



Winetech Scan

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

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Research News

- The most common substances permitted for use as fining agents (gelatine, isinglass, ovalbumin, lactalbumin, casein and potassium caseinate) are proteins of animal origin. In the EU since 2005, plant proteins may be used as fining agents. A study has investigated the use of two groups of non-animal proteins (three extracts from *Saccharomyces cerevisiae* yeast and three glutens from wheat and maize) as substitutes for gelatine in the clarification process of young red wine. Turbidity reduction, lees volume and effects on polyphenolic content and colour characteristics were determined. Turbidity reduction with the assayed treatments was comparable to that experienced with gelatine. Considering the protein concentration, treatments with yeast extracts and hydrolysed maize gluten provided the highest wine turbidity reduction. The protein substances studied generated lower lees volume than gelatine did, especially hydrolysed maize gluten. Yeast extracts produced 44% less lees than gelatine, wheat glutens 60% and maize gluten 92%. The reduction in lees means a higher yield of wine. In general, the effect on total phenolic content did not present statistical differences from gelatine. However, in individual wines there were observed differences between treatments with gelatine and with glutens or yeast extracts. With regard to colour characteristics, wine tonality was not influenced by fining treatments. The study concluded that these alternative proteins present a technological improvement. <http://dx.doi.org/10.1111/j.1365-2621.2009.02121.x>
- Alleyway (between-row) cover-crop treatments were evaluated in two western Oregon vineyards over a period of two years to test if alleyway cover crops that are mowed in spring and summer compete with grapevines for water or nutrients. Five different cover-crop mixtures were compared to a clean-cultivated control and resident vegetation treatments. The treatments were evaluated for biomass production, quantity of nitrogen (N) contributed to the vineyard floor, weed suppression, and effect on soil water content. Shoot growth, water and nutrient status, yield, and juice quality were measured. Three treatments were evaluated for their effect on fine roots and colonization by arbuscular mycorrhizal fungi (AMF). Cover crops influenced soil moisture in a different manner at each site, although the lowest soil moisture was consistently found in the perennial grass and clover mixture. Cover-crop treatments had an impact on grapevine N status at one vineyard, altering leaf blade N concentrations at bloom and juice N concentrations at harvest, although different treatments did not alter N status consistently over time. Cover crops did not alter shoot growth, pruning mass, leaf water potential, fine root density, or colonization of roots by AMF and did not affect yield, cluster weights, juice soluble solids, pH, or titratable acidity. The overall results do not show a clear advantage to using particular cover-crop mixtures or clean cultivating the alleyways between vine rows in established vineyards in western Oregon. It appears that little competition occurs between cover crops and vines in the mixtures evaluated. www.ajevonline.org/cgi/content/abstract/61/2/240
- A study which detailed the drinking patterns and histories of 160 Italian adolescents and young adults who identified themselves as regular or heavy drinkers, concluded that Italian youths whose parents had allowed them to have alcohol with meals in a family setting while they were growing up are less likely to develop harmful drinking patterns such as binge drinking in the future. Young people allowed alcohol with meals when growing up were more likely to never drink 5 or more drinks on one occasion or to get drunk. If they did drink more heavily, it was typically at a later age than participants who weren't allowed alcohol in a family setting. The results could assist in the design of policies to reduce alcohol problems and harmful behaviour among young people. <http://informahealthcare.com/doi/abs/10.3109/16066350902867890>
- The relationship between consumption of different alcoholic beverages and cognitive function involved 5 033 stroke-free men and women of initial average age 58 years in Tromsø, Norway. Alcohol consumption and other cardiovascular risk factors were measured at the beginning of the study and cognitive function was assessed after 7 years with verbal memory test, digit-symbol coding test and tapping test. Light-to-moderate wine consumption was associated with better performance on cognitive tests. Moderate wine consumption was independently associated with better performance on all cognitive tests in both men and women. There was no consistent association between consumption of beer and spirits and cognitive test results. Alcohol abstention was associated with lower cognitive performance in women. <http://dx.doi.org/10.1111/j.1600-0404.2010.01371.x>
- A study which examined the combined effects of hypertension (high blood pressure) and binge drinking on the risk of mortality from cardiovascular disease followed a cohort of 6 100 residents in Kangwha County, Southern Korea, from age 55 for 21 years. Binge drinkers and heavy binge drinkers were defined as having 6 drinks on 1 occasion and 12 drinks on 1 occasion respectively. Male heavy binge drinkers with Grade 3 hypertension (168 /100) had a 12.7 times increased risk of cardiovascular mortality whereas male binge drinkers with Grade 3 hypertension had a 4.41 times increased risk of cardiovascular mortality. Considering separately the effects of

heavy binge drinking and hypertension on the risk of cardiovascular mortality, the risk increase of heavy binge drinker without hypertension was 1.88 times, for those with only hypertension 2.00 times, compared with non-drinkers with normal blood pressure. Overall, about 15% of the men said they were moderate binge drinkers and about 3% said they were heavy binge drinkers. However, because less than 1% of the women were reportedly binge drinkers, no conclusions could be made about the combined impact of high blood pressure and binge drinking in women. <http://stroke.ahajournals.org/cgi/content/abstract/STROKEAHA.110.586347v1>

