## **INSTITUTE FOR WINE BIOTECHNOLOGY / INSTITUUT VIRWYNBIOTEGNOLOGIE**

**2019**

### Journal Articles

1. ALEIXANDRE TUDO JL, NIEUWOUDT H, DU TOIT WJ. Towards on-line monitoring of phenolic content in red wine grapes: A feasibility study. *Food Chemistry* 2019; **270**:322-331.
2. BAGHERI B, ZAMBELLI P, VIGENTINI I, BAUER FF, SETATI ME. Investigating the Effect of Selected Non-*Saccharomyces* Species on Wine Ecosystem Function and Major Volatiles. *Frontiers in Bioengineering and Biotechnology* 2019; **6**(169):1-12.
3. BENTLEY J, MOORE JP, FARRANT JM. Metabolomic profiling of the desiccation-tolerant medicinal shrub myrothamnus flabellifolia indicates phenolic variability across its natural habitat: Implications for tea and cosmetics production. *Molecules* 2019; **24**:1-15.
4. BENTLEY J, MOORE JP, FARRANT JM. Metabolomics as a complement to phylogenetics for assessing intraspecific boundaries in the desiccation- tolerant medicinal shrub Myrothamnus flabellifolia (Myrothamnaceae). *PHYTOCHEMISTRY* 2019; **159**:127-136.
5. CONACHER CG, ROSSOUW D, BAUER FF. Peer pressure: evolutionary responses to biotic pressures in wine yeasts. *FEMS Yeast Research* 2019;

**19**(7):1-12.

1. DANIELS AJ, POBLETE CA, OPARA UL, NIEUWOUDT H. Measuring Internal Maturity Parameters Contactless on Intact Table Grape Bunches Using NIR Spectroscopy. *Frontiers in Plant Science* 2019; **10**(1517):1-14.
2. DRIOUICH A, SMITH C, ROPITAUX M, CHAMBARD M, BOULOGNE I, BERNARD S, FOLLET-GUEYE M, VICRE M, MOORE JP. Root extracellular traps

versus neutrophil extracellular traps in host defence, a case of functional convergence?. *Biological Reviews* 2019; **94**(5):1685-1700.

1. DU PLESSIS HW, DU TOIT M, NIEUWOUDT H, VAN DER RIJST M, HOFF JW, JOLLY N. Modulation of wine flavor using Hanseniaspora uvarum in combination with different Saccharomyces cerevisiae, lactic acid bacteria strains and malolactic fermentation strategies. *Federal Register* 2019; **5**(64):1-17.
2. DU PLESSIS HW, DU TOIT M, NIEUWOUDT H, VAN DER RIJST M, JOLLY N. Modulation of wine flavor using Hanseniaspora uvarum in combination with different Saccharomyces cerevisiae, lactic acid bacteria strains and malolactic fermentation strategies. *Fermentation* 2019; **5**(3):64, 17 pages.
3. FAIRBAIRN SC, DA SILVA FERREIRA AC, BAUER FF. Modulation of yeast-derived volatile aromas by oleic acid and sterols. *South African Journal of Enology and Viticulture* 2019; **40**(2):1-11.
4. GAO Y, FANGEL JU, WILLATS W, MOORE JP. Tracking polysaccharides during white winemaking using glycan microarrays reveals glycoprotein-rich sediments. *Food Research International* 2019; **123**:662-673.
5. GAO Y, ZIETSMAN JJ, VIVIER MA, MOORE JP. Deconstructing wine grape cell walls with enzymes during winemaking: New insights from glycan microarray technology. *Molecules* 2019; **24**(165):1-19.
6. ISINGIZWE NTURAMBIRWE JF, NIEUWOUDT H, PEROLD WJ, OPARA UL. Non-destructive measurement of internal quality of apple fruit by a contactless NIR spectrometer with genetic algorithm model optimization. *Scientific African* 2019; **3**:1-11.
7. JIRANEK V, BAUER FF. Editorial: yeast ecology and interaction. *FEMS Yeast Research* 2019; **19**:1-2.
8. LIN C, XU T, XING S, ZHAO L, SUN R, LIU Y, MOORE JP, DENG X. Weighted Gene Co-expression Network Analysis (WGCNA) reveals the hub role of protein ubiquitination in the acquisition of desiccation tolerance in *Boea hygrometrica*. *PLANT AND CELL PHYSIOLOGY* 2019; **60**(12):2707-2719.
9. MINNAAR P, DU PLESSIS HW, JOLLY N, VAN DER RIJST M, DU TOIT M. Non-Saccharomyces yeast and lactic acid bacteria in Co-inoculated fermentations with two Saccharomyces cerevisiae yeast strains: A strategy to improve the phenolic content of Syrah wine. *Food Chemistry* 2019; **4**:1-9.
10. NAIDOO RK, SIMPSON ZF, OOSTHUIZEN JR, BAUER FF. Nutrient exchange of carbon and nitrogen promotes the formation of stable mutualisms between *chlorella sorokiniana* and *saccharomyces cerevisiae* under engineered synthetic growth conditions. *Frontiers in Microbiology* 2019; **10**(609):1-16.
11. NDLOVU T, BUICA AS, BAUER FF. Chitinases and thaumatin-like proteins in Sauvignon Blanc and Chardonnay musts during alcoholic fermentation.

