



A Review Study of Protective Textile Using *Vitis Vinifera.L* Seeds

Dr. Anish Sharmila M

Assistant Professor, Department of Fashion Design & Arts, Hindustan Institute of Technology & Science,
Deemed to be University, Padur, Chennai.

Abstract

Vitis Vinifera.L is one of the most consumed fruits in the world. In ancient Europe, the leaves and sap of the *Vitis Vinifera.L* plant have been used for centuries in traditional medicine. In addition to being a source of vitamins and fiber, the skin and seeds of *Vitis Vinifera.L* are very rich in polyphenols, especially proanthocyanidins. *Vitis Vinifera.L* seeds are easily available as they are the winemaker's product. This review article briefly describes the various pharmacological activities of *Vitis Vinifera.L* seed extract and various experimental studies have been conducted to support the extract's health-promoting properties. Through various studies, proanthocyanidin-rich *Vitis Vinifera.L* seed extract has been proven to be beneficial against many diseases. To other successful pharmaceutical formulations for better prospects in protective textile finishing applications as wound healing materials such as inflammation, cardiovascular disease, hypertension, diabetes, cancer, gastric ulcers, and microbial infections.

Key Words: *Vitis Vinifera.L*, Functional ingredient, Textile, Finishing

1.Introduction

Jesus reportedly remarked in the year 2000 BC: "A man was travelling from Jerusalem to Jericho when he was ambushed by thieves. He was left half-dead after they stripped him of his clothes, thrashed him, and fled. A priest who was passing by on the opposite side of the road happened to be travelling in the same direction as the man. A Levite also passed by on the other side after arriving at the scene and spotting him. However, a Samaritan came to the area where the man was while travelling, and when he saw him, he felt sorry for him. He went to him and applied oil and **wine** to his wounds while bandaging them. (Bible Luke chapter 10: 30-34) ^[1] This is the archival proof that wine was once used to treat wounds.

Humans have cultivated grapes for thousands of years. Among them are several ancient civilizations that worshiped grapes for their use in winemaking. *Vitis Vinifera.L* is an easy and delicious snack to enjoy at home or on the go. It also comes in many forms, from raisins to jelly to juice. There are seedless and seedless varieties. *Vitis Vinifera.L* offers many health benefits, primarily due to its high levels of nutrients and antioxidants. Here are the top 16 health benefits of *Vitis Vinifera.L* It is a common vine, a plant species native to the Mediterranean, Central Europe and Southwest Asia, Morocco and Portugal north to south Germany and east to north Iran. ^[2] There are currently 5,000 to 10,000 cultivars of the *Vitis Vinifera.L* grape, but few are of commercial importance for wine and table grape production. ^[3] The skin is the largest organ in the human body and plays an important role in many physiological functions.^[4,5] Acts as an interface between the body and the environment for self-renewal and self-repair.^[6,7] Protects humans from toxins and microorganisms present in the environment. Other functions of the skin were the detection of sensory stimuli and surveillance of the immune system. ^[4,5]. In general, skin consists of epidermis and dermis. The epidermis is composed of layers of keratinocytes, the dermis lies beneath the epidermis, and the epidermis is composed of several extracellular matrix (ECM) proteins. ECM proteins were cellular components of collagen, elastin, glycosaminoglycans, and fibroblasts.^[4] Wounds inflicted on the epidermis may heal naturally, but unfortunately damage to the dermis does not heal immediately. Skin wounds caused by external factors have been treated commercially using autografts, allografts, and xenografts. However, the above therapies have had limited clinical application due to certain limitations. Limitations were the inadequate supply of donor sites and the risk of disease transmission. ^[7] As technology grows, various advanced and improved approaches have been implemented to achieve better regeneration of damaged skin tissue. Due to its advantages, it has emerged as a plausible alternative to conventional wound dressings. Tissue engineering utilizes the culture of cells in nanofiber and microfiber structures that resemble the three-dimensional organization of natural tissue, thereby promoting the growth of new tissue.^[8] scaffolds have been very attractive in tissue engineering.^[9]

