



A Journal of Culture, English Language, Teaching & Literature

ISSN 1414-3320 (Print), ISSN 2502-4914 (Online)

Vol. 26 No.1; June 2026

Copyright © Soegijapranata Catholic University, Indonesia

Wine Pairing for Traditional Indonesian Dishes: A Case Study of *Rendang* and *Betutu* Chicken

¹Lindayani, ²Felix Yuwono Wiredjo, ³Laksmi Hartajanie, and ⁴Dyah Wulandari

^{1,2,3,4}Department of Food Technology, Faculty of Agricultural Technology,
Soegijapranata Catholic University, Semarang, Indonesia

¹lindayani@unika.ac.id, ²felixyw15@gmail.com, ³laksmi@unika.ac.id, ⁴dyahwulandari@unika.ac.id

Wine Pairing for Traditional Indonesian Dishes: A Case Study of *Rendang* and *Betutu* Chicken

¹Lindayani, ²Felix Yuwono Wiredjo, ³Laksmi Hartajanie, and ⁴Dyah Wulandari

¹lindayani@unika.ac.id, ²felixyw15@gmail.com, ³laksmi@unika.ac.id,

⁴dyahwulandari@unika.ac.id

^{1,2,3,4}Department of Food Technology, Faculty of Agricultural Technology, Soegijapranata Catholic University, Semarang, Indonesia

Abstract: Indonesia is famous for its rich culinary heritage, which is characterized by complex spice blends. This uniqueness presents both challenges and opportunities for wine and food pairing. Wine is becoming increasingly popular among young Indonesian consumers, and interest in pairing it with traditional dishes is growing. However, comprehensive research on wine pairing with Indonesia cuisine remains limited. This study examines the sensory interactions between food characteristics and wine attributes through a literature review. The finding suggests that the ideal red wine for *rendang* should have moderate tannins and balanced acidity. In contrast, *betutu* chicken pairs better with white wine, particularly aromatic, off-dry varieties; the acidity and slight sweetness of the wine effectively balance the spiciness of the dish. These insights emphasize the necessity of adapting traditional wine pairing methods to align with the distinctive characteristics of Indonesian cuisine, leading to culturally relevant pairing approaches.

Key words: wine pairing, *rendang*, *betutu* chicken, red wine, white wine

Abstrak: Indonesia terkenal sebagai negara yang memiliki warisan kuliner, memiliki komposisi rempah yang kompleks. Hal ini menjadi tantangan juga sebagai peluang dalam memadukan makanan dan anggur. Anggur semakin populer di kalangan konsumen muda Indonesia. Minat untuk menyajikan anggur dalam hidangan tradisional juga meningkat. Penelitian mendalam mengenai perpaduan anggur dengan masakan Indonesia masih terbatas. Penelitian ini mengeksplorasi interaksi sensoris antara karakteristik makanan dan atribut anggur dengan menggunakan analisis kajian pustaka. Hasil penelitian menunjukkan bahwa kombinasi anggur merah yang sesuai untuk *rendang* adalah anggur dengan kadar tanin sedang dan tingkat keasaman yang seimbang. Sedangkan ayam *betutu* lebih sesuai dipadukan dengan anggur putih, khususnya jenis off-dry (sedikit manis) dan aromatik. Tingkat keasaman dan adanya rasa manis pada anggur sangat sesuai untuk menyeimbangkan cita rasa pedas hidangan. Hasil temuan ini menunjukkan perlunya penyesuaian terhadap metode perpaduan anggur konvensional agar dapat dipadukan dengan karakteristik khas masakan Indonesia. Penelitian ini menghasilkan metode perpaduan yang relevan secara budaya.

Kata kunci: pasangan anggur, *rendang*, ayam *betutu*, anggur merah, anggur putih

INTRODUCTION

Food as one form of cultural product has increasingly emerged as a central element of social interaction, functioning not only as a source of nourishment but also as a medium through which cultural identity and collective experience are expressed (Wijaya, 2019). Beyond its nutritional role, food is closely associated with pleasure, sensory enjoyment, and emotional experience (Bédard, et al., 2020). In Indonesia, culinary traditions are shaped by a complex interplay of geography, historical exchange, and longstanding cultural heritage. Fresh aromatics like onions and garlic are staples in many Indonesian dishes, often accompanied by ginger, turmeric, galangal, candlenuts, lemon basil, lemongrass, and most notably chili peppers (Kurniawan, 2025), which are fundamental to Indonesian cuisine.

