaches. Nineteen plants with different mechanisms of action and potential side effects were evaluated for their impact on performance anxiety.

The findings of the study suggest that herbal treatments can be effective in managing performance anxiety, although certain critical considerations must be addressed when using these plants. Among the plants with anxiolytic effects, *Bacopa*, *Gotu kola*, *Citrus aurantium*, and *Lavender* were observed to have calming effects. However, excessive doses of these plants may cause side effects such as sedation, dizziness, and gastrointestinal discomfort. The literature also supports the positive effects of these plants on anxiety, while cautioning that their side effects could lead to adverse outcomes during performances (Akhondzadeh & Maleki, 2007; Yeung et al., 2018).

Plants with neuroprotective and cognitive function-enhancing properties, such as *Ginkgo biloba*, *Saffron*, and *Bacopa*, stand out for their potential to strengthen memory and enhance mental acuity, thereby improving singers' cognitive resilience during stage performances. Nevertheless, these plants may also cause side effects like sedation and dizziness. The literature highlights their cognitive benefits while warning of specific risks, such as *Ginkgo biloba*'s blood circulation-enhancing effects, which could increase bleeding risk, and *Saffron*'s potential to cause hypotension (Keegan et al., 2023; Mazidi et al., 2016).

Plants with sleep-regulating and restorative effects, including *Lavender*, *Chamomile*, and *Valeriana officinalis*, can promote relaxation before and after performances. However, due to their strong sedative properties, their use during performances is not recommended—a point supported by the literature (McKay & Blumberg, 2006; Limanaqi et al., 2020). To support post-performance recovery and rest, these plants should be used in appropriate doses and timings.

Plants with antioxidant and anti-inflammatory effects, such as *Ginseng*, *Turmeric*, and *Licorice root*, offer potential to protect the body from physical strain and support overall health before and after performances. These plants help reduce cellular damage and facilitate faster recovery for singers. However, long-term use of these plants may lead to severe side effects such as hormonal imbalances and liver toxicity, as noted in the literature (Lakhan & Vieira, 2010; Enbom et al., 2014).

Stress-management and energy-enhancing plants, including *Ashwagandha* and *Rhodiola rosea*, can mitigate the adverse effects of stress before performances. However, excessive doses of these plants may cause side effects such as insomnia and irritability (Limanaqi et al., 2020; Bakhshaei, 2017). Therefore, their use should be carefully monitored during performances.

In this context, the findings of this study suggest that herbal treatments may be potentially beneficial in managing performance anxiety. However, given that each plant has unique side effects and usage limitations, careful evaluation is necessary before their use by singers. Proper dosage and timing are critical to maximize benefits and avoid potential adverse effects during performances. Consistent with the literature, these treatments should be used consciously and tailored to individual needs.

In conclusion, this study provides a significant contribution to understanding the potential benefits and risks of herbal approaches in managing performance anxiety among singers. Future research should focus on examining the long-term effects of these plants and individual differences in response to develop safer and more effective herbal treatment protocols for performing artists. Moreover, further clinical studies and trials are necessary to better understand the impacts of these plants on performance. In this context, the findings are expected to offer practical recommendations for performing artists and contribute to the development of guidelines for the safe use of herbal approaches.

Recommendations

Since individual responses to herbal treatments vary, it is crucial for performers experiencing performance anxiety to evaluate their personal needs and reactions to herbal remedies before using them. Starting with low doses of herbal treatments and monitoring the body's response is recommended. Optimizing dosage and timing is a critical factor. Herbs with sedative effects can lead to undesirable outcomes during performances, so it is essential to emphasize that these should be taken several hours before the performance. Additionally, because the effects and side effects of these herbs may vary from person to person, performers should carefully determine the correct timing and dosage before performances and manage this process with the guidance of a healthcare professional.

Accessing reliable sources for information on the safety and efficacy of herbal treatments is of paramount importance. In this regard, the use of herbal treatments should be guided by health professionals and experts in the field of herbal medicine. Furthermore, the potential side effects of herbal treatments, particularly during performances, must be carefully monitored. Side effects such as dizziness, gastrointestinal discomfort, sedation, and hormonal changes could negatively impact the quality of a singer's performance, and immediate consultation with a healthcare professional is advised if these symptoms occur. Before initiating herbal treatments, individuals should assess potential allergic reactions and carefully examine any potential interactions with other medications. To minimize the risk of allergies, particularly during performances, an allergy test before the first use of these plants is recommended.

