Winetech Scan

August 2011

Wine Industry Network of Expertise and Technology
Netwerk van Kundigheid en Technologie vir die Wynbedryf

Research News

Preferred sensory attributes of Sauvignon Blanc

To investigate the sensory properties and aroma compounds responsible for driving consumer preference of Sauvignon Blanc wines, three thiols including their enantiomers, a methoxypyrazine and a combination of esters were added in combinations to a neutral white wine to mimic Sauvignon Blanc wines, resulting in 20 different samples and a control. A sensory descriptive analysis of the samples found while each thiol contributed to tropical and cat urine/sweaty attributes, 3-mercaptohexyl acetate (3MHA) was of particular importance. The 'green' characteristics were primarily related to methoxypyrazine, but thiols were also found to contribute to a cooked green vegetal attribute. Methoxypyrazine dominated the sensory properties of other components. The thiol S-enantiomers gave higher cooked green vegetal or cat urine/sweaty attributes than their R-counterparts. Six of the wine samples and the control were then evaluated by 150 consumers. 31% preferred wines with higher tropical and confectionary aroma, 43% preferred wines with 'green' attributes, and 26% related positively to solvent and 'green' attributes, and negatively to tropical and cat urine/sweaty. http://dx.doi.org/10.1111/j.1755-0238.2011.00133.x

A super sand filter

Ordinary sand coated with a nanomaterial, graphite oxide (GO), can remove five to six times more impurities from water than can ordinary sand. The researchers employed a surface modification technique to synthesize hydrophilic GO nanosheets containing covalently attached thiol groups. The GO nanosheets were suspended in a liquid, to which sand was added. The mixture was heated and then dried. The treated sand's activity was similar to that of activated carbon, a porous form of carbon that has a large surface area to absorb impurities, and which is expensive to make. The method for treating the sand is simple and uses cheap materials, making the technique appropriate for developing countries. http://dx.doi.org/10.1021/am200300u

Suprisingly, increased variety increases the willingness to pay more

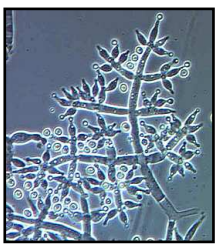
For many upscale goods, such as wine, while the variety available to consumers has increased, prices have also increased – contrary to economic models that find competition should lead to lower prices. A recent study has found that when the product was desirable instead of functional, consumers with a wide range of choices will focus on quality, and not on price, and a switch to superior products becomes more enticing, and subsequently, a switch to inferior products becomes less tolerable. The choice set size should not dictating the willingness to pay, and yet it does. Two of the four investigations involved wine purchases. Participants presented with 27 different Sauvignon Blancs were prepared to spend significantly less on a bottle picked from the cheapest price tier than their counterparts who were presented with only 9 alternatives. They were also prepared to spend significantly more on a bottle picked from the average price tier. An investigation into 63 wine auctions revealed that at auctions with more choices, people paid more for the bottles with high appraisals and less for the ones with lower appraisals. This behaviour became apparent when there were 40 or more price categories in the catalogue. www.columbia.edu/~ss957/articles/The%20Discriminating%20Consumer.pdf

Wild genetic stock of lager-brewing yeast identified

The difference between lagers and more traditional ales lies in the yeast. Ales are made with baker's yeast, *Saccharomyces cerevisiae*. Lagers, first brewed in the 15th century, employ an allotetraploid hybrid yeast, *Saccharomyces pastorianus* (syn. *Saccharomyces carlsbergensis*), a domesticated species created by the fusion of a *S. cerevisiae* ale-yeast with an unknown cryotolerant *Saccharomyces* species. Geneticists have now found the unknown species in Patagonia in South America. Named *Saccharomyces eubayanus*, it lives in galls that infect beech trees there. Genetic sequencing confirmed that the yeast in the galls is 99.5% identical with the non-ale half of the lager-yeast genome. The discovery of *S. eubayanus* opens up a trove of genes that did not make the transition to *S. pastorianus* but which might help the process of cold brewing, with a beer company already interested in using the new yeast and lab-created hybrids. www.pnas.org/cgi/doi/10.1073/pnas.1105430108