In recent years, Indonesian cuisine has gained global recognition and has increasingly been incorporated into fine dining contexts. Alongside this development, wine has emerged as a complementary social beverage that enhances the culinary experience in various formal and celebratory settings (Weightman et al., 2019). The interactions between the complex flavors of Indonesian dishes and the sensory characteristics of wine highlights the growing relevance of thoughtful food wine pairing within contemporary gastronomic culture. Wine pairing is the practice of identifying complementary elements between food and wine to elevate the dining experience (Serra et al., 2021). Wine pairings can be categorized as either congruent or contrasting. A contrasting pairing achieves balance by highlighting opposing tastes and flavors, whereas a congruent pairing creates harmony by amplifying shared flavor compounds (Gupta & Katarya, 2024).

Despite growing global interest, wine pairing remains an under-explored practice in Indonesia, particularly regarding traditional Indonesian cuisine. Indonesia gastronomy is characterized by its bold and distinctive profiles. For example, the *rendang* from West Sumatra is renowned for its dry texture, deep brown hue, savory profile, and pungent aroma (Nurmufida et al., 2017) meanwhile, Balinese *betutu* chicken is celebrated for its tender consistency and complex savory spicy flavors (Sugihita et al., 2022). While conventional wine pairing research often emphasizes red meat, white meat, fish and cheese, studies focusing on Indonesia dishes are notably scarce. Consequently, this study explicitly investigates the pairing of wine with *rendang* and *betutu* chicken to assess their compatibility and analyze the sensory attributes involved.

LITERATURE REVIEW

A. Traditional Indonesian Cuisine

Indonesia boasts a diverse array of unique dishes with distinct regional flavors spanning from Sabang to Merauke. These local cuisines are cherished as vital cultural heritage, having been preserved for generations through traditional ingredients and cooking methods that remain largely unchanged despite modern variations (Wongso, 2016). Certain dishes have evolved into iconic tourism symbols, examples are the Palembang's *pempek*, Yogyakarta's *gudeg*, and *selat solo* from Solo (Wijaya, 2019). Central to this culinary identity is the masterful use of indigenous spices, which are derived from various botanical sources including roots, seeds, and rhizomes like turmeric and ginger, that is either grated, chopped, or dried to create seasoning (Kurniawan, 2025). Beyond their flavoring properties, these spices such as ginger and curcumin,

contain secondary metabolites that offer significant health benefits, such as immune support, pain relief, and antimicrobial activity, driven by phytochemical compounds like phenols, flavonoids, and terpenoids.

B. Wine Pairing

Wine pairing's principle is to enhance food and wine flavor by not overshadowing each other and improve customer satisfaction of dining experience (Serra et al., 2021). The pairing process involves complex sensory and chemical interactions that often require professional expertise, particularly in evaluating relationships among taste, flavor intensity, body, after taste, and the interactions between wine constituents, such as tannins and acidity and food components like fats (Harrington & Seo, 2015). Achieving balance is essential so that neither the wine nor the dish dominates the overall sensory perception. The most common practice is to conduct sequential testing to determine whether the food and wine paired well (Moss et al., 2022).

Fundamental pairing principles are commonly organized around these dimensions, including taste, texture, and flavor (Queiroz et al., 2024). Taste perception includes the five basic modalities: salty, sour, sweet, bitter, and umami, meanwhile texture to structural characteristics includes body, weight, and robustness in both wine and food. Flavor encompasses aromatic descriptors including fruity, herbal, earthy, floral, or buttery notes. Texture contrast also contributes to pairing quality, for instance, chilled wine served with warm food may enhance refreshment and palatability (Queiroz et al., 2024). Collectively, these sensory and compositional factors form the theoretical basis for evaluating and optimizing wine food compatibility in gastronomic practice. Physiologically, wine can significantly complement food. For instance, tannins in wine balance proteins, while acidity enhances the freshness of fish, creating a more harmonious dining experience (Eschevins et al., 2018). Conversely, highly salty or bitter foods may negatively affect wine perception. Excessive salinity can amplify undesirable attributes such as bitterness or sharp acidity (Jackson, 2020), while bitterness from alkaloid containing foods may clash with tannin rich wines, intensifying astringency (Jackson, 2020). In some cases, moderate salt addition can soften perceived bitterness and improve balance. Umami rich foods may also introduce metallic or bitter nuances in certain wines, and chilling wine can suppress wetness while accentuating sourness (Queiroz et al., 2024). However, the interaction between wine components and human physiology is not exclusively beneficial. Tannins, for example, possess the ability to bind with proteins, which may potentially lead to digestive issues by denaturing enzymes in the intestine. Furthermore, salivary proteins interact with tannins as a sensory detection mechanism; when these proteins bind, they form aggregates that increase friction, resulting in the characteristic sensation of astringency (Brossard et al., 2021).