This study provides a general examination of the effects of herbal treatments on performance anxiety and highlights the need for future research to explore these plants' long-term effects, various dosage and timing strategies, and individual differences in greater detail. Clinical studies focusing on performing artists could offer deeper insights into the efficacy and safety of herbal treatments. Education and awareness programs on herbal treatments for artists with performance anxiety are essential. These programs should aim to provide information about the proper use, potential benefits, and risks of herbal treatments. Furthermore, developing guidelines and protocols for the safe use of herbal treatments in performing artists is necessary. These guidelines should offer practical advice on proper dosing, timing of use, and side effect management, enabling artists to maximize the benefits of herbal treatments during their performances.

In conclusion, these recommendations support the more informed and safe use of herbal treatments by artists experiencing performance anxiety and contribute to the body of knowledge in this field. Advancing future research in line with this framework will help make herbal treatment methods more effective and safer.

Extraction Methods for Bioactive Compounds

Maceration, decoction, and infusion are commonly used methods for extracting bioactive compounds from herbal materials. Maceration involves soaking plant material in a solvent at low temperatures, effectively yielding phenolic compounds and flavonoids. Decoction, which involves boiling the plant material, allows for the extraction of rich compounds from hard and woody parts; however, high temperatures may degrade thermolabile compounds. Infusion, by steeping plant material in hot water, typically extracts high antioxidant-capacity compounds from softer plant parts (Abubakar & Haque, 2020). These methods could be used in researching the potential of herbs to reduce or alleviate performance anxiety in singers. However, detailed information on the method of use, dosage, timing of consumption, and potential interactions with medications is lacking. Therefore, consultation with a healthcare professional is essential before adopting these practices.

Peer Review: Externally peer-reviewed.

Author Contributions: Conception/Design of Study- A.Ş., R.E.K.; Data Acquisition- R.E.K.; Data Analysis/Interpretation- A.Ş.; Drafting Manuscript- A.Ş.; Critical Revision of Manuscript- R.E.K.; Final Approval and Accountability- A.Ş.; Material and Technical Support- R.E.K.; Supervision- A.Ş., R.E.K.

Conflict of Interest: The authors have no conflict of interest to declare.

Grant Support: The authors declared that this study has received no financial support.

Hakem Değerlendirmesi: Dış bağımsız.

Yazar Katkıları: Çalışma Konsepti/Tasarım- A.Ş., R.E.K.; Veri Toplama- R.E.K.; Veri Analizi/Yorumlama- A.Ş.; Yazı Taslağı- A.Ş.; İçeriğin Eleştirel İncelemesi- R.E.K.; Son Onay ve Sorumluluk- A.Ş.; Malzeme ve Teknik Destek- R.E.K.; Süpervizyon – A.Ş., R.E.K.

Çıkar Çatışması: Yazarlar çıkar çatışması bildirmemiştir.

Finansal Destek: Yazarlar bu çalışma için finansal destek almadığını beyan etmiştir.

ORCID ID of the author / Yazarm ORCID ID'si

Alper ŞAKALAR 0000-0002-0137-9089
Remziye Eda KAZANCI 0000-0002-0322-6633

REFERENCES / KAYNAKLAR

- Abubakar, A., & Haque, M. (2020). Preparation of medicinal plants: Basic extraction and fractionation procedures for experimental purposes. *Journal of Pharmacy & Bioallied Sciences*, 12, 1 - 10.
- Akhondzadeh, S., & Maleki, J. (2007). Herbal medicines in the treatment of psychiatric and neurological disorders. *Iranian Journal of Psychiatry*, 1, 1-11.
- Amsterdam, J., Li, Y., Soeller, I., Rockwell, K., Mao, J., & Shults, J. (2009). A randomized, double-blind, placebo-controlled trial of oral *matricaria recutita* (chamomile) extract therapy for generalized anxiety disorder. *Journal of Clinical Psychopharmacology*, 29, 378-382.
- Amsterdam, J., Yao, Y., Mao, J., Soeller, I., Rockwell, K., & Shults, J. (2009). Randomized, double-blind, placebo-controlled trial of *cimicifuga racemosa* (black cohosh) in women with anxiety disorder due to menopause. *Journal of Clinical Psychopharmacology*, 29, 478-483.
- Azimipour, A., Loripoor, M., & Sadeghi, T. (2017). The effect of black cohosh (*cimicifuga racemosa*) on menopausal symptoms: A randomized clinical trial. *Journal of Rafsanjan University of Medical Sciences*, 16, 715-726.
- Bakhshaei, S. (2017). Phyto-pharmacological effect of nine medicinal plants as a traditional treatment on depression. *Journal of Applied Pharmacy*, 9, 1-5.
- Ben-Eliezer, D., & Yechiam, E. (2016). *Hypericum perforatum* as a cognitive enhancer in rodents: A meta-analysis. *Scientific Reports*, 6.
- Bhattacharya, S., & Ghosal, S. (1998). Anxiolytic activity of a standardized extract of *Bacopa monniera*: an experimental study. *Phytomedicine : International Journal of Phytotherapy and Phytopharmacology*, 5 2, 77-82 .
- Bradwejn, J., Zhou, Y., Koszycki, D., & Shlik, J. (2000). A double-blind, placebo-controlled study on the effects of Gotu Kola (*Centella asiatica*) on acoustic startle response in healthy subjects. *Journal of Clinical Psychopharmacology*, 20 6, 680-684.
- Brown, J., Del Pozzi, A. T., & Hicks-Little, C. (2019). Anxiety disorders and exercise: The role for health and fitness professionals. *Strength & Conditioning Journal*, 41(5), 41-47.
- Brugués, A. O. (2011). Cognitive-behavioural treatment of musical performance anxiety. *Medical Problems of Performing Artists*, 26(3), 123-128.
- Brugués, A. O. (2011). Interventions for music performance anxiety: results from a systematic literature review. *Medical Problems of Performing Artists*, 26(3), 123-128.
- Chavanne, A. V., & Robinson, O. J. (2021). The overlapping neurobiology of induced and pathological anxiety: A meta-analysis of functional neural activation. *The American Journal of Psychiatry*, 178(2), 156-164.
- De Oliveira, D. F., Martins, J. A., & Oliveira, C. R. (2022). Pharmacological aspects of *Citrus aurantium* (Rutaceae) in anxiety disorders: An integrative review. *Brazilian Journal of Natural Sciences*, 4(3), Article e1532022.
- Dutt, V., Dhar, V. J., & Sharma, A. (2010). Antianxiety activity of *Gelsemium sempervirens*. *Pharmaceutical Biology*, 48(10), 1091-1096.
- El-Alfy, A., Manlimos, K., Patel, N., Kendrek, J., & Abourashed, E. (2017). Phytopharmacological Evaluation of Chamomile (*Matricaria recutita*) for Indirect Modulation of the Endocannabinoid System. *The FASEB Journal*, 31(1), lb580-lb580.
- Emilien, G., Dinan, T., Lepola, U. M., & Durlach, C. (2002). Normal and pathological anxiety. In G. Emilien, T. Dinan, U. M. Lepola, & C. Durlach (Eds.), *Anxiety Disorders: Pathophysiology and Pharmacological Treatment* (pp. 1-30)
- Enbom, E., Le, M., Oesterich, L., Rutgers, J., & French, S. (2014). Mechanism of hepatotoxicity due to black cohosh (*Cimicifuga racemosa*): histological, immunohistochemical and electron microscopy analysis of two liver biopsies with clinical correlation. *Experimental and Molecular Pathology*, 96 3, 279-83.
- Fateh, A., Mohamed, Z., Chik, Z., Alsalahi, A., Zain, S., & Alshawsh, M. (2019). Mutagenicity and genotoxicity effects of *Verbena officinalis* leaves extract in Sprague-Dawley Rats. *Journal of Ethnopharmacology*, 235, 88-99.
- Frattaruolo, L., Carullo, G., Brindisi, M., Mazzotta, S., Bellissimo, L., Rago, V., Curcio, R., Dolce, V., Aiello, F., & Cappello, A. R. (2019). Antioxidant and anti-inflammatory activities of flavanones from *Glycyrrhiza glabra* L. (licorice) leaf phytocomplexes: Identification of licoflavanone as a modulator of NF- κ B/MAPK pathway. *Antioxidants*, 8(6), Article 186.
- Ghaderi, A., Asbaghi, O., Reiner, Ž., Kolahdooz, F., Amirani, E., Mirzaei, H., Banafshe, H., Dana, P., & Asemi, Z. (2020). The effects of saffron (*Crocus sativus* L.) on mental health parameters and C-reactive protein: A meta-analysis of randomized clinical trials. *Complementary Therapies in Medicine*, 48, 102250.
- Ghajar, A., Neishabouri, S. M., Velayati, N., Jahangard, L., Matinnia, N., Haghghi, M., Ghaleiha, A., Afarideh, M., Salimi, S., Meysamie, A., & Akhondzadeh, S. (2017). *Crocus sativus* L. versus citalopram in the treatment of major depressive disorder with anxious distress: A double-blind, controlled clinical trial. *Pharmacopsychiatry*, 50(4), 152-160.
- Isberg, R.S. (1984). Emergency Care of Anxious Patients. In: Bassuk, E.L., Birk, A.W. (eds) *Emergency Psychiatry. Critical Issues in Psychiatry*. Springer, Boston, MA.
- Ivanova Stojcheva, E., & Quintela, J. C. (2022). The effectiveness of *Rhodiola rosea* L. preparations in alleviating various aspects of life-stress symptoms and stress-induced conditions—Encouraging clinical evidence. *Molecules*, 27(12), Article 3902.
- Janda, K., Wojtkowska, K., Jakubczyk, K., Antoniewicz, J., & Skonieczna-Żydecka, K. (2020). *Passiflora incarnata* in neuropsychiatric disorders—A systematic review. *Nutrients*, 12(12), Article 3894.

- Joukar, S., Ghasemipour-Afshar, E., Sheibani, M., Naghsh, N., & Bashiri, A. (2013). Protective effects of saffron (*Crocus sativus*) against lethal ventricular arrhythmias induced by heart reperfusion in rat: A potential anti-arrhythmic agent. *Pharmaceutical Biology*, 51, 836-843.
- Keegan, A., Stough, C., Paris, D., Luis, C., Abdullah, L., Ait-Ghezala, G., Crawford, F., & Mullan, M. (2023). Bacopa monnieri supplementation has no effect on serum brain-derived neurotrophic factor levels but beneficially modulates nuclear factor kappa B and cyclic AMP response element-binding protein levels in healthy elderly subjects. *Journal of Clinical and Translational Research*, 9, 50-58.
- Kenny, D. T. (2011). *The psychology of music performance anxiety*. Oxford University Press.
- Khalsa, S. B. S., Shorter, S. M., Cope, S., Wyshak, G., & Sklar, E. (2009). Yoga ameliorates performance anxiety and mood disturbance in young professional musicians. *Applied Psychophysiology and Biofeedback*, 34(4), 279-289.
- Khan, A., Khan, A., & Ahmed, T. (2016). Anticonvulsant, anxiolytic, and sedative activities of verbena officinalis. *Frontiers in Pharmacology*, 7. <https://www.frontiersin.org/journals/pharmacology/articles/10.3389/fphar.2016.00499/full>
- Krippendorff, K. (2013). *Content analysis: An introduction to its methodology*. SAGE Publications.
- Kyrou, I., Christou, A., Panagiotakos, D., Stefanaki, C., Skenderi, K., Katsana, K., & Tsigos, C. (2017). Effects of a hops (*Humulus lupulus* L.) dry extract supplement on self-reported depression, anxiety, and stress levels in apparently healthy young adults: A randomized, placebo-controlled, double-blind, crossover pilot study. *Hormones*, 16(2), 171-180.
- Lai, S., Yu, M., Yuen, W., & Chang, R. (2006). Novel neuroprotective effects of the aqueous extracts from *Verbena officinalis* Linn. *Neuropharmacology*, 50, 641-650.
- Lakhan, S., & Vieira, K. (2010). Nutritional and herbal supplements for anxiety and anxiety-related disorders: systematic review. *Nutrition Journal*, 9, 42.
- Limanaqi, F., Biagioni, F., Busceti, C., Polzella, M., Fabrizi, C., & Fornai, F. (2020). Potential antidepressant effects of scutellaria baicalensis, Hericium erinaceus and Rhodiola rosea. *Antioxidants*, 9(3), 234.
- Mazidi, M., Shemshian, M., Mousavi, S., Norouzy, A., Kermani, T., Moghiman, T., Sadeghi, A., Mokhber, N., Ghayour-Mobarhan, M., & Ferns, G. (2016). A double-blind, randomized and placebo-controlled trial of Saffron (*Crocus sativus* L.) in the treatment of anxiety and depression. *Journal of Complementary and Integrative Medicine*, 13, 195-199.
- Memarzia, A., Khazdair, M. R., Behrouz, S., Gholamezhad, Z., Jafarnejhad, M., Saadat, S., & Boskabady, M. H. (2021). Experimental and clinical reports on anti-inflammatory, antioxidant, and immunomodulatory effects of Curcuma longa and curcumin: An updated and comprehensive review. *BioFactors*, 47(3), 311-350.
- McKay, D., & Blumberg, J. (2006). A Review of the bioactivity and potential health benefits of chamomile tea (*Matricaria recutita* L.). *Phytotherapy Research*, 20(7), 519-530.
- Nagel, J. J., Himle, D. P., & Papsdorf, J. (1989). Cognitive-behavioural treatment of musical performance anxiety. *Psychology of Music*, 17(1), 12-21.
- Neuendorf, K. A. (2017). *The content analysis guidebook*. SAGE Publications.