*FOOD MICROBIOLOGY* 2019; **78**:201-210.

1. OLAREWAJU OO, MAGWAZA LS, NIEUWOUDT H, POBLETE CA, FAWOLE OA, TESFAY SZ, OPARA UL. Model development for non-destructive determination of rind biochemical properties of ‘Marsh’ grapefruit using visible to near-infrared spectroscopy and chemometrics. *SPECTROCHIMICA ACTA PART A-MOLECULAR AND BIOMOLECULAR SPECTROSCOPY* 2019; **209**:62-69.
2. PORTER TJ, DIVOL BT, SETATI ME. Investigating the biochemical and fermentation attributes of Lachancea species and strains: Deciphering the potential contribution to wine chemical composition. *INTERNATIONAL JOURNAL OF FOOD MICROBIOLOGY* 2019; **46**(12):1733-1743.
3. PORTER TJ, DIVOL BT, SETATI ME. Lachancea yeast species: Origin, biochemical characteristics and oenological significance. *Food Research International* 2019; **119**:378-389.
4. PRETORIUS N, ENGELBRECHT L, DU TOIT M. Influence of sugars and pH on the citrate metabolism of different lactic acid bacteria strains in a synthetic wine matrix. *Journal of Applied Microbiology* 2019; **127**(5):1490-1500.
5. PRIOR KJ, BAUER FF, DIVOL BT. The utilisation of nitrogenous compounds by commercial non-Saccharomyces yeasts associated with wine. *FOOD MICROBIOLOGY* 2019; **79**:75-84.
6. ROLLERO SC, BLOEM A, ORTIZ-JULIEN A, BAUER FF, CAMARASA C, DIVOL BT. A comparison of the nitrogen metabolic networks of Kluyveromyces marxianus and Saccharomyces cerevisiae. Environmental Microbiology. *ENVIRONMENTAL MICROBIOLOGY* 2019; **21**(11):4076-4091.
7. SHEKHAWAT K, PATTERTON H, BAUER FF, SETATI ME. RNA-seq based transcriptional analysis of Saccharomyces cerevisiae and Lachancea thermotolerans in mixed-culture fermentations under anaerobic conditions. *BMC GENOMICS* 2019; **20**(1):1-15.
8. SMIT SJ, VIVIER MA, YOUNG PR. Linking terpene synthases to sesquiterpene metabolism in grapevine flowers. *Frontiers in Plant Science* 2019;

**10**(177):1-18.

1. SNYMAN C, THERON LW, DIVOL BT. The expression, secretion and activity of the aspartic protease MpAPr1 in Metschnikowia pulcherrima IWBT Y1123. *Journal of Industrial Microbiology and Biotechnology* 2019; **290**:1733-1743.
2. SNYMAN C, THERON LW, DIVOL BT. Understanding the regulation of extracellular protease gene expression in fungi: a key step towards their biotechnological applications. Applied Microbiology and Biotechnology. *Applied Microbiology and Biotechnology* 2019; **103**(14):5517-5532.
3. VAN DER COLFF N, PENTZ CD, NIEUWOUDT H. A varietal-specific approach to investigate wine risk perception in South Africa: Recommendations for Chenin blanc International Journal of Wine Business Research. *International Journal of Wine Business Research* 2019; **31**(4):640-659.
4. WEIGHTMAN CJ, TERBLANCHE NS, BAUER FF, VALENTIN D, NIEUWOUDT H. An exploratory study of urban South African consumers' perceptions of wine and wine consumption: focus on social, emotional, and functional factors. *Journal of Wine Research* 2019; **30**(3):179-204.
5. WILLIAMS DL, SCHÜCKEL J, VIVIER MA, BUFFETTO FSM, ZIETSMAN JJ. Grape pomace fermentation and cell wall degradation by Kluyveromyces marxianus Y885. *Biochemical Engineering Journal* 2019; **150**:1-11.