C. Wine Pairing with Indonesian Food

Indonesian cuisine is exceptionally diverse, featuring iconic dishes like *rendang*, *betutu* chicken, *gudeg*, *rawon* and *soto Betawi*. This variety offers significant potential for wine pairing due to the aromatic spice involved. *Rendang* made with beef and rich coconut milk, represents the bold use of red meat and spices (Nirmufida et al., 2017), while *betutu* chicken showcases spiced white meat (Sugitha et al., 2022). In evaluating wine food compatibility, it is essential to account for dish components, accompanying condiments, such as sambal or lime, and differences in individual sensory perception among panelists. The presence of sambal, in particular, can intensify perceived heat and alter wine attributes. While research in this area is nascent, Hatten Wines in Bali is pioneering this field through collaborations with local chefs

and this may open paths for other winery or restaurant to collaborate to further enhanced Indonesian cuisine sensory experience.

METHOD

A. Type of Research

The wine pairing process relies on sensory evaluation, a technique that employs human subjects to measure attribute intensity. For that reason, qualitative analysis is conducted through descriptive analysis, utilizing experienced wine consumers who collaborate in groups to identify specific sensory attributes via direct interviews. In the design, it used a focus group discussion (FGD). The panelists were adults who had previously consumed red and white wine. The panelist was limited to seven persons. The qualitative framework was selected to explore and analyze the sensory interaction between complex Indonesian spice profiles, specifically represented by *rendang* and *betutu* chicken and conventional wine attributes (tannins, acidity, sweetness, and aroma profiles).

B. Research Data

The primary data of this research are seven adult respondent who had previously consumed red and white wine to pair up with the Indonesian cuisine: *rendang* (beef based, rich in coconut fat and dry spices) and *betutu* chicken (poultry based, rich in aromatic fresh herbs and high chili intensity). The secondary data include a collection of published academic literatures that explain about wine composition, covering variables such as tannin levels, alcohol, sugar, aromatic intensity.

C. Research Procedure

The research was conducted through literature identification, where relevant articles were retrieved from scholarly databases using the targeted keywords: wine and food pairing, *rendang* flavor compounds, and *betutu* chicken spice. Retrieved sources were screened based on peer reviewed status and relevance to Indonesian dishes. The organoleptic attributes of *rendang* and *betutu* chicken were mapped directly against wine parameters to evaluate pairing mechanisms. The findings were analyzed to derive pairings for the target dishes and a culturally adaptable framework for pairing wines with complex Indonesian spice profiles.

RESULTS AND DISCUSSIONS

A. Beef *Rendang* and *Betutu* Chicken

Rendang is a hallmark of Indonesian cuisine originating from the Minangkabau region of West Sumatra (see Figure 1). Prepared with red meat and an intricate blend of spices, it is slow-cooked at temperatures between 80°C and 95°C for 6 to 7 hours (Nurmufida et al., 2017). This process transforms the meat into a deep brown, tender delicacy with a distinctive aromatic profile. The preparation of *rendang* involves a comprehensive array of traditional spices. The complete composition of these ingredients is detailed in Figure 2.



Figure 1:
***Rendang*: an Indonesian National Dish**
(Photo credit: Lindayani)

Based on previous findings and traditional pairing guidelines, red meat is commonly associated with red wine, particularly tannins structured varieties such as Cabernet Sauvignon (Queiroz et al., 2024; Song, 2023). *Rendang* is prepared from beef. It is expected to pair well with red wine through tannin protein interactions that can reduce perceived greasiness and enhance flavor structure. However, *rendang* differs substantially from conventionally prepared red meat dishes, as it incorporates a complex mixture of spices (see Figure 2).