- Osborne, M. S., & Franklin, J. (2002). Cognitive therapy for performance anxiety. *Journal of Anxiety Disorders*, 16(6), 579-592.
- Ranjbar, M., Salehi, A., Rezaeizadeh, H., Zarshenas, M. M., Sadeghniaat-Haghighi, K., Mirabzadeh, M., & Firoozabadi, A. (2018). Efficacy of a combination of *Melissa officinalis* L. and *Nepeta menthoides* Boiss. & Buhse on insomnia: A triple-blind, randomized placebo-controlled clinical trial. *The Journal of Alternative and Complementary Medicine*, 24(12), 1197-1203.
- Rolland, A., Fleurentin, J., Lanhers, M.-C., Younos, C., Misslin, R., Mortier, F., & Pelt, J.-M. (1991). Behavioural effects of the American traditional plant *Eschscholzia californica*: Sedative and anxiolytic properties. *Planta Medica*, 57(3), 212-216.
- Schmid, D., Gruber, M., Woehs, F., Prinz, S., Etlstorfer, B., Prucker, C., Fuzzati, N., Kopp, B., & Moeslinger, T. (2009). Inhibition of inducible nitric oxide synthesis by *Cimicifuga racemosa* (*Actaea racemosa*, black cohosh) extracts in LPS-stimulated RAW 264.7 macrophages. *Journal of Pharmacy and Pharmacology*, 61(8), 1089-1096.
- Sebai, H., Jabri, M., Souli, A., Rtibi, K., Selmi, S., Tebourbi, O., El-Benna, J., & Sakly, M. (2014). Antidiarrheal and antioxidant activities of chamomile (*Matricaria recutita* L.) decoction extract in rats. *Journal of Ethnopharmacology*, 152 2, 327-332.
- Spahn, C., Echternach, M., Zander, M., Voltmer, E., & Richter, B. (2010). Music performance anxiety in opera singers. *Logopedics Phoniatrics Vocology*, 35(4), 175-182.
- Speers, A. B., Cabey, K. A., Soumyanath, A., & Wright, K. M. (2021). Effects of *Withania somnifera* (Ashwagandha) on stress and the stress-related neuropsychiatric disorders anxiety, depression, and insomnia. *Current Neuropharmacology*, 19(9), 1468-1495.
- Stough C., Nathan P., Lloyd J., Clarke J., HU C., Downey L. & Rodgers T. (2001). The chronic effects of an extract of *Bacopa monnieri* (Brahmi) on cognitive function in healthy human subjects. *Psychopharmacology*, 156, 481-484.
- Tahmazov, E., Robert, G., Walter, M., & Lemey, C. (2021). Anxiety in depression. *European Psychiatry*, 64(S1), S691.
- Terlizzi, E., & Villarroel, M. (2020). Symptoms of Generalized Anxiety Disorder Among Adults: United States, 2019. *NCHS Data Brief*, 378, 1-8.
- Wetering, B. J. M., van den Heuvel, O. A., & Pauls, D. L. (1999). The genetics of anxiety disorders. *Acta Neuropsychiatrica*, 11(2), 63-66.
- Xu, H., Chen, G., Wu, Y., Xie, L., Tan, Z., Liu, B., Fan, H., Chen, H., Huang, G., Liu, M., & Zhou, Y. (2022). Ginsenoside Ro, an oleanolic saponin of *Panax ginseng*, exerts anti-inflammatory effect by directly inhibiting toll-like receptor 4 signaling pathway. *Journal of Ginseng Research*, 46(2), 156-166.
- Yeung, K. S., Hernandez, M., Mao, J. J., Haviland, I., & Gubili, J. (2018). Herbal medicine for depression and anxiety: A systematic review with assessment of potential psycho-oncologic relevance. *Phytotherapy Research*, 32(5), 865-891.
- Zhukov, K. (2019). Current approaches for management of music performance anxiety: An introductory overview. *Medical Problems of Performing Artists*, 34(1), 53-60.

How cite this article / Atf Biçimi

Şakalar, A., & Kazancı, R. E. (2024). An Evaluation of Herbal Approaches for Managing Performance Anxiety in Singers. *Konservatoryum – Conservatorium*, 11(2), 656–669. <https://doi.org/10.26650/CONS2024-1560631>