## **INSTITUTE FOR WINE BIOTECHNOLOGY / INSTITUUT VIRWYNBIOTEGNOLOGIE**

**2018**

### Journal Articles

1. ALEIXANDRE TUDO JL, NIEUWOUDT H, ALEIXANDRE J-L, DU TOIT WJ. Chemometric compositional analysis of phenolic compounds in fermenting samples and wines using different infrared spectroscopy techniques. TALANTA 2018; **176**:526-536.

2. ALEIXANDRE TUDO JL, NIEUWOUDT H, OLIVIERI A, ALEIXANDRE J-L, DU TOIT WJ. Phenolic profiling of grapes, fermenting samples and wines using UV-Visible spectroscopy with chemometrics. Food Control 2018; **85**:11-22.

3. ARENDSE E, FAWOLE OA, MAGWAZA LS, NIEUWOUDT H, OPARA UL. Comparing the analytical performance of near and mid infrared spectrometers for evaluating pomegranate juice quality. LWT-Food Science and Technology 2018; **91**:180-190.

4. ARENDSE E, FAWOLE OA, MAGWAZA LS, NIEUWOUDT H, OPARA UL. Evaluation of biochemical markers associated with the development of husk scald and the use of diffuse reflectance NIR spectroscopy to predict husk scald in pomegranate fruit. Scientia Horticulturae 2018; **232**:240-249.

5. ARENDSE E, FAWOLE OA, MAGWAZA LS, NIEUWOUDT H, OPARA UL. Fourier transform near infrared diffuse reflectance spectroscopy and two spectral acquisition modes for evaluation of external and internal quality of intact pomegranate fruit. Postharvest Biology and Technology 2018; **138**:91-98.

6. BAGHERI B, ZAMBELLI P, VIGENTINI I, BAUER FF, SETATI ME. Investigating the effect of selected non-Saccharomyces species on wine ecosystem function and wine chemical composition. Frontiers in Bioengineering and Biotechnology 2018; **6**:169, 12 pages.

7. BRAND J, KIDD M, VAN ANTWERPEN L, VALENTIN D, NAES T, NIEUWOUDT H. Sorting in Combination with Quality Scoring: A Tool for Industry Professionals to Identify Drivers of Wine Quality Rapidly. South African Journal of Enology and Viticulture 2018; **39**(2):163-175.

8. CHIDI BS, BAUER FF, ROSSOUW D. Organic Acid Metabolism and the Impact of Fermentation Practices on Wine Acidity - A Review. South African Journal of Enology and Viticulture 2018; **39**(2):315-329.

9. CHIDI BS, BAUER FF, ROSSOUW D. The impact of changes in environmental conditions on organic acid production by commercial wine yeast strains. South African Journal of Enology and Viticulture 2018; **39**(2):297-304.

10. CHIKWANHA OC, RAFFRENATO E, OPARA UL, FAWOLE OA, SETATI ME, MUCHENJE V, MAPIYE C. Impact of dehydration on retention of bioactive profile and biological activities of different grape (Vitis vinifera L.) pomace varieties. Animal Feed Science and Technology 2018; **244**:116-127.

11. CHUBERRE C, PLANCOT B, DRIOUICH A, MOORE JP, BARDOR B, GUGI B, VICRE M. Plant immunity is compartmentalized and specialized in roots. Frontiers in Plant Science 2018; **9**:1692, 13 pages.

12. COSTANDIUS E, NELL IA, ALEXANDER N, MCKAY MA, BLACKIE MAL, MALGAS RR, SETATI ME. #Feesmustfall and decolonising the curriculum: Stellenbosch University students' and lecturers' reactions. South African Journal of Higher Education 2018; **32**(2):65-85.

13. DANIELS AJ, OPARA UL, POBLETE CA, NIEUWOUDT H. Novel approach for measuring sugar and acidity non-destructively in whole table grape bunches. Acta Horticulturae 2018; **1201**:317-324.

14. DU PLESSIS M, FRANKEN CJ, BAUER FF. Carnitine requires choline to exert physiological effects in Saccharomyces cerevisiae. Frontiers in Microbiology 2018; **9**:1362, 11 pages.

15. HILLS PN, KOSSMANN JM, LLOYD JR, PHOLO M, COETZEE B, MAREE H, YOUNG PR. Cell division and turgor mediate enhanced plant growth in Arabidopsis plants treated with the bacterial signalling molecule lucmichrome. Planta 2018; **248**(2):477-488.