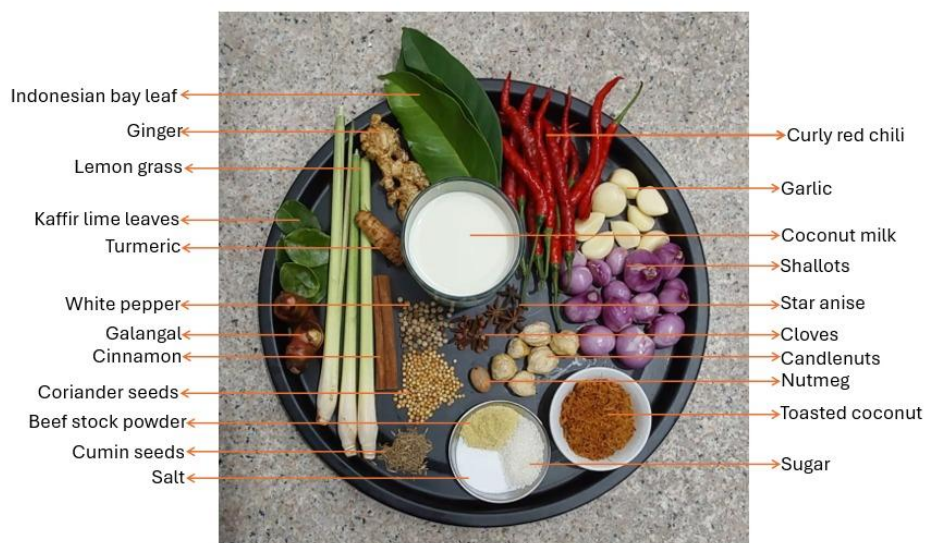


Figure 2:
The comprehensive array of spices used in the preparation of *rendang*
(Photo credit: Laksmi Hartajanie and Dyah Wulandari)

The preparation of *rendang* included its prolonged cooking of beef immersed in coconut milk with persistent heat to produce an intense richness and mild sweetness in taste; and layered aromatics fragrance. These characteristics generate a more concentrated and multidimensional sensory profile than typical roasted or grilled red meat. Consequently, the most suitable pairing may not involve highly tannic red wines alone, but rather styles with moderate tannin levels, balanced acidity, and pronounced fruits or spice notes that complement richness without amplifying bitterness or astringency (Sandua, 2023). In this context, red wines such as Merlot, Grenache, or moderate low tannin Syrah may provide more harmonious integration than

strongly tannic Cabernet Sauvignon, which can accentuate astringency when combined with spice rich and lipid dense foods (Kuhlman et al., 2024). Nevertheless, evidence from Koone et al. (2014) indicates that Cabernet Sauvignon can still achieve acceptable pairing with certain spicy meat products, such as spicy salami, suggesting that compatibility depends on matrix composition, moisture content, and spice structure, rather than meat type alone.

In addition to red wine, some rose wines and off dry white varieties, including Pinot Gris or Pinot Grigio, have been reported as potential (Kuhlman et al., 2024). This, however, is sometimes challenging pairing options for spices forward dishes due to their lower tannin content, moderate acidity, and occasional residual sugar, which may help moderate perceived heat by influencing receptor sensitivity to capsaicin induced trigeminal stimulation (Puengsurin et al., 2022). Aromatically enhanced wines may offer promising compatibility due to their distinctive sensory profiles that can resonate with the complex herbal and spice matrix characteristics of savory spicy *rendang* (Eschevins et al., 2018). Based on flavor analysis, the dominant flavor of *rendang* is expected to be driven by swarm spices, lipid derived creamy notes from coconut milk, and Maillard generated roasted and savory compounds from prolonged cooking. This combination suggests a preference for wines exhibiting slight sweet, fruity, moderately acidic profiles and low alcohol that can integrate with these multidimensional sensory attributes while maintaining overall balance in the pairing system.

