

# Characterization of fruit Garbage Waste Containing Vitis Vinifera Seeds

Balakrishnaraja R, Kavinaya K G, Monisha K

**Abstract:** From the Grape (*Vitisvinifera*) the grape seed oil is extracted. Due to the presence of more polyphenol compounds in the grape seed, it possesses antioxidant property. The polyphenol compounds are used in the inhibition of degenerative diseases, particularly heart diseases and malignant growth of cells. With an intention to serve the biopharmaceutical industry in developing chemotherapeutic agent, we explored components present in the grape seed oil. Grape seed oil was separated with the aid of pressing and by adding some solvents. GRSE was characterized using UV/VIS spectrophotometer and high performance chromatography systems.

**Keywords:** UV/VIS ,GRSE,(*Vitisvinifera*),From the Grape

## I. INTRODUCTION

Grapes are usually cultivated in moderate warm climatic zones. When compared to fruits and peels grape seed accommodates more amount of polyphenol compound (60-70%). Flavonoids are the major polyphenol compound in the grape seed. [1] Grape seed extract(GSE) concentrates on the recent advancement in anticancer ability and other grape-based product.[2] The grape seed contains more amount of polyunsaturated fatty acids more than the other vegetable oils. It performs an important task in the production of cosmetics and drugs. [3] The chemical composition analysis of grape seed oil by chromatographic/ spectroscopic methods, Triacylglycerol (TAG) is the rich lipid compound that present in the oil and this can also be identified with these methodologies.[4] GSE available as additives in a liquid form or capsules. Absorption spectroscopy is a complement in which transition of atoms from ground state to excited state is measured by absorption, while the transfer of atoms from excited state to ground state is assigned by fluorescence [5]. Grape Seed oil has high grade of nutritional oil and it involves in the prevention of blood clotting, heart diseases, reduce fat content in blood serum, blockage of capillaries and modulation of nervous system. [6]

## II. MATERIALS AND METHODS

Dried grape (*Vitisvinifera*) seeds, all chemicals and solvent used were scientific grade from Sigma Aldrich, Bengaluru. Methanol is used as solvent to extract the grape seed oil.

## III. GRAPE SEED EXTRACTION USING COLD PRESSING METHOD

Seeds and skin of the grapes were carefully removed using strainer/ hands, washed and dried for approximately

24 hours. Cold pressing is adopted to collect the extract from the dried seeds using pester and mortar (~100 g of dried seeds) until ground as fine powder with dropwise addition of methanol. Pressing the extracts until the oil shows the visible separation from the grape seed powder. Approximately after 16-18 hours, the cold pressed oil was separated and stored in closed glass bottles (~50 ml)

## IV. CHARACTERIZATION OF GRAPE SEED EXTRACT (GRSE)

Methanol extracts of grape seed was measured using ( $\lambda$ 35 model) and found the maximum and minimum wavelength as 424.56 and 395.96 nm respectively as shown in the Figure 1. Methanol was used as blank solution. Further, GRSE was characterized using TLC for the presence of phenolic acids. 20  $\mu$ l of GRSE was injected in the C-18 column with mobile phase as methanol and detection using UV-280 nm the high performance liquid chromatography (Agilent systems - model: 1220).[7]

## V. RESULT AND DISCUSSION

The results revealed that the GSE could be obtained using methanol and the extract hold more advantageous ingredients. In addition to lot of individual additives in GSEit has established both inside and outside the laboratory to avoid cancer causing agents[8], to prevent unconditional cellular growth, to elicit apoptosis for tumor growth. [9] The relevant features of GSEinvolves a vital role in both normal and cancer cells. Even at the highest concentrations, GSE are free from risk and provides protective actions [10, 11]. GSE and other phytochemicals inhibits programmed cell death process and provides a powerful anti-bacterial/ anti-oxidant activity on normal cells or tumor cells irrespective of the dosage level. [11]

