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UTILIZATION OF SUGARCANE BAGASSE (*Saccharum Officinarum L.*) FOR THE SUGARCANE BAGASSE CHIPS PRODUCTION

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ABSTRACT

Experimental research was designed to ascertain the degree of sensory acceptability of sugarcane bagasse chips on appearance, aroma, taste, and texture among the respondents of West Visayas State University – Himamaylan City Campus. Three groups of treatment of sugarcane bagasse chips were examined using a structured sensory evaluation form. The researchