



Review Article

Assessing The Antifungal Efficacy Of Grapigrass Hair Oil For Dandruff Control By Using Coconut Oil Infuse With Grape Seed

Mounika K.^{1*}, Dr. K. B. Ilango¹, Deepajothi K.², Madhan kumar S.³, Mohammed Aakief R.⁴, Praveen P.⁵

^{1*} Associate professor, Department of Pharmaceutical Chemistry, College of Pharmacy, Shree Venkateshwara college of paramedical sciences, Gobi-Tamilnadu-638455.

¹ Principal, Head of the Department of pharmaceuticals, College of Pharmacy, Shree Venkateshwara college of paramedical sciences, Gobi-Tamilnadu-638455.

^{2,3,4,5} B. Pharm final year students, College of Pharmacy, Shree Venkateshwara college of paramedical sciences, Gobi-Tamilnadu-638455

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ABSTRACT

Dandruff remains a widespread concern in today's world, with a plethora of treatments available in the market, albeit many providing only temporary relief. Its severity can range from mild flaking and dry skin to more pronounced scaling. While *Malassezia* is often pinpointed as the primary cause of dandruff, environmental factors like fluctuations in humidity, seasonal changes, or emotional stress can also contribute to its onset. An innovative approach has led to the development of an all-natural anti-dandruff hair oil containing lemon grass and *Vitis vinifera* commonly known as grape seed. *Vitis vinifera* along with the aromatic qualities of Lemon grass offers a promising approach to dandruff treatment proving more efficacious than many other commercially available hair oils. A comprehensive evaluation of this herbal formulation across various dimensions has reaffirmed its effectiveness, positioning it as a promising alternative with no associated side effects.

INTRODUCTION

Dandruff, often known as pityriasis capitis, is a prevalent scalp condition marked by the excessive shedding of dead skin cells. It affects about 55% of the world's population. Although its primary cause is not always apparent, dandruff can be

influenced by various factors. These factors include an oily scalp, inadequate hygiene leading to fungal infections, extended intervals between hair washes, excess androgenic hormones, increased sebaceous secretion, family history, dietary choices, allergies, excessive perspiration,

***Corresponding Author:** Mounika K.

Address: Associate professor, Department of Pharmaceutical Chemistry, College of Pharmacy, Shree Venkateshwara college of paramedical sciences, Gobi-Tamilnadu-638455

Email  : mounika.mythu@gmail.com

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use of alkaline soaps, stress, exposure to cold and dry weather, infrequent shampooing, and a poor diet. Dandruff can exacerbate when individuals are frequently exposed to extreme temperatures and environmental elements such as dust, UV light, harsh shampoos, and hair dyes. Additionally, its severity may fluctuate seasonally, often worsening during cold winters.

Dandruff is frequently linked to an overproduction of sebum, which can manifest in different regions of the skin. Typical symptoms of dandruff encompass redness of the scalp, flakiness, itching, hair breakage, and even unexpected alterations in hair colour and skin pigmentation. This condition is primarily associated with the presence of a yeast-like fungus known as *Malassezia*, which thrives on the natural oils of the scalp. In addition to *Malassezia*, several factors, including dry skin, sensitivity to hair care products, contact dermatitis, and other skin conditions like psoriasis and eczema, can contribute to the development of dandruff.

Dandruff can lead to hair loss and social embarrassment due to its visible symptoms, which include scalp redness, flaking, and itching. *Malassezia* is commonly present on the skin of 75-90% of healthy individuals. *Malassezia Furfur* is a lipophilic, saprophytic yeast with specific requirements for free fatty acids to thrive. Various *Malassezia* species, such as *M. globosa*, *M. sympodialis*, *M. furfur*, *M. obtusa*, *M. sloofiae*, *M. restricta*, and *M. pachydermatis*, have been identified.

Recently, there has been a growing trend towards natural products in the realm of herbal-based cosmetics, particularly within the domain of hair care. These formulations are available in a range of formats, including creams, dyes, powders, and tonics, drawing inspiration from the principles of Ayurveda and herbal remedies. The appeal of herbal remedies lies in their easy availability, affordability, safety, and minimal risk of side

effects. The market is witnessing an increasing demand for herbal products, driven by their natural efficacy and limited potential for side effects.

Vitis vinifera has shown its effectiveness in combating various types of fungi with its antifungal properties. Lemon grass is known for its pleasant and aromatic odour, often used in various products for its fragrance. Hair care formulations often incorporate plant species traditionally employed in Ayurvedic hair oils to address a variety of scalp and hair conditions. These herbal components are recognized for their hair-promoting qualities and their ability to combat dandruff. An herbal anti-dandruff hair oil combines these age-old herbs to offer a solution for a dandruff-free scalp, hair strengthening, nourishing hair roots, stimulating natural hair growth, and managing concerns like hair fall and thinning.

OBJECTIVE

Vitis vinifera (grape seed) against dandruff is to explore its potential antifungal and anti-inflammatory properties to effectively combat dandruff.

- ❖ To Evaluating the Anti-fungal Properties
- ❖ To Developing an anti- dandruff product
- ❖ To Ensuring Safety & Efficacy
- ❖ To Offering a Natural Remedy
- ❖ To give darkness of hair

Ultimately, The goal is to create a Grape based hair oil that can effectively combat dandruff by utilizing its antifungal properties while promoting healthy hair and scalp.

MATERIAL USED

Grape seed:

Grape seed, being an integral part of grapevines are distributed worldwide in regions where grape cultivation is prevalent. Grapes belongs to the genus *Vitis*, and their seeds can be found in various geographical locations with suitable climates for grape growing. Some of the notable regions for grapes cultivation and the presence of grape seeds



include Asia, Europe, North America, South America, Australia, South Africa. Different Grape varieties and species have adapted to various climates and regions, resulting in the presence of grape seeds in numerous parts of the world.

Grape seeds typically have the following morphological characteristics:

- ❖ **Size & Shape:** Grape seed are small, usually about 1-2cm in length. They are typically ovoid or teardrop shaped.
- ❖ **Color :** There are typically medium brown color.
- ❖ **Texture:** The surface of grape seeds can vary, but they are often smooth and shiny.
- ❖ **Hardness :** Grape seeds are relatively hard & can withstand pressure. They are known for their Durability.
- ❖ **Markings :** Some grape seeds may have subtle ridges or markings on their surface.
- ❖ **Contents:** Inside the seeds, there is a single embryo, Which can develop into a new graoevine if planted.

Lemon grass:

Lemon grass, scientifically known as *cymbopogon citratus*, is a tropical grass native to South and Southeast Asia. It is highly regarded for its culinary, medicinal and aeomatic uses. *Cymbopogon citrates* staff is popularly known as citronella grass or lemongrass. This species belongs to the Gramineae family, which comprises approximately 500 genus and 8.000 herb species. Lemon grass is well-known for its distinct lemony fragrance, which is due to the presence of citral, a compound responsible for the lemon-like scent.

Benefits:

- ❖ It adds a citrusy and herbal flavour to soups, curries and other recipes.
- ❖ It is believed to have Antifungal properties.
- ❖ It is used in traditional medicine for its potential health benefits.
- ❖ In many culture lemon grass used as a natural insect repellent

- ❖ It is a popular ingredient in essential oils and fragrances.

METHODS

Infussing coconut oil, lemon grass with grape seed is a way to create a unique oil blend that combines the properties of the both coconut oil and grape seed.

INGREDIENTS

- ❖ Dried *Vitis vinifera* seeds (grape seeds).
- ❖ Dried lemongrass.
- ❖ Coconut oil.
- ❖ A clean, dry glass jar with a tight-sealing lid.
- ❖ A double boiler or a slow cooker.

INSTRUCTION

1. Prepare the Herbs:

Measure your herbs - a ratio of 1 part *Vitis vinifera* seeds, 1 part lemongrass, and a smaller amount of indigo (e.g., 1/2 part) will work well.

2. Coconut Oil Selection:

Choose a high-quality, unrefined, and cold-pressed coconut oil for the infusion.

3. Herb and Oil Layering:

In a clean and dry glass jar, place your dried herbs at the bottom.

4. Coconut Oil Addition:

Heat your coconut oil in a double boiler or slow cooker until it becomes a liquid.

Pour the hot, liquid coconut oil over the herbs in the jar. Ensure the herbs are fully submerged.

5. Infusion Time:

Seal the jar with a lid. Allow the herbs to infuse in the oil for at least 2 weeks, or up to a month. Store the jar in a cool, dark place away from direct sunlight.