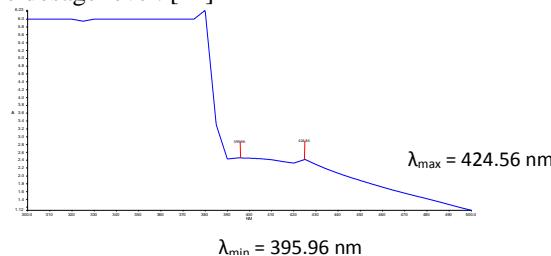


Fig.1 Characterization of grape seed extract by UV/VIS Spectrophotometer

The polyphenolic compounds spreaded in a grape (*Vitisvinifera*) seed oil and was identified using TLC and HPLC.

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Balakrishnaraja R, Department of Biotechnology,Bannari Amman Institute of Technology, Sathyamangalam, Tamilnadu, India.

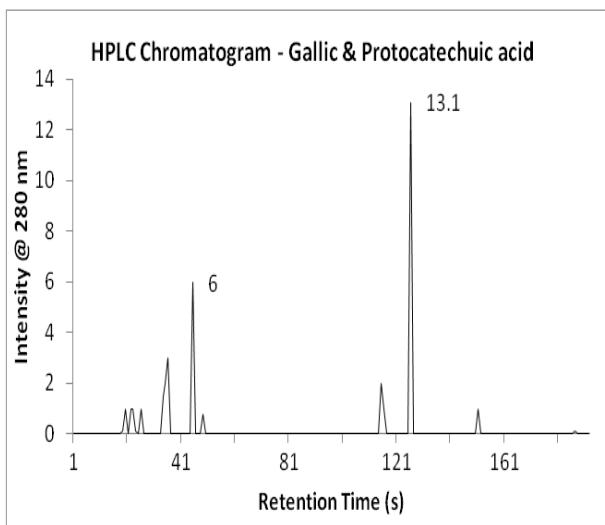
Kavinaya K G, Department of Biotechnology,Bannari Amman Institute of Technology,Sathyamangalam,Tamilnadu,India.

Monisha K, Department of Biotechnology, Bannari Amman Institute of Technology, Sathyamangalam, Tamilnadu, India.

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The gallic and protocatechuic acid are the components determined from GSE. This study addresses the significance of GSE extraction and its significance in antioxidant behavior of the phenolic acids. The compounds extracted acts against the infected human lymphocytes (*invitro protection*). [5]

The mechanism of gallic and protocatechuic acid (phenolic acids) derived from GSE that acts against microbes which prevent the action of hydrolytic enzymes or other reactions to stop the activation of microbial sticking. Through the non-specific interaction with proteins are with sulphydryl groups the oxidized compounds are produced to stop the hydrolytic enzyme activity, by this phenolic antibacterial activity is produced to form precipitates due to tannin/ flavonoid presence. [9]



**Fig.2 HPLC chromatogram showing phenolic acids from Grape seed extracts**

This study reveals the presence of gallic and protocatechuic acid based n retention time as copared with reference compounds using HPLC analysis of GSE. It is evident from the cited literature; the Grape seed extract (GSE) acts against inflammation and minimize the effect of uncharged molecules throughout the human morphology. While antioxidant power with reduction of aging , it also balances immune response to persistent reduce chronic joint irritation. [10] Allergic hyper sensitivity plays major role in stoping the tracheal conduit and the some irritation in lungs associated tissues will be reduced by the activity of GSE.

The research felt that grape seed extract plays a major role in trating all kinds of asthma. Considering the GSE is free of side effects and risks due to its organic nature, asthma patients can use GSE as an alternative drug. GSE containing lot of proanthocyanidins which provide a better and effective therapy for RA. It improves the multitude health factors for women during menopausal period. Grape seed extracts reduce the anxiety, blood pressure levels due to the presence of phenolic acids such as gallate and procatechuic acids. [11]

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