

# Shaoyang Wang – CV

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Mr Shaoyang Wang PhD Candidate	<b>Address</b>	Health and Food Sciences Precinct Level 1, Block 10, 39 Kessels Rd Coopers Plains, QLD 4108	
<b>Mobile</b>	+61 4 160 64541	<b>DOB</b>	5 Dec 1994
<b>ORCID</b>	0000-0001-7346-1703	<b>Email</b>	shaoyang.wang@uq.net.au

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## EDUCATION

### The University of Queensland (UQ)

Queensland Alliance for Agriculture and Food Innovation (QAAFI)

PhD in Sensory Science

**Duration** Oct 2017 – Sept 2021

**Thesis** A systematic approach to understanding wine astringency and mouthfeel

### Beijing Forestry University (BJFU)

College of Biological Sciences and Biotechnology

BSc in Biological Sciences (National Science Training Centre)

**Duration** Oct 2013 – July 2017

**Thesis** Effect of malolactic fermentation conducted by *Lactobacillus plantarum* and *Oenococcus oeni* on the quality of Cabernet Gernischt wine

**GPA** (86.56/100 Grade A)

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## Membership

- Australian Institute of Food Science and Technology (AIFST) – Student member
  - Australian Society of Viticulture and Oenology (ASVO) – Student member
  - UQ R User Group – Member
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## RESEARCH/WORK EXPERIENCE

### The University of Queensland, QAAFI, Brisbane, Australia (2017 – current)

- PhD project

My PhD project aimed at developing appropriate instrumental tools involving wine-saliva interaction, in an attempt to understand the physical mechanisms of wine astringency and mouthfeel perception. A diversity of wine samples was evaluated by both static and dynamic sensory methods. The microstructure and friction behaviour of saliva in contact with the wines was investigated by soft-tribology and surface characterisation protocols. The highlight finding was while different matrix components contribute to the perception of astringency, the mechanisms by which they do this have different origins that lead to difference in perceiving astringency sub-qualities. The outcomes could assist winemakers to better understand and manage the matrix to attain preferable wine mouthfeel characteristics.

- Sensory evaluation panel

Undertaking sensory evaluation on diverse food products including beef, beverage, dairy, burger, snack food, native foods, model solutions, cakes, seaweed, fruits, etc.

- Chemical engineering laboratory technician

Working at a Tribology, Rheology and Biolubrication laboratory; characterising the physical properties of semi-liquid or liquid food, as well as their interaction with simulated human oral environment using the soft-tribological

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approaches.

- Assisting supervising Honours student

Assisting supervising Honours project 'Impact of individual human variations on the sensory experience of burger patties'.

**Addinsoft**, Paris, France (**remote & freelance, 2021 – current**)

- XLSTAT statistical software translation (English → Chinese)

**Beijing Forestry University**, Beijing Key Laboratory of Forest Food Processing and Safety, Beijing, China (**2016 – 2017**)

- Undergraduate research training project

My undergraduate research project investigated the effect of malolactic fermentation on red wine colour. The novel lactic acid bacteria strain *Lactobacillus plantarum* was found to produce acetaldehyde, which helps form pyranoanthocyanins and polymerised anthocyanins with stabilised colour composition. The outcomes would provide a new proxy to the wine industry for enhancing the wine colour quality.