Local Research News

Trunk diseases of grapevines



Grapevine trunk diseases pose a significant threat to grape production in South Africa. A project examined various aspects of trunk diseases, including the pathogens causing trunk diseases in different table and wine grape growing regions, spore dispersal patterns, pruning wound susceptibility, influence of stress factors on disease development, and the testing of different chemical and biological pruning wound protection agents. It was found that (pruning) wounds must be protected against the complex of trunk disease pathogens in all grape growing regions and that protection agents were effective in the long-term. *In vitro* trials showed that *Trichoderma* (right), a fungus used as a biocontrol agent, inhibited the growth of trunk pathogens but also caused hyphal swelling and disruption of hyphae. Field trials comparing chemical and

biological control products showed that the *Trichoderma*-based products and isolates worked as well and even better than benomyl. *Trichoderma* was found to persist in pruning wounds up to eight months after inoculation. The formation of tylosis, gums and increased lignin deposition was observed. Tests on eight wine and four table grapevine cultivars showed that Chenin blanc and Thompson Seedless had the highest *Trichoderma* incidences in wine and table grapes respectively. It was concluded that that pruning wound protection is a result of *Trichoderma*-grapevine-pathogen interactions and is not just the suppressive effect of *Trichoderma* on the pathogens. www.sawislibrary.co.za/dbtextimages/Winetech2010_12.pdf

Fynbos species as cover crops

A study to determine the potential of Renosterveld and lowland fynbos species as cover crop species, and their effect on grapevines, soil-borne grapevine pathogens and grapevine pests found that none of the 17 indigenous species tested performed at an acceptable level. Despite taking measures to overcome seed dormancy, the indigenous seeds did not germinate and grow sufficiently to warrant further investigation. It was concluded that none of the indigenous mixtures or monocultures should be considered for cover crop management on either sandy or medium textured soils in the Coastal wine grape region. www.sawislibrary.co.za/dbtextimages/Winetech2010_07.pdf

Alcohol and health

Alcohol consumption and cognition

A meta-analysis of 143 papers investigating the relationship between the moderate drinking of alcohol and some aspect of cognition has been carried out. The number of subjects in the 143 papers was 407 843. It was concluded that heavy drinking is associated with an increased risk of dementia and cognitive impairment. However, light to moderate drinking by adults, particularly of wine, does not appear to impair cognition in younger subjects and actually seems to reduce the risk of dementia and cognitive decline in older subjects. While it appeared that wine was better for cognition than beer or spirits, this finding was based on a relatively small number of the papers, because most did not distinguish between different types of alcohol. www.dovepress.com/moderate-alcohol-consumption-and-cognitive-risk-peer-reviewed-article-NDT

Alcohol consumption patterns and diet in Spain

A survey of 12 037 persons in the region of Madrid found 69% of them consumed alcohol (all following percentages are of the total surveyed). 10.3% reported binge drinking and 4.3% reported that they were excessive drinkers (with or without binge drinking). 15.4% preferred beer, 12.6% wine and 5.5% spirits, while the rest had no preferences or did not drink. In comparison with never drinking, average moderate drinking with binge drinking (8%) was associated with excessive meat consumption. Excessive alcohol consumption without binge drinking (2%) was associated with insufficient intake of milk products and excessive consumption of meat, fish, and eggs. Excessive drinkers with binge drinking (2.3%) more often did not meet recommended guidelines on consumption of fruit and vegetables, milk products and meat. Excessive drinkers, with and without binge drinking (4.3%), were more likely to skip a meal, especially breakfast. Consumption mainly of spirits (6.5%) was associated with insufficient fruit and vegetable consumption, and with skipping a meal. Finally, drinking at mealtimes (24.2%) was associated with poor adherence to most of the recommended food consumption guidelines. No dietary differences between men and women were found in relation to alcohol consumption. http://dx.doi.org/10.1111/j.1530-0277.2011.01559.x

Other News

Warning against counterfeit wines in China

The practice of counterfeiting big-name consumer products in China has spread to the wine industry and small wineries in Australia looking to tap into the $170 million Chinese wine market (the world's fastest-growing) are under threat, experts have warned. Producers needed to register both the English and Chinese versions of their brand before they started thinking about going into China. It was also necessary, despite the cost, to police the market and to track the culprits down. http://au.news.yahoo.com/thewest/business/a/-/wa/9905642/wine-makers-suffer-from-rip-offs-in-china/

The story of Phylloxera

Dying on the Vine: How Phylloxera Transformed Wine by George D. Gale chronicles 150 years of scientific warfare against the grapevine's 'worst enemy'. In a book that is highly relevant for the wine industry today, George Gale presents an account of the biological and economic disaster that unfolded when an almost microscopic sap-sucking insect spread from the south of France in the 1860s throughout Europe, and journeyed across oceans to Africa, South America, Australia, and California, laying waste to vineyards wherever it landed. He tells how scientists, viticulturalists, researchers, and others came together to save the world's vineyards and, with years of observation and research, developed a strategy of resistance. The book also discusses *phylloxera* as a case study of how one invasive species can colonize new habitats and examines California's past and present problems with it. While the story has been told before, he brings fresh and detailed insights, based on material from the archives of the Ecole Nationale Supérieure d'Agronomie in Montpellier and the University of California, Davis. www.ucpress.edu/book.php?isbn=9780520265486