The integration of wine pairing recommendations into menu descriptions can support consumer familiarity with Indonesian food wine combinations, particularly for individuals with limited prior exposure, for example, slow cooked rich savory spicy Indonesian beef *rendang* paired with moderate tannins and fruity Merlot wine or slow cooked rich savory spicy Indonesian beef *rendang* paired with Australian low tannins Syrah wine. Such concise menu wording helps customers from a general understanding of the intended food wine pairing before ordering. Furthermore, knowledgeable servers can elaborate on these pairings and address questions related to either the dish or the wine, highlighting the importance of strong menu literacy and staff training in delivering an effective dining experience.

Betutu chicken (see Figure 3) is a celebrated, spicy Balinese dish typically prepared with white meat (Sugitha et al., 2022). According to Queiroz et al. (2024), white wine pairs well with white meat because of its high acidity. The acidity serves to balance the dish's intense spice profile, which is characterized by a complex blend of garlic, onions, chili peppers, candlenuts, aromatic ginger (*kencur*), cayenne pepper, galangal, ginger, lime leaves, nutmeg, pepper, coriander, salt, palm sugar, and shrimp paste (Purna & Dwikayana, 2019). The spice profile of *betutu* chicken is illustrated in Figure 4.



Figure 3:
***Betutu* chicken preparation styles: (A) *Betutu* chicken in aromatic spice broth & (B) Roasted *betutu* (Photo credit: Lindayani)**

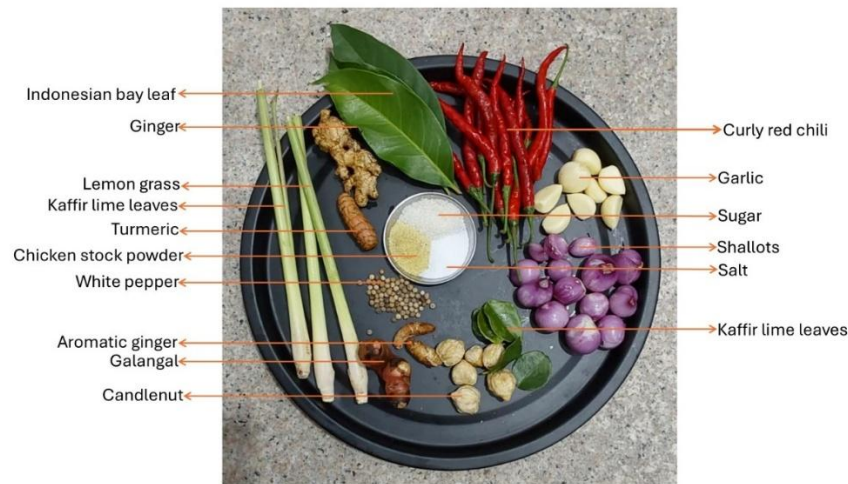


Figure 4:
The complex spice profile of *betutu* chicken
(Photo credit: Laksmi Hartajanie and Dyah Wulandari)

However, not all white wines are appropriate for pairing with spicy dishes such as *betutu* chicken. Similar to beef *rendang*, white wines with relatively high alcohol content, such as Californian Sauvignon Blanc, may intensify the perception of heat and spiciness. In contrast, wines with lower alcohol levels and higher acidity, such as Riesling, tend to provide a more balanced pairing. A study by Wang (2017) reported that pairing hot and spicy tofu with Riesling significantly improved overall sensory acceptance in affective testing. Menu description for *betutu* chicken should be crafted clearly, such as slow-cooked, herbaceous, savory spiced Balinese *betutu* chicken paired with an off-dry, aromatic Riesling. Slow-cooked, herbaceous, savory spiced Balinese *betutu* chicken is commonly paired with a spicy Gewürztraminer.

B. Challenges in Pairing Spiced Foods

Pairing wine with heavily spiced cuisine presents a notable challenge, as the intense heat of the spices often clashes with tannins or oak derived flavors in the wine. Addressing this complexity requires consideration of both the specific local culinary traditions of the consumers and the underlying chemistry of the species. Sweet associated spices generally enable more accessible pairings; however, for intensely spicy dishes, the prevailing consensus favors off dry white wines. When red wine is preferred, styles with low tannin content are recommended, whereas white wines with moderate alcohol and balanced acidity may better moderate perceived heat (Saladino, 2025). Ultimately, harmonious pairing depends on the interaction between spice intensity and the fundamental sensory dimensions of sweetness, sourness, and texture.