16. ISINGIZWE NTURAMBIRWE JF, NIEUWOUDT H, OPARA UL, PEROLD WJ. Performance of genetic algorithm in optimization of NIRS PLS models to predict apple fruit quality. Acta Horticulturae 2018; **1201**:355-362.

17. MBUYANE LL, DE KOCK MC, BAUER FF, DIVOL BT. Torulaspora delbrueckii produces high levels of C5 and C6 polyols during wine fermentations. FEMS Yeast Research 2018; **18**(7):1-11.

18. MCKAY MA, BAUER FF, PANZERI V, BUICA AS. Testing the sensitivity of potential panelists for wine taint compounds using a simplified sensory strategy. Foods 2018; **176**(7):1-14.

19. MUZIRI T, THERON KI, NIEUWOUDT H, SCHOEMAN L, CROUCH EM. Mealiness in 'Forelle' pears: relationship between TSS and prediction based on FT-NIR spectroscopy. Acta Horticulturae 2018; **1201**:339-345.

20. NCAMA K, MAGWAZA LS, POBLETE CA, NIEUWOUDT H, TESFAY SZ, MDITSHWA A. On-tree indexing of ‘Hass' avocado fruit by non-destructive assessment of pulp dry matter and oil content. Biosystems Engineering 2018; **174**:41-49.

21. NDLOVU T, DIVOL BT, BAUER FF. Yeast cell wall chitin reduces wine haze formation. Applied and Environmental Microbiology 2018; **84**(13):1-14.

22. OLAREWAJU OO, MAGWAZA LS, NIEUWOUDT H, FAWOLE OA, TESFAY SZ, OPARA UL. Calibration modelling for non-destructive estimation of external and internal quality parameters of 'Marsh' grapefruit using Vis/NIR spectroscopy. Acta Horticulturae 2018; **1225**:233-238.

23. ROLLERO SC, BLOEM A, ORTIZ-JULIEN A, CAMARASA C, DIVOL BT. Altered fermentation performances, growth, and metabolic footprints reveal competition for nutrients between yeast species inoculated in synthetic grape juice-like medium. Frontiers in Microbiology 2018; **9**: Article 196, 12 pages.

24. ROLLERO SC, BLOEM A, ORTIZ-JULIEN A, CAMARASA C, DIVOL BT. Fermentation performances and aroma production of non-conventional wine yeasts are influenced by nitrogen preferences. FEMS Yeast Research 2018; **18**(5): foy055, 11 pages.

25. ROLLERO SC, DE KOKER S, BAUER FF, DIVOL BT. Agitation impacts fermentation performance as well as carbon and nitrogen metabolism in Saccharomyces cerevisiae under winemaking conditions. Australian Journal of Grape and Wine Research 2018; **24**:360-367.

26. ROLLERO SC, ZIETSMAN JJ, BUFFETTO FSM, SCHUCKEL J, ORTIZ-JULIEN A, DIVOL BT. Kluyveromyces marxianus Secretes a Pectinase in Shiraz Grape Must That Impacts Technological Properties and Aroma Profile of Wine. Journal of Agricultural and Food Chemistry 2018; **66**:11739-11747.

27. ROSSOUW D, MEIRING SP, BAUER FF. Modifying Saccharomyces cerevisiae adhesion properties regulates yeast ecosystem dynamics. mSphere 2018; **3**(5): e00383, 13 pages.

28. SHEKHAWAT K, PORTER TJ, BAUER FF, SETATI ME. Employing oxygen pulses to modulate Lachancea thermotolerans-Saccharomyces cerevisiae Chardonnay fermentations. Annals of Microbiology 2018; **68**:93-102.

29. SMITH B, DIVOL BT. The carbon consumption pattern of the spoilage yeast Brettanomyces bruxellensis in synthetic wine-like medium. Food Microbiology 2018; **73**:39-48.

30. THERON LW, BELY M, DIVOL BT. Monitoring the impact of an aspartic protease (MpAPr1) on grape proteins and wine properties. Applied Microbiology and Biotechnology 2018; **102**:5173-5183.

31. VALENTE CC, BAUER FF, VENTER FJ, WATSON BW, NIEUWOUDT H. Modelling the sensory space of varietal wines: Mining of large, unstructured text data and visualisation of style patterns. Scientific Reports 2018; **8**: Article number: 4987, 13 pages.