6. Shaking and Checking:

Shake the jar gently every day to ensure proper infusion.

7. Straining:

After the infusion period, strain the oil through a fine mesh strainer or cheesecloth



into a clean container or bottle. This will separate the infused oil from the solid herbs.

8. Repeat (Optional):

If you desire a stronger infusion, you can repeat the process with a fresh batch of dried herbs and the already infused oil.

9. Storage:

Store the infused oil in a cool, dark place. Ensure the container is well-sealed to prevent moisture from entering.

10. Usage:

Your homemade infused coconut oil can now be used for massage, skincare, haircare, or as an aromatherapy oil, depending on your intended purpose.

PHYTOCHEMICAL STUDIES:

Grape seed:

PHYTOCHEMICALS	GRAPE SEED
Alkaloids	+
Flavonoids	+
Carbohydrates	+
Glycosides	-
Saponins	+
Tannins	+
Proteins	+
Amino acids	+
Phytosterol	-
Triterpenoids	+
Steroids	+
Resins	+
Acidic compounds	-
Catechol	+
Phlobatannins	+
Lipid / Fat	+
Reducing sugar	+
All tests were performed thrice Representation: + = present, - = Absent or not detectable	

Lemon grass:

PHYTO-CHEMICAL STUDIES	NAME OF THE TEST	OBSERVATION
Flavonoids	Alcohol-acid test	+
Tannins	Braymers test	+
Phlobitannins	Precipitation test	-
Saponins	Emulsion formation	+

	Foam formation	+
Steroids	Salkowski test	+
Terbenoids	Salkowski test	+
Cardio-glycosides	Keller-kiliani test	-
Coumarins	Alkaline solution	+
All tests were performed thrice Representation: + = present, - = Absent or not detectable		

ANTI-FUNGAL ACTIVITY

Proanthocyanidin, which are naturally occurring compounds found in grape seeds, have been studied for their potential antifungal properties. When it comes to the antifungal activity of grape seed Proanthocyanidin against dandruff-causing *Malassezia spp.*, here's what is known:

- Inhibitory Effects:** Proanthocyanidin have shown some inhibitory effects against fungal growth, including species of *Malassezia*. They may disrupt the cell walls of the fungi and inhibit their proliferation.
- Potential for Dandruff Control:** The antioxidant and antifungal properties of grape seed Proanthocyanidin make them a candidate for dandruff control and management. Dandruff is often associated with the overgrowth of *Malassezia*, and antifungal agents like Proanthocyanidin may help counteract this.
- Natural and Safe:** Proanthocyanidin are derived from grape seeds and are considered a more natural and potentially safer alternative to synthetic antifungal agents commonly found in dandruff shampoos.

RESULT AND DISCUSSION

Vitis vinifera (grapevine), which have anti-fungal properties and can be effective against dandruff. Additionally, the use of lemongrass in this context adds an aromatic odour. The presence of Proanthocyanidin in *Vitis vinifera*, commonly known as grapevine, is well-documented. These compounds have been studied for their potential health benefits, including anti-fungal properties. These anti-fungal properties suggest that they



could be effective in combating dandruff, which is often caused by fungal overgrowth on the scalp. The anti-fungal activity of Proanthocyanidin found in *Vitis vinifera* may be harnessed for dandruff treatment. Dandruff is often associated with fungal growth, and the anti-fungal properties of Proanthocyanidin make them a promising candidate for addressing this issue. Lemongrass is known for its pleasant and aromatic odour, often used in various products for its fragrance. When added to a dandruff treatment or hair care product containing *Vitis vinifera* extracts, it not only contributes to a more pleasing sensory experience but can also help mask any potentially less pleasant natural odours of botanical extracts.

CONCLUSION

In this study, We explored the antifungal activity of *Vitis Vinifera* (Grape) and its derivatives against dandruff causing fungal strains, Particularly *Malassezia*. The synergy of Proanthocyanidin sourced from *Vitis vinifera* along with the aromatic qualities of lemongrass offers a promising approach to dandruff treatment. This not only tackles the fungal issues but also elevates the user experience with its delightful fragrance. Continued research and product development in this direction hold great potential for improving dandruff management. In Future investigations should focus on Invitro studies, Clinical Trials, Mechanistic Understanding, Formulation Development.

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