2.Review of Literature

Vitis Vinifera.L contains powerful antioxidants known as polyphenols. They are said to have anti-inflammatory and antioxidant properties. One of them is resveratrol. It is found in red grape skins. Laboratory studies have shown that resveratrol can slow or prevent the growth of lymphatic, liver, stomach, breast, colon, skin, and leukemia cancers. Resveratrol is also found in red wine. Few studies have looked at the association between red wine and cancer risk in humans, but high levels of regular alcohol consumption have been shown to increase cancer risk. Moderate alcohol consumption is defined by the Dietary Guidelines for Americans as no more than 1 drink per day for a woman and no more than 2 drinks per day for a man. Another natural anti-inflammatory found in grapes is the flavonoid quercetin. Studies have shown that this too can help prevent or slow the growth of cancer. Nutrition Facts: 1 cup of red or green grapes weighing approximately 151 grams (g) according to the United States Department of Agriculture (USDA). 1. 104 calories 2. Protein 1.09g 3. Fat 0.24 g 4. Carbs 27.33 g, of which sugars 23.37 g Five. 1.4 grams of dietary fiber 6. Potassium 288mg 7. 15 milligrams

(mg) of calcium 8. Iron 0.54mg 9. Magnesium 11mg Ten Phosphorus 30mg 11. Sodium 3 mg 12. Zinc 0.11mg 13. Vitamin C 4.8mg 14. 22 micrograms (mcg) of vitamin K 15. 3 µg of folic acid *Vitis Vinifera.L* contains vitamins B and A and is high in water. One cup of grapes contains over 121g of water. It is also rich in antioxidants such as lutein and zeaxanthin. Red grape skins contain resveratrol, a phytochemical that appears to protect against several chronic diseases and conditions. The flavonoids myricetin and quercetin are also found in grapes. They help the body fight the formation of harmful free radicals. Wound healing, a major concern in post-operative, burn, scar and other pathologies, is responsible for a range of processes from inflammation to proliferation to remodeling. It is a dynamic and complex process involving biochemical and physiological phenomena that work in harmony to ensure tissue repair^[10] During the inflammatory phase, this process is hampered by the production of high levels of free radicals. When not controlled by the host's antioxidant capacity, both cell migration and proliferation are inhibited, damaging the surrounding wound tissue.^[11] Therefore, in the present study, we investigated the phytochemical composition and various parameters of antibacterial and antioxidant activity that account for the key functions of the three previously mentioned medicinal plants (fenugreek seed oil, fenugreek seed oil, To evaluate the wound healing effect of sesame oil, grape seed oil). wound healing mechanism.

3. Methods and Discussion

This study provides the combined effect of physiological and antimicrobial properties of health and hygiene fabrics. The *Vitis Vinifera.L* seed oil finish has a significant impact on the antibacterial and physiological properties of treated samples. Antimicrobial activity was found to be significant in all treated swatches, even after 50 washes. Moderate microbial resistance of 48% and 39% against both *Staphylococcus aureus* and *E. coli*, respectively has been reported. *coli* after 50 washes at home. The final concentration of *Vitis Vinifera.L* seed oil has a significant impact on the physiological properties of all samples processed. Comfort properties are greatly influenced by the concentration of the *Vitis Vinifera.L* Seed Oil finish. The polyester/cotton fabric was found to have a water repellency of up to 28.3 cm. additionally, all treated samples show better water repellency due to the high concentration (20%) of *Vitis Vinifera.L* seed oil finish. The contact angle properties of the treated samples were also improved after treatment. Moisture management tests found fabric samples made from 100% micro-polyester and 100% textured polyester to be water repellent. The polyester/cotton and polyester/viscose treated swatches were found to absorb water. Among the samples tested, the seed oil treated polyester/viscose fabric *Vitis Vinifera.L*. It can be considered as the best material for and hygiene applications, with good antibacterial effect, high drying rate, moderate water repellency and improved contact angle.^[12]