**INSTITUTE FOR WINE BIOTECHNOLOGY / INSTITUUT VIR**

**WYNBIOTEGNOLOGIE**

**2017**

**Journal Articles**

1. ALEIXANDRE TUDO JL, BUICA AS, NIEUWOUDT H, ALEIXANDRE J-L, DU TOIT WJ. Spectrophotometric Analysis of Phenolic Compounds in Grapes and Wines. Journal of Agricultural and Food Chemistry 2017; **65**(20):4009-4026.
2. ARENDSE E, FAWOLE OA, MAGWAZA LS, NIEUWOUDT H, OPARA UL. Development of calibration models for the evaluation of pomegranate aril quality by Fourier-transform near infrared spectroscopy combined with chemometrics. Biosystems Engineering 2017; **159**:22-32.
3. BAGHERI B, BAUER FF, SETATI ME. The impact of Saccharomyces cerevisiae on a wine yeast consortium in natural and inoculated fermentations. Frontiers in Microbiology 2017; **8**:1988, 13 pages.
4. DU PLESSIS HW, DU TOIT M, NIEUWOUDT H, VAN DER RIJST M, KIDD M, JOLLY N. Effect of Saccharomyces, Non-Saccahromyces Yeasts and Malolatic Fermentation Strategies on Fermentation Kinetics and Flavor of Shiraz Wines. Fermentation 2017; **3**(4):64, 24 pages.
5. DU PLESSIS K, YOUNG PR, EYEGHE-BICKONG H, VIVIER MA. The transcriptional responses and metabolic consequences of acclimation to elevated light exposure in grapevine berries. Frontiers in Plant Science 2017; **8**:1261, 23 pages.
6. DU PLESSIS HW, DU TOIT M, HOFF JW, HART RS, NDIMBA BK, JOLLY N. Characterisation of non-Saccharomyces yeasts using different methodologies and evaluation of their compatibility with malolactic fermentation. South African Journal of Enology and Viticulture 2017; **38**(1):46-63.
7. JOOD I, HOFF JW, SETATI ME. Evaluating fermentation characteristics of Kazachstania spp. and their potential influence on wine quality. World Journal of Microbiology and Biotechnology 2017; **33**(7):129, 11 pages.
8. MEHLOMAKULU NN, PRIOR KJ, SETATI ME, DIVOL BT. Candida pyralidae killer toxin disrupts the cell wall of Brettanomyces bruxellensis in red grape juice. Journal of Applied Microbiology 2017; **122**:747-758.
9. MINNAAR PP, DU PLESSIS HW, PAULSEN VP, NTUSHELO N, JOLLY N, DU TOIT M. Saccharomyces cerevisiae, Non-Saccharomyces Yeasts and Lactic Acid

Bacteria in Sequential Fermentations: Effect on Phenolics and Sensory Attributes of South African Syrah Wines. South African Journal of Enology and Viticulture 2017; **38**(2):237-244.

1. MORGAN HH, DU TOIT M, SETATI ME. The Grapevine and Wine Microbiome: Insights from high-throughput Amplicon sequencing. Frontiers in Microbiology 2017; **8**: 8201, 14 pages.
2. MUTAWILA C, STANDER C, HALLEEN F, VIVIER MA, MOSTERT L. Response of Vitis vinifera cell cultures to Eutypa lata and Trichoderma atroviride culture filtrates: expression of defence-related genes and phenotypes. Protoplasma 2017; **254**:863-879.
3. SHEKHAWAT K, BAUER FF, SETATI ME. Impact of oxygenation on the performance of three non-Saccharomyces yeasts in co-fermentation with Saccharomyces cerevisiae. Applied Microbiology and Biotechnology 2017; **101**:2479-2491.
4. THERON LW, BELY M, DIVOL BT. Characterisation of the enzymatic properties of MpAPr1, an aspartic protease secreted by the wine yeast Metschnikowia pulcherrima. Journal of the Science of Food and Agriculture 2017; **97**:3584-3593.
5. WEILLER FJR, MOORE JP, YOUNG PR, DRIOUICH A, VIVIER MA. The brassicaceae species Heliophila coronopifolia produces root border-like cells that protect the root tip and secrete defensin peptides. Annals of Botany 2017; **119**(5):803-813.
6. WHITENER MEB, STANSTRUP J, CARLIN S, DIVOL BT, DU TOIT M, VRHOVSEK U. Effect of non-Saccharomyces yeasts on the volatile chemical profile of Shiraz wine. Australian Journal of Grape and Wine Research 2017; **23**:179-192.
7. ZIETSMAN JJ, MOORE JP, FANGEL JU, WILLATS WGT, VIVIER MA. Combining hydrothermal pretreatment with enzymes de-pectinates and exposes the innermost xyloglucan-rich hemicellulose layers of wine grape pomace. Food Chemistry 2017; **232**:340-350.