Ultrasound Assisted Extraction of Phenolic Compounds from Grapes

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\textbf{SUMMARY}

The grapes contain large amounts of polyphenols, especially anthocyanins which act as antioxidants. Phenolic compounds in grapes can be phenolic acids (precursors of flavonoids) and flavonoids (Shi \textit{et al.}, 2003). These compounds represent the third most abundant constituent after carbohydrates and fruit acids (Singleton, 1980). Polyphenolic compounds are commonly obtained by extraction with organic solvents (methanol, ethanol and acetone). The methanol-water 80/20 v/v solution was applied to extract the polyphenolic compounds from freeze-dried grapes. Fresh grapes were washed by immersion in cold water and then crushed for about one minute. The solid material was separated from the liquid by filtering the suspension and squeezing. The obtained solid residue was homogenized and equally divided into samples to perform the ultrasound treatments. 10g samples were added in 20 ml of solvent, placed into bags and hermetically sealed. The bags were then immersed in an ultrasound bath for 15, 30, 45, 60, 75 and 90 min at a constant frequency of 35 kHz and the polyphenols were extracted using Soxhlet method. The dry extracts were obtained by evaporating the solvent at room temperature and the extractive yield was determined by weight differences. The content was measured by standard method at 105°C, before and after ultrasound treatment. The main finding of this project is that the ultrasound exposure time greatly influenced the extraction yield. The newly developed method can be used by the pharmaceutical industry in obtaining ultra pure polyphenolic compounds.

\textbf{REFERENCES}
