## G25
## IDENTIFICATION OF WINE POLYPHENOLS WITH ANTIMICROBIAL AND GROWTH-STIMULATORY ACTIVITY USING A NOVEL IN-SITU METHOD BASED ON HPTLC/MS

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During winemaking, malolactic fermentation (MLF) is a critical step for obtaining high-quality wine. Some wine parameters such as low pH, high alcohol content and some polyphenols with antibacterial activity may affect this fermentation process. Wine polyphenols contribute to the organoleptic characteristic of wines, color, astringency and bitterness. Their consumption has been associated with some health benefit like protection against cardiovascular disease. Some reports have confirmed that various wine polyphenols have an inhibitory effect on lactic acid bacteria responsible of MLF. This antibacterial activity strongly depends on the phenolic structure, dosage, and microbial strain. The main polyphenols with inhibitor effects over MLF bacteria (*Oenococcus oeni*, *Lactobacillus hilgardii* and *Pediococcus spp.*) are flavonol and stilbenes. Although, wine polyphenols may have antibacterial activity, other authors reported that some polyphenols may promote bacterial growth. The objective of the present work was to evaluate both activities identifying the bioactive compounds by High-Performance Thin Layer Chromatography (HPTLC) coupled to mass spectrometry (MS). Nowadays, HPTLC/MS are a simple and fast technique for the separation and identification of bioactive compounds present in the raw extracts such as wine. The proposed HPTLC/MS method allowed the separation of nine polyphenols presents in wine, i.e. quercetin-3-O-arabinoside, malvidin-3-glucoside, peonidin-3-glucoside, vitisin B, malvidin-3-O-(6-acetyl) glucoside, petunidin-(6-acetyl)-glucoside, malvidin-3-O-(6-p-coumaroyl)-glucoside, gallic acid and petunidin-3-glucoside. Bioassay was performed using *Lactobacillus rhamnosus* previously acclimated as target bacterium. The assay was performed with malvidin-3-glucoside, freeze-dried wine and *trans*-resveratrol. Results showed that malvidin-3-glucoside and the freeze-dried wine had growth-stimulatory activity, while *trans*-resveratrol showed antimicrobial activity. Finally, the proposed method based on HPTLC/MS contributes to the fast and simultaneous identification of antibacterial and growth-stimulatory compounds in wine.

***Keywords:*** *HPTLC-MS, polyphenols, wine, bioassay*

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## G26
## NUTRITIONAL COMPOSITION OF BRAZILIAN SORGHUM GENOTYPES FOR HUMAN CONSUMPTION

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Sorghum is one of the five most important cereal crops behind rice, wheat, corn and barley. It is a staple food grain in many semi-arid and tropic areas of the world because of its good adaptation to hard environments and its good yield of production. The interest in using sorghum in human foods has been gradually increasing in some countries because it is an excellent alternative ingredient for making gluten-free products. Moreover, some sorghum genotypes may contain high levels of nutrients and bioactive compounds including tannins, phenolic acids and anthocyanins, which are associated with several health benefits. In Brazil, sorghum is cultivated mainly for feed and there are limited nutritional composition data of different cultivars for human consumption. Thus, the aim of this work was to evaluate the proteins, lipids, fibers, ash, carbohydrates, iron and zinc contents of 11 sorghum genotypes with tannins (BR305, SC103, SC319, CMSS005) and tannin-free (BRS330, BRS332, BRS373, BRS380, BRS501, HE1167017, HE1167048). The genotypes were grown in the same experimental area of the Embrapa Milho e Sorgo, Sete Lagoas, Brazil. The protein content was quantified using an FP-528 Leco Nitrogen Analyzer (nitrogen x 6.25). The fibers were analyzed in a Tecnal EQ LCC 08 fiber analyzer and the lipids in a XT10 Ankom Fat extractor. The ash content was determined with calcination of the organic matter in a Q 318 D 24 Quimis muffle at 600°C for 2 hours and the carbohydrates were determined by the difference between the total in the sample (100%) and the content of proteins, lipids, fibers and ash. The minerals Fe and Zn were determined in an Inductively coupled plasma-optical emission spectrometer (ICP-OES) Varian 720 ES. All results were expressed on a dry matter basis. The results showed significant differences (Tukey´s test, $p<0.05$) in the contents of all nutrients among the genotypes. The protein concentration of samples ranged from 12.2 to 16.9%, lipids from 2.2 to 4.6%, fibers from 9.4 to 20.2%, ash from 2.2 to 6.5%, carbohydrates from 57.5 to 71.8%, iron from 27.9 to 53.2 mg/kg and zinc from 18.7 to 43.0 mg/kg. SC103 was the best genotype to protein, iron and zinc contents. The fiber, lipids, ash and carbohydrates concentrations were higher in the genotypes BR305, BRS380, BRS373 and BRS501, respectively. The conclusion was that grains of some sorghum genotypes may be sources of nutrients and may contribute to insure food security, especially in regions with high prevalence of malnutrition as in the Brazil Northeast Region, where the climate is semi-arid.

***Keywords:*** *Sorghum bicolor (L.) Moench, gluten-free, food security, nutrients*

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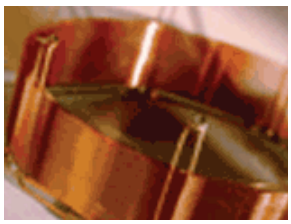

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