

19<sup>th</sup> International Conference on

# FOOD PROCESSING & TECHNOLOGY

October 23-25, 2017 | Paris, France

## Antioxidant activity of sour cherry juice, wine, vinegar

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Sour cherry juice is characterized by its high acidity. It was determined that that sour cherry had four types of anthocyanin compounds: cyanidin-3-glucosylrutinoside, cyanidin-3-sophoroside, cyanidin-3-rutinoside and cyanidin-3-glucoside. Sour cherries have major group of phenolic compounds. Research shown that phenolic compounds are said to prevent cardiovascular diseases and to possess strong anti-inflammatory and anticarcinogenic activity. Sour cherries are characterized with sufficient acid level and are preferred for winemaking, using very similar procedure to the grape wine making process. It can also be made in vinegar at the same time. Vinegar is obtained from agricultural raw materials by a double-fermentation process which is ethanol and acetic acid fermentations. There are different vinegar making methods. Surface (traditional) method is a slow method in the culture of acetic acid bacteria and submerges (industrial) method which is a quick process involving a culture where the oxygenation has been greatly improved. The aim of the study was to determine antioxidant activity of the formation stages of the sour cherry vinegar. Samples were taken of sour cherry juice, wine and vinegar. Total titratable acidity, pH, total phenolic contents, antioxidant activity using ABTS, ORAC, DPPH assays of samples were measured. Average total titratable acidity, pH, total phenolic content, TEAC, ORAC values of sour cherry juice samples were found 1.81 g malic acid/L, 3.01, 2034.44 mg GAE/L, 0.929 mmol/L and 7.13  $\mu$ mol/L, respectively. Total titratable acidity and pH values of sour cherry wine samples were found 1.52 malic acid/L, and pH 3.17 respectively. Total phenolic content, TEAC and ORAC values of wine samples were between 1422.7-2254.09 mg GAE/L, 0.438-1.217 mmol/L and 6.71-9.21  $\mu$ mol/L, respectively. Average total titratable acidity and pH of vinegar samples were found 6.6 g acetic acid/L, and pH 2.97 respectively. Total phenolic content, TEAC and ORAC values of vinegar samples were between 2554.82-3511.60 mgGAE/L, 0.814-1.087 mmol/L and 6.86-9.60  $\mu$ mol/L, respectively.

### Biography

Havva Nilgun Budak has a Bachelor of Science degree in Food Engineering from Suleyman Demirel University, Isparta, Turkey. She holds a Master's and PhD degree in Food Technology. Her research interests are: bioactive substances, functional foods, fermented food products, apple vinegar, wine and its phenolics, total antioxidant capacities (ORAC, TEAC), animal tests. Her patent work is entitled: Functional drink vinegar and vinegar beverage to obtain the functional method. Her research projects (2009-2010) include: Cost Action FA0602, Bioactive food components, mitochondrial function and health (MITOFOOD).

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