Although generalized wine pairing guidelines have been established for specific food combinations, such as cheese with white or sparkling wine, red meat with red wine, and seafood with high acidity white wine (Spence et al., 2017), actually consumer liking is heavily driven by individual and environmental factors. Focus group discussion results show that panelists preferred pairing *rendang* with red wine (local) for a more balanced sensory profile, while *betutu* chicken paired better with white wine (local). However, because wine pairing depends heavily on food spices which both Indonesian dishes contain in rich amounts (Figures 2 and 4), these findings require further testing, including with imported red and white wines. This is in line with cross cultural research on food preferences indicates that consumers from different cultural

backgrounds exhibit distinct gastronomic preferences, heavily influenced by culinary heritage and familiarity (Spence, 2020).

While these perceptual and contextual factors along with empirical observations from spicy food contexts demonstrate that successful wine pairing relies on consumer center sensory responses rather than physicochemical compatibility alone, validating these insights requires robust data. Because this study used a small group of experienced panelists, these findings should be interpreted as exploratory. Consequently, while consumer based sensory validation and context specific evaluation remain essential for gastronomic recommendations, future research with a larger sample size is necessary to firmly establish cultural relevance, sensory acceptance, and practical applicability in real dining environments.

CONCLUSION

In conclusion, successfully wine pairing for Indonesian dishes like *rendang* and *betutu* chicken relies on understanding spice compositions, fat levels, and cultural preferences. A flexible approach that bridges traditional wine science with local sensory realities is essential. In addition, bridging the gap between classical wine pairing and Indonesian gastronomy requires a deep appreciation of cultural culinary habits, particularly the integration of local staples like chili sauce, which fundamentally reshapes flavor dynamics and underscores the necessity of culturally tailored consumer education.

ACKNOWLEDGEMENT

The authors would like to thank Felix Yuwono Wiredjo and Severus Ryan Wisastra for their valuable collaboration and contributions to this research article. Faculty of Agricultural Technology, Soegijapranata Catholic University supports the publication fee. The authors declare no conflicts of interest. No generative artificial intelligence (AI) tools were employed in developing the study's scientific arguments, performing data analysis, interpreting evidence, or formulating conclusions.

REFERENCES

- Bédard, A., Lamarche, P.O., Grégoire, L.M., Catherine Trudel-Guy, C., Provencher, V., Desroches, S., Lemieux, S. (2020). Can eating pleasure be a lever for healthy eating? A systematic scoping review of eating pleasure and its links with dietary behaviors and health. *PLOS ONE*. 1-46. <https://doi.org/10.1371/journal.pone.0244292>
- Brossard, N., Gonzalez-Munoz, B., Pavez, C., Ricci, A., Wang, X., Osorio, F., Bordeu, E., Parpinello, G.P., & Jianshe Chen. (2021). Astringency sub-qualities of red wines and the influence of wine-saliva aggregates. *International Journal of Food Science and Technology* (56), 5382–5394. <https://ifst.onlinelibrary.wiley.com/doi/epdf/10.1111/ijfs.15065>
- Eschevins, A., Giboreau, A., Allard, T., & Dacremont, C. (2018). The role of aromatic similarity in food and beverage pairing. *Food Quality and Preference*, 65, 18–27. <https://doi.org/10.1016/j.foodqual.2017.12.005>