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## PUBLICATIONS

### JOURNAL ARTICLES

- **Wang, S.**, Olarte Mantilla, S. M., Smith, P. A., Stokes, J. R., Smyth, H. E. (2021). Tribology and QCM-D approaches provide mechanistic insights into red wine mouthfeel, astringency sub-qualities and the role of saliva. *Food Hydrocolloids*, 120(106918).
  - **Wang, S.**, Olarte Mantilla, S. M., Smith, P. A., Stokes, J. R., Smyth, H. E. (2020). Astringency sub-qualities *drying* and *pucker* are driven by tannin and pH – Insights from sensory and tribology of a model wine system. *Food Hydrocolloids*. 109(106109).
  - **Wang, S.**, Olarte Mantilla, S. M., Smith, P. A., Stokes, J. R., Smyth, H. E. (preparing). Progressive profiling and salivary tribology approaches provide mechanistic insight into the temporal evolution of red wine mouthfeel and astringency sub-qualities.
  - **Wang, S.**, Olarte Mantilla, S. M., Smith, P. A., Stokes, J. R., Smyth, H. E. (preparing). Effect of acid composition on the temporal evolution of wine mouthfeel and astringency sub-qualities.
  - **Wang, S.**, Olarte Mantilla, S. M., Stokes, J. R., Smyth, H. E., Smith, P. A. (preparing). An updated review on wine astringency research – mechanisms of perception, instrumental measurements, and protocols of management.
  - **Wang, S.**, Olarte Mantilla, S. M., Smith, P. A., Stokes, J. R., Smyth, H. E. (preparing). Comparison of demographical factors and responsiveness to PROP in segmenting consumers' perception of astringency – a cross-cultural study.
  - **Wang, S.**, Olarte Mantilla, S. M., Smith, P. A., Stokes, J. R., Smyth, H. E. (preparing). Turbidity as a measurement of saliva precipitation responding to wine matrix composition.
  - **Wang, S.**, Zhu, H., Lan, Y., Liu, R., Liu, Y., Zhang, B., & Zhu, B. (2020). Modifications of Phenolic Compounds, Biogenic Amines, and Volatile Compounds in Cabernet Gernischt Wine through Malolactic Fermentation by *Lactobacillus plantarum* and *Oenococcus oeni*. *Fermentation*. 6(1), 15.
  - **Wang, S.**, Li, S., Zhao, H., Gu, P., Chen, Y., Zhang, B. & Zhu, B. (2018). Acetaldehyde released by *Lactobacillus plantarum* enhances accumulation of pyranoanthocyanins in wine during malolactic fermentation. *Food Research International*. 108, 254-263.
  - Wei, M., **Wang, S.**, Gu, P., Ouyang, X., Liu, S., & Li, Y. et al. (2018). Comparison of physicochemical indexes, amino acids, phenolic compounds and volatile compounds in bog bilberry juice fermented by *Lactobacillus plantarum* under different pH conditions. *Journal of Food Science and Technology*. 55(6), 2240–2250.
  - Wei, M., Zhao, L., Yang, H., Wu, Y., Li, T., **Wang, S.** et al. (2018). Effects of yeast species and nitrogen sources on volatile aroma composition of bog bilberry wine. *Food Science*, 39(10), 257-262.
  - **Wang, S.**, Li, Y., Gu, P., Liu, Y., Li, T., Liu, S., Zhang, B., & Zhu, B. (2018). Comparison on evolution of volatile compounds and aroma attributes in different pH adjusted fermented bog bilberry syrup wine during bottle-aging Period. *Food Bioscience*. 22, 121-128.
  - Liu, Y., **Wang, S.**, Ren, J., Yuan, G., Li, Y., Zhang, B. et al. (2018). Characterization of free and bound volatile
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compounds in six *Ribes nigrum* L. blackcurrant cultivars. *Food Research International*. 103, 301-315.

- Ren, J., **Wang, S.**, Ning, Y., Wang, M., Wang, L., Zhang, B. et al. (2018). The impact of over-maturation on the sensory and nutritional quality of Gouqi (Chinese wolfberry) wine. *Journal of the Institute of Brewing*. 124,(1), 57-67.
- **Wang, S.**, Li, Y., Li, T., Yang, H., Ren, J., & Zhang, B., et al. (2017). Dibasic ammonium phosphate application enhances aromatic compound concentration in bog bilberry syrup wine. *Molecules*, 22, 1-19.
- Liu, S., **Wang, S.**, Yuan, G., Ouyang, X. Liu, Y., & Zhu, B. et al. (2016). Effect of oak chips on evolution of phenolic compounds and color attributes of bog bilberry syrup wine during bottle-aging. *Journal of Food Science*, 81(11), C2697–C2707.
- Ouyang, X., **Wang, S.**, Yuan, G., Liu, Y., Gu, P., & Zhang, B. et al. (2017). Comparison of amino acids, biogenic amines, and ammonium ion of wines made of different types of fruits. *International Journal of Food Science & Technology*. 52(2), 448-456.
- Li, Y., Gu, P., Wang, L., **Wang, S.**, Yang, H., & Zhang, B., et al. (2016). Comparison of amino acid profile in the juice of six pomegranate cultivars from two cultivation regions in China. *Journal of Food Processing and Preservation*, 41(5), e13197
- Chen, C., Liu, S., **Wang, S.**, Liu, Y., Li, S., & Zhang, B., et al. (2017) Influence of different conditions on the color and phenolics contents of blueberry wines stored in PET bottle storage. *Science & Technology of Food Industry*.
- Liu, S., Yang, H., **Wang S.**, Ouyang. X., Zhang, B., Zhu, B. (2016). Anthocyanins of wild blueberry wine pomace and its antioxidant activity. *China Brewing*, 35, 115-118.
- Liu, S., Liu, E., Chen, C., **Wang S.**, Ouyang. X., Zhang, B., Zhu, B. (2016). Influence of oak chips on chromatic characteristics and phenolics compounds of bog bilberry wine during aging. *Science and Technology of Food Industry*, 37, 150-154.

#### CONFERENCE PRESENTATIONS

- **Crush - The Grape and Wine Science Symposium**, Adelaide, SA, Australia, June 2021 *Speech*  
*Mechanistic insights into red wine mouthfeel, astringency sub-qualities and the role of saliva*
  - **Swiss Tribology 2021**, Online, February 2021 *Invited guest – work re-reported*  
*The Tribology of Wine: Polymers in Solution*
  - **The 15th Annual NZOZ Sensory and Consumer Science Symposium**, Online, February 2021 *Speech*  
*Mechanistic insights into red wine mouthfeel, astringency sub-qualities and the role of saliva*
  - **15th International Hydrocolloids Conference, Melbourne**, VIC, Australia, March 2020 *Speech*  
*Revealing the driving components of red wine mouthfeel by tribology measurements*
  - **TropAg2019 – International Tropical Agricultural Conference**, Brisbane, QLD, Australia, November 2019 *Poster*  
*Revealing the driving components of red wine mouthfeel – Insights from sensory and physical measurements*
  - **13th Pangborn Sensory Science Symposium**, Edinburgh, Scotland, UK, July 2019 *Poster*  
*Discerning wine astringency sub-qualities – what is the role of saliva?*
  - **The 17th Australian Wine Industry Technical Conference & Trade Exhibition**, Adelaide, SA, Australia, July 2019 *Poster*  
*Understanding wine astringency sub-qualities by tribology: what are the roles of saliva?*
  - **2019 Australian Institute of Food Sciences & Technology Convention**, Sydney, NSW, Australia, July 2019 *Poster & Speech*  
*Discerning wine astringency sub-qualities by tribological approaches – what are the roles of saliva?*
  - **2019 Australian Institute of Food Sciences & Technology (AIFST) Summer School**, Brisbane, QLD, Australia, February 2019 *Poster*  
*Discerning wine astringency sub-qualities – what is the role of saliva?*
  - **Crush - The Grape and Wine Science Symposium**, Adelaide, SA, Australia, September 2018 *Speech*  
*Linking wine microstructure and astringency mouthfeel: What is the role of differences in individual perception?*
  - **12<sup>th</sup> Australian and New Zealand Sensory and Consumer Science Symposium**, Brisbane, QLD, Australia, February
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2018 *Speech*

*Understanding wine astringency mouthfeel*

- **TropAg2017 – International Tropical Agricultural Conference**, Brisbane, QLD, Australia, November 2017 *Poster*  
*Understanding wine astringency and mouthfeel*

#### **INDUSTRIAL REPORTS**

- Wine Australia – Travel to UK in attendance at 13th Pangborn Sensory Science Symposium

#### **PATENTS**

- A method to enhance the flavour and quality of bog bilberry juice through *Lactobacillus plantarum* fermentation. CN105581218A

#### **INVITED JOURNAL REVIEWER**

- *Food Research International*
- *Journal of Food Processing and Preservation*

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### **PRACTICAL EXPERTISE**

- Carrying out sensory evaluation
- Analytical chemistry & chromatography
- Winemaking & food microbiology
- Statistical computing using R
- Food texture analyses
- Wine education (WSET Level 3)

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### **PUBLIC ENGAGEMENTS**

- Moreton Bay College Food and Nutrition guest presentation 2021
- Faculti interview – Insight from sensory and tribology of a model wine system 2021
- Society of Tribologists and Lubrication Engineers (STLE) – Work reported 2020
- UQ Three Minute Thesis (3MT) Competition – Participant 2020
- Wine Australia news – Travel bursary helps Shaoyang present local research on world stage 2020
- Royal Queensland Show – Student Wine Judge 2018 & 2019

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### **GRANTS & AWARDS**

- The AIFST Anthony (Tony) Williams Sensory Award 2019 UQ
- QAAFI HDR Travel Awards 2018 UQ
- Wine Australia Travel Bursary 2018 UQ
- International Organisation of Vine and Wine (OIV) Research Grant 2018 UQ
- Wine Australia PhD Scholarship 2017 UQ
- China Scholarship Council – UQ PhD Scholarship 2017 UQ
- Academic Excellence Scholarship 2017 BJFU
- Award of Excellence in Field Trip 2016 BJFU

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### **TRAININGS & CERTIFICATES**

- R Statistics Training Series – Queensland Cyber Infrastructure Foundation (QCIF) 2021
  - Use hygienic practices for food safety – Institute of Training and Further Education (ITFE) 2021
  - Responsible service of alcohol (RSA) – Elston Education & Training (EET) 2021
  - Wine & Spirit Education Trust (WSET) Level 3 Award in Wines – IOW: Wine and Spirit Training 2019
  - Visualisation & Analysis of Sensory and Consumer Data using XLSTAT – Qi Statistics 2018
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