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Formulation and Evaluation of Anti-Aging Cream using Grapes Seed Extract Oil

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Abstract: *Skin aging can be described as irregular pigmentation, increased wrinkling, loss of elasticity, dryness and roughness. Grapes seed oil extraction with antioxidant activity that is not yet included in a topical formulation. Studies have reported that grape seeds exhibit a broad spectrum of pharmacological properties against oxidative stress. Their potential health benefits include protection against oxidative damage, and anti-diabetic, anti-cholesterol, and anti-platelet functions. Aim of this study was to evaluate the antioxidant and antiaging activity of a cream formulation containing a grapes seed oil exactraction*

Keywords: grape seeds, grapes, proanthocyanidins, flavonoids, catechins

I. INTRODUCTION

Grapes are one of the most widely grown fruits and the total production of grapes worldwide is approximately 60 million tons.[1] The major producers of grapes are the USA,China,ltaly,and France.[1]Grapes can be categorized into grapes with edible seeds, seedless,wine grapes,table grapes,and raisin grapes.[2] North American grapes (Vitis labrusca and Vitis rotundifolia), European grapes(Vitis Vinifera), and French hybrids are the main species of grapes.(2) oxidative stress and ultraviolet (UV) light radiation are major detrimental factors in skin tone and aging [3,4]. Oxidative stress is provoked by the production and release of reactive Oxygen species (ROS), which is amplified during dermal aging. Moreover, prolonged exposure to ultraviolet light A (UVA) and ultraviolet light B (UVB) triggers signaling cascades in dermal fibroblasts and keratinocytes, resulting in inflammation, melanin production, DNA damage, and photoaged skin [5,6]. An emerging target that plays a critical role in oxidative stress signaling, inflammation, skin barrier function, and melanogenesis is Protein phosphphatase 2A (PP2A). PP2A is a master regulator protein composed of three subunits: A (structural), C (catalytic), and B (regulatory). ROS have been shown to inactivate PP2A [5], resulting in activation of nuclear factor kappa B (NF-KB)-mediated pro-inflammatory signaling. In human dermal fibroblasts, oxidative stress drives the disassociation of the fully active PP2A holoenzyme trimer to the less active dimeric form [7]. PP2A activation has been proposed as a potential therapeutic target for combating oxidative stress [8] and is required for proper epidermal barrier formation during late embryonic development [9]. Additionally, a decrease in PP2A activity has been shown to lead to failures in filaggrin processing, which is essential for epidermal barrier homeostasis [10]. Moreover, ceramides, which play a critical role in skin barrier function, have been reported to activate PP2A [11], as has a-tocopherol (Vitamin E), a commonly used topical antioxidant [12]. Lastly, PP2A has been suggested to be involved in melanogenesis via proteasomal degradation of tyrosinase [13]. Altogether, these data suggest that maintaining PP2A in its active state is critical for combating

Oxidative stress and promoting healthier, brighter skin.
Vitis vinifera (grape) seed extracts are rich in bioactive polyphenols, such as flavonoids, that have been previously reported to possess strong anti-inflammatory, antioxidant, anti-aging, and skin- brightening properties [15,16,17]. Due to this broad range of activities, extracts rich in flavonoids are commonly used in
cosmetic skincare products [18]. We recently reported the identification and characterization of activated grape seed extract (AGSE), a novel grape seed extract enriched with PP2A-activating flavonoids that has effective anti-aging activity and is signitficantly more potent than commercial grape seed extract in inhibiting PP2A demethylation

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Characteristics and shelf life

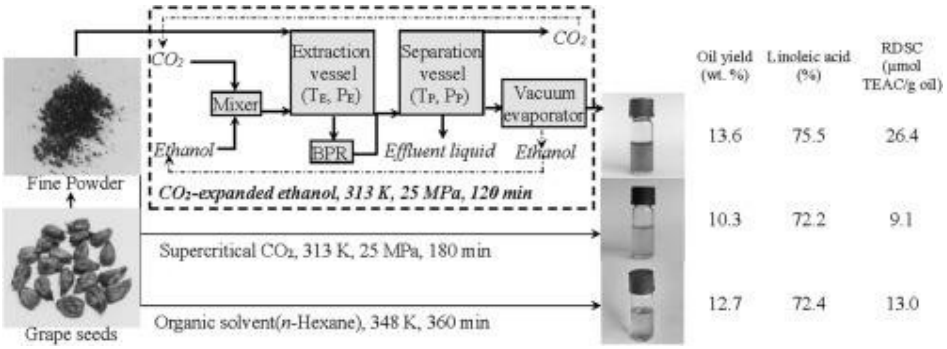
The smell of cold-pressed oil can be described as odorless to sweet, woody, and aldehydic. Taste-wise, cold-pressed oil is faintly sweetish, even somewhat nutty. On the other hand, warm-pressed oil assumes a neutral yet sometimes burnt and unpleasant taste. Grape seed oil has a solidification point of between -24 and -10°C; a melting point around 10°C; and a boiling point not until about 220°C. The color of cold-pressed grape seed oil ranges from colorless to brown-yellow. If the oil is obtained through a warm-pressing, however, then it is rather greenish. Grape seed oil is composed of a high percentage of essential, unsaturated fatty acids (ca.