Cotton has the disadvantage of lacking antimicrobial, antioxidant and UV protective properties, which are very important for health protection. In this study, *Vitis Vinifera.L* seed extract (VSE) was used to give the cotton fabric a light color and the above three functions at the same time. VSE application condition tests

showed that pH and VSE concentration had a great effect on the color depth of cotton fabrics, and the weakly acidic nature of VSE solutions could control the hue of dyed fabrics without pH modifiers. The 10% owf (fabric weight) VSE-stained fabric showed good inhibitory activity against *E. coli*, and the 20% owf VSE-stained fabric showed a high antioxidant activity of 97%. Fabrics dyed with 5%owf VSE provided excellent UV protection. This study shows that in addition to being dyeable, VSE can also be used as a functional finishing agent for health protection of cotton fabrics. ^[13]

4. Conclusion

This review study describes the cotton dyeing conditions using *Vitis Vinifera.L* seed extract and the color stability and fastness of the dyed fabrics, and the antibacterial, antioxidant and UV protective functions of the dyed fabrics. Evaluate Spectrophotometric studies showed good stability of *Vitis Vinifera.L* seed extract in weakly acidic media. Without a pH adjuster, the weak acidity of the *Vitis Vinifera.L* seed extract stabilized the hue of the stained tissue. In the absence of pH modifiers, the color depth of stained tissue was mainly dependent on the concentration of *Vitis Vinifera.L* seed extract, with little effect of temperature or time. The functional properties of stained tissues were dependent on the concentration of *Vitis vinifera* seed extract. *Vitis Vinifera.L* Seed Extract 10%, 20% and 5% owf provided excellent antimicrobial, antioxidant and UV protection, respectively. This review study is a preliminary investigation of the application of *Vitis Vinifera.L* seed extract in co-dyeing and functional finishing of cotton fabrics.

Reference:

1. <https://www.biblegateway.com/passage/?search=Luke%2010%3A25-37&version=NIV>
2. Euro+Med Plantbase Project. Archived from the original on 28 September 2007.
3. Wine and Spirits: Understanding Wine Quality (Second Revised ed.). London: Wine & Spirits Education Trust. 2012. pp. 2–5. ISBN 978-1-905819-15-7.
4. Zhong SP, Zhang YZ and Lim CT. (2010) Tissue scaffolds for skin wound healing and dermal reconstruction. Wiley Interdiscip Rev Nanomed Nanobiotechnol; 2: 510–525. Mani and Jaganathan 671
5. Gazzarri M, Bartoli C, Mota C, et al. (2013) Fibrous star poly (ε-caprolactone) meltelectrospun scaffolds for wound healing applications. J Bioact Comp Polym; 28: 492–507.
6. Chong EJ, Phan TT, Lim IJ, et al. (2007) Evaluation of electrospun PCL/gelatin nanofibrous scaffold for wound healing and layered dermal reconstitution. Acta Biomater 2007; 3: 321–330.
7. Sundaramurthi D, Vasanthan KS, Kuppan P, et al. (2012) Electrospun nanostructured chitosan-poly(vinyl alcohol) scaffolds: A biomimetic extracellular matrix as dermal substitute. Biomed Mater ; 7: 045005.
8. Falanga V, Faria K and Bollenbach T. (2014) Bioengineered skin constructs. In: Lanza R, Langer R and Vacanti J (eds) Principles of tissue engineering. Cambridge, MA: Academic Press, pp.1619–1643.
9. Dhandayuthapani B, Yoshida Y, Maekawa T, et al. (2011) Polymeric scaffolds in tissue engineering application: A review. Int J Polym Sci 2011; 1–19.
10. S. Enoch and D. J. Leaper, (2008)“Basic science of wound healing,” Surgery, vol. 26, no. 2, pp. 31–37.
11. Madhavi Gupta, Sanjay Dey, Daphisha marbaniang (2019) “Grape Seed Extract: having a Potential Health Benefits”, Journal of Food Science and Technology, vol 57, PP 1205-1215.
12. Shubham Joshi, Vinay midha, Subblyan rajendran (2021), “grapeseed oil (*Vitis Vinifera.L*) treatment on Polyester based fabrics to develop antibacterial and physiological comfortable health care and hygiene textiles”. Research square. PP-1-10.
13. Ling Guo, Zhi-Yi Yang, Ren-Cheng Tang, and Hua-Bin, (2020) Yuan Preliminary Studies on the Application of Grape Seed Extract in the Dyeing and Functional Modification of Cotton Fabric, Biomolecules. Feb; 10(2): 220. Pp 3-12.