



# Grape seed extract: having a potential health benefits

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Revised: 11 September 2019 / Accepted: 23 September 2019  
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**Abstract** Grapes are one of the most highly consumed fruits across the world. In ancient Europe the leaves and the sap of grape plants has been used in traditional treatment for ages. Besides being a wellspring for vitamins and fibre, the skin and seeds of grapes are highly rich in Polyphenols specifically proanthocyanidins, which can be used as a functional ingredient to address various health issues by boosting the natural bio-processes of the body. Since, grape seeds are by product of wine making companies therefore can be easily procured. The present review article briefly describes the various pharmacological activities of grape seed extract and different experimental studies were done which supports the beneficial health qualities of the extract. Through different and various studies, it was proved that the proanthocyanidin rich grape seed extract provides benefits against many diseases i.e. inflammation, cardiovascular disease, hypertension, diabetes, cancer, peptic ulcer, microbial infections, etc. Therefore, beside from using it as a nutraceutical or cosmeceutical, as a result they may have a potential to substitute or complement in currently used drugs in the treatment of diseases by developing it into other successful pharmaceutical formulations for better future prospective.

**Keywords** Grape seed extract (GSE) · Proanthocyanidin · Antioxidant · Oxidative stress · Vascular endothelial growth factor (VEGF)

## Introduction

Grape (*Vitis vinifera*) belongs to family *Vitaceae*. Grapes itself is widely consumed all over the world. Major producers of grapes worldwide are USA, China, Italy and Europe. In Europe, grapes, its leaves and the sap have been used in traditional treatment for ages. There are many categories of grapes with respect to their uses like wine grapes, table grapes, seedless, edible seed and raisin grapes. Seeds of grapes can be collected as a byproduct from any wine manufacturing industry. The seeds of red wine grapes are usually used to gather Grape Seed Extract (GSE).

## Chemical composition of GSE

In order to obtain GSE, Grape seeds were separated from the grapes manually, air-dried (in the shade, 25–30 °C) for 1 week, and grounded to fine powder. The grounded grape seed powder was macerated in 70% ethanol (25% w/v) for 3 days at room temperature and filtered. The filtrate was dried at room temperature (about 25 °C) to evaporate ethanol and powdered GSE was obtained (Badavi et al. 2013). Dried seeds of grapes contain around 35% fiber along with 29% extractable components including Phenolic compounds, proteins (11%), mineral (3%) and water (7%) (Matthaus 2008). GSE is having abundant source of polyphenols. Polyphenols and flavonoids present in the GSE have been shown remarkable interest based on

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