

4<sup>th</sup> International Conference and Exhibition on

# Food Processing & Technology

August 10-12, 2015 London, UK



## Sharon Ross

National Cancer Institute, USA

### Consumption of fermented beverages and their influences on health and disease

Fermented foods and beverages are part of the traditional and economic fabric of many cultures, with the fermentation process imparting texture and flavor, providing nutritional value and other bioactive components and influencing food safety. The type of microorganisms used in a fermentation process influence the outcome of the fermented product. Yeasts produce ethanol as the main fermentation product, and the main fermentation product of lactic acid bacteria is lactic acid. Fermentation by yeast is primarily an anaerobic process converting sugars, such as glucose, to other compounds like ethanol, while producing energy for the microorganism. Fermented beverages include those that utilize grains (beer, rice wine, maize-based beverages), fruit (wine), tea (kombucha), and milk products (fermented mare's milk, kefir). This talk will focus on the yeast fermented beverages wine and beer, including their processing, composition and consumption, as well as biological roles in health and disease. The consumption of wine and beer has been associated with both healthy and harmful effects. Studies concerning the "French paradox" and adherence to a Mediterranean dietary pattern suggest benefit from consuming wine. Wine has a complex composition, depending on whether it is red or white as well as the variety of grape used in fermentation. Interestingly, it has recently been speculated that grape-derived microbiota may influence wine quality or terroir. Alcohol and phenolic compounds, i.e., resveratrol, have been associated with health effects of wine consumption, including cardiovascular disease risk reduction. Evidence also suggests that yeast fermentation of grapes and the resulting alcohol contribute to the increased bioavailability of resveratrol compared to the same amount of resveratrol from grape juice. Beer is rich in nutrient as well as non-nutrient components, including carbohydrates, amino acids, minerals, vitamins, and phenolic compounds. Beer and wine both contain phenolic compounds, but the specific phenolic compounds are different because the barley and hops used in the production of beer contain phenolic compounds different from those in grapes used in the production of wine. For example, Xanthohumol, the most abundant flavonoid in hops, is used as a preservative and to add bitterness and flavor to beer. Xanthohumol has several putative biological properties, including anti-inflammatory and oxidative stress modulation. Evidence to support the health benefits of moderate consumption (defined as 1 alcohol drink per day for women and 2 drinks per day for men) of either wine or beer or wine over beer has not been conclusive. Food scientists are currently employing techniques to increase the production of phenolic compounds during beverage fermentation, while nutrition scientists are describing the potential biological effects from consumption of beer and wine.

### Biography

Sharon Ross is a Program Director in the Nutritional Science Research Group, Division of Cancer Prevention, National Cancer Institute, National Institutes of Health. Prior to joining the NCI, she worked at the Center for Food Safety and Applied Nutrition, Food and Drug Administration. She has a PhD in Nutritional Sciences from the University of Maryland, College Park and a Masters of Public Health from Johns Hopkins University School of Public Health with an emphasis in Epidemiology.

[rosssha@mail.nih.gov](mailto:rosssha@mail.nih.gov)