71% polyunsaturated fatty acids, particularly omega-6 linoleic acid), around 18% monounsaturated fatty acids (particularly oleic acid), and only ca. 11% saturated fatty acids (particularly palmitic acid and stearic acid); as well as a high amount of vitamin E and the natural antioxidant procyanidin (proanthocyanidin, OPC). In addition, the oil also contains polyphenols, phytosterols, glycerides of ricinoleic acid, lecithin, and resveratrol. Grape seed oil, while it is counted among the most expensive oils, is also among the most precious. Genuine grape seed oil is often described as a delicacy. It has a musty-grapey aroma and can refine a variety of dishes.

If stored in a dark and cool place, its shelf life is 12 months.

Other medical applications

work palliatively for signs of old age[19]



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Grape seed oil extraction

The method chosen for oil extraction depends on the nature of raw material [24]. The traditional way for extracting grape seed oil is cold pressing the whole seeds in discontinuous hydraulic press or milled and heated seeds in screw press. It is important that the seeds moisture content won't exceed 10% [20.]. Cold pressing extraction is a mild process that allows obtaining a good quality of oil [25]. Recently, alternative methods are being suggested, without organic solvents like hot water extraction, supercritical fluid extraction (SFE) [21], supercritical CO2 extraction [21,22], pressurized liquid extraction (PLE)

[23] and ultrasound assisted extraction [21].

Preparetion of cream formulation:

Cream sample were prepared by extracts from the grapes seed oil were used in the formulation. The cream was prepared according to the amounts given in **Table 1.**

	Ingredients	**Quantity**
Oil Phase	Steric acid	4gm.
	Cetyl alcohol	3.5gm.
	Glycerine	2.5gm.
	Tryethalomine	1gm.
	Extract oil	0.5gm.
Water Phase	Sorbotal	1gm.
	Water	10 gm.

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In a beaker, the oil phase components were weighed and heated to 70 degree C. In another beaker, the substances forming the water phase were completely dissolved and heated to the same temperature as the oil phase. The two phases were mixed in the same beaker at this temperature. The resulting emulsion was allowed to cool to 40 degree C. At this temperature, preservative and essence were added to the formulation . The pH of the cream obtained was adjusted to 5.5-7 with citric acid.

Evaluation of prepared cream formulation:

Physical evaluation -The grape seed oil cream was tested for odour, appearance, and homogeneity thro ugh visual observation and touch.

Colour- The colour of the cream was observed by visual examination i.e.white colour.

Odour- The odour of cream was found to be characteristics.

Apperance- The appearance of cream was examined visually.The ceam having a semisolid state.

Consistency- The formulation was examined by rubbing cream on hand manually. The cream having smooth consistency. Cream leave greasy substance on skin surface after application

Sr. No.	Properties	Observation
1.	Colour	White
2.	Odour	Characteristics
3.	Apperance	Semisolid
4.	Consistency	Smooth

Determination of pH- The pH meter was calibrated using standard buffer solutions. About 0.5gm of the cream was weighed and dissolved in 50ml od distilled water in a beaker, and its pH was measured.

Spreadability- Emolliency, slipperiness, and amount of residue left after the application of the cream was checked.

Stability Study- Stability testing is started test of drug during drug discovery procees. The stability testsing formulation assessed according to ICH guideliones. In this study the formulation is kept in proposed pack or prototype containers if drug in bulk form in required number at room temperature. It is placed away from the light.

Test	**After one month**
Physical appearance	Semi solid
Texture	Smooth and creamy
Colour	White
Odour	Characteristic
pH value	7.27
Thermal stability	Stable
Degradation of product	No

II. CONCLUSION

Grapes are one of the most widely grown fruits.Its seeds is tried to be proved that might have various biological impacts. Grapes seed extraction oil and cream formulation prepared from it showed a high level of antioxidant activity. It was detected that the cream which was formulated according to the finding might have anti- aging potential and can be used on the skin. Using grapes seed extraction oil in cosmetic products was reached in the study, and other researches for skin will be conducted in further studies.

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