Local research news

- Grapevines are a preferred host of vine mealybug, and are the most adversely affected by this insect. It produces copious amounts of honeydew that causes sooty mould damage. High densities of the insect lead to decreased plant vigour, defoliation, and the insects themselves may be contaminants of grape clusters. In addition, vine mealybug is an efficient vector of the damaging grapevine leafroll associated viruses. Parasitoids are used for the biological control vine mealybug. A parasitoid spends a significant portion of its life history attached to or within a single host organism, which it ultimately kills. In the case of vine mealybugs, a mutualism with ants exists, whereby ants protect mealybugs from natural enemies in exchange for sugar rich honeydew. A study investigated the relative impact of three pest ant species on the effectiveness of biological control of vine mealybug by the two parasitoids: *Anagyrus* species near *pseudococci* and *Coccidoxenoides perminutus*. The ant species were the Argentine ant, the cocktail ant and the black pugnacious ant. Experiments were carried out with butternut infested with vine mealybugs. The cocktail ant proved to be the most disruptive ant while the pugnacious ant the least. *C. perminutus* was a more effective and ant tolerant mealybug parasitoid than *A. species near pseudococci*. The results are important to growers who need be aware of the species of pest ants foraging in their vineyards, which will affect the choice of biological control agent to be used. Exclusion of ants, particularly the Argentine ant, can also reduce vine mealybug populations, which effect could be partly due to an increase in parasitism as parasitoids get undeterred access to mealybugs. In summary, ant control should be considered when parasitoids are to be used as biocontrol agents. www.sawislibrary.co.za/dbtextimages/AddisonP2.pdf

Innovation

- Glass wine bottles in South Africa continue to be reduced in weight, thereby reducing costs and the carbon footprint of the industry in various ways. The average weight of a 750ml non-returnable glass wine bottle was 516g until 2006. This was reduced by 15% last year to 437g, and now by a further 87g (20% reduction over 2009) to 350g for this season's harvest. The new 350g bottle was locally designed and is available to all producers. It features a screwcap closure, which closure type accounts for over 65% of SA's wine production. The average weight of bottles sealed with corks is currently 460g. For every 1 000 light weight bottles produced in comparison to a 450g bottle, the reduction in carbon dioxide equivalent emissions amounts to 109kg. www.developoptechnology.co.za/index.php?option=com_content&task=view&id=24007&Itemid=57
- The AWRI (Australian Wine Research Institute) Tannin Web Portal is a new web-based tool that allows easy analysis of tannin, total phenolics and total pigment in red wines and ferments, using only a UV-Vis spectrophotometer and an Internet connection. Sample preparation is simple, results are available instantly and the hard work of maintaining a calibration is taken care of at the AWRI. A benchmarking function puts individual results in context. See www.awri.com.au/commercial_services/spectral_technologies/tannin_portal/
- Sensors smaller than a one rand coin can be placed in grape clusters or in the soil to measure temperature and sun patterns. This can help growers assess the ripening of winegrapes throughout the growing season. The sensor data maps out the path of the sun as it passes over the vineyard rows, helping in making decisions regarding ideal row direction, adjustments in the trellis system, and during pruning, all of which will minimize the negative effects of grape sunburn. The sensors also help growers define the optimum grape temperatures for each grape variety. http://napavalleyregister.com/news/local/article_7cc5061e-a9b4-11df-a71e-001cc4c002e0.html



Other News

- Divers have discovered the world's oldest drinkable champagne in a shipwreck in the Baltic Sea. About 30 bottles are estimated to be aboard the sunken vessel at depth of 60 meters. The bottles are believed to be from the 1780s and were probably part of a cargo bound for Russia. The divers said, 'We didn't know it would be champagne. It tasted fantastic. It was a very sweet champagne, with a tobacco taste and oak'. While they are confident of the champagne's age and authenticity, samples have been sent to laboratories in France for testing. The champagne has been in near-perfect storage conditions, in the dark at a constant cold temperature. Each bottle could fetch R500 000 if the corks are intact and the sparkling drink is genuine and drinkable. The oldest recorded champagne still in existence is the 1825 vintage from Perrier-Jouet. www.physorg.com/news198866602.html

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