- Gupta, G., & Katarya, R. (2024). A computational approach towards food-wine recommendations. *Expert Systems with Applications*, 238, 121766. <https://doi.org/10.1016/j.eswa.2023.121766>
- Harrington, R. J., & Seo, H. S. (2015). The impact of liking of wine and food items on perceptions of wine–food pairing. *Journal of Foodservice Business Research*, 18(5), 489–501. <https://doi.org/10.1080/15378020.2015.1093455>
- Jackson, R.S. (2020). Wine, food, and health. *Wine Science*. 947–978. doi: 10.1016/B978-0-12-816118-0.00012-X
- Koone, R., Harrington, R. J., Gozzi, M., & McCarthy, M. (2014). The role of acidity, sweetness, tannin and consumer knowledge on wine and food match perceptions. *Journal of Wine Research*, 25(3), 158–174. <https://doi.org/10.1080/09571264.2014.899491>
- Kuhlman, B.A., Aleixandre-Tudo, J.L., John P. Moore, J.P., and Wessel du Toit. (2024). Astringency Perception in a Red Wine Context-A Review. *International Viticulture and Enology Society*, 58 (1), 1-17. <https://doi.org/10.20870/oeno-one.2024.58.1.7774>
- Kurniawan, A. (2025). Bridging tradition and science: The health-promoting potentials of Indonesian local spices in ethnic foods. *Journal of Ethnic Foods*, 12(1), 39. <https://doi.org/10.1186/s42779-025-00299-x>
- Moss, R., Barker, S., & McSweeney, M. B. (2022). Using check-all-that-apply to evaluate wine and food pairings: An investigation with white wines. *Journal of Sensory Studies*, 37(1), e12720. <https://doi.org/10.1111/joss.12720>
- Nurmufida, M., Wangrimen, G. H., Reinalta, R., & Leonardi, K. (2017). Rendang: The treasure of Minangkabau. *Journal of Ethnic Foods*, 4(4), 232–235. <https://doi.org/10.1016/j.jef.2017.10.005>
- Puengsurin, D., Meepong, R., Rotpenpian, N., Wanasuntronwong, A., & Surarit, R. (2022). Sucrose alleviates capsaicin-induced tongue burning: An in vivo study. *Journal of Clinical and Experimental Dentistry*, 14(7), e541–e547. <https://doi.org/10.4317/jced.58911>
- Purna, I. M., & Dwikayana, K. (2019). Betutu Bali: Menuju kuliner diplomasi budaya Indonesia. Patanjala. *Jurnal Penelitian Sejarah dan Budaya*, 11(2), 265–278. <https://doi.org/10.30959/patanjala.v11i2.478>
- Saladino, E. (2025). A guide to pairing wine with spicy food. *Imbibe Magazine*. <https://imbibemagazine.com/a-guide-to-pairing-wine-with-spicy-food/>
- Sandua, D. (2023). *Wine at the table: Gastronomy and pairings*. 165p.
- Serra, M., Antonio, N., Henriques, C., & Afonso, C. M. (2021). Promoting sustainability through regional food and wine pairing. *Sustainability*, 13(24), 13759. <https://doi.org/10.3390/su132413759>
- Song, X., Weixi Yang, Xu Qian, Xinke Zhang, Mengqi Ling, Li Yang, Ying Shi, Changqing Duan and Yibin Lan. (2023). Comparison of Chemical and Sensory Profiles between Cabernet Sauvignon and Marselan Dry Red Wines in China. *Foods* 12 (1110). 1-18. <https://doi.org/10.3390/foods12051110>

- Spence, C. (2020). Multisensory Flavour Perception: Blending, Mixing, Fusion, and Pairing within and between the Senses. *Foods*, 9(4), 407. 1-22; <https://doi.org/10.3390/foods9040407>
- Spence, C., Wang, Q. J., & Youssef, J. (2017). Pairing flavours and the temporal order of tasting. *Flavour*, 6(1), 4. <https://doi.org/10.1186/s13411-017-0053-0>
- Sugitha, I. M., Wisaniyasa, N. W., & Suparthana, I. P. (2022). Betutu: Balinese traditional food and its prospects for our health. In *Health risks of food additives—Recent developments and trends in food sector*. IntechOpen. <https://doi.org/10.5772/intechopen.106000>
- Queiroz, LP., I.B.R. Nogueira, A.M. Ribeiro. (2024). Flavor Engineering: A comprehensive review of biological foundations, AI integration, industrial development, and socio-cultural dynamics. *Food Research International* (196) , 1-30. <https://doi.org/10.1016/j.foodres.2024.115100>
- Wang, S. T. (2017). When Chinese cuisine meets western wine. *International Journal of Gastronomy and Food Science*, 7, 32–40. <https://doi.org/10.1016/j.ijgfs.2016.11.003>
- Weightman, C., Bauer, F. F., Terblanche, N. S., Valentin, D., & Nieuwoudt, H. H. (2019). 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*, 30(3), 179–203. <https://doi.org/10.1080/09571264.2019.1652149>
- Wijaya, S. (2019). Indonesian food culture mapping: A starter contribution to promote Indonesian culinary tourism. *Journal of Ethnic Foods*, 6(1), 1–10. <https://doi.org/10.1186/s42779-019-0009-3>
- Wongso, W. (2016). *Flavors of Indonesia: William Wongso's culinary wonders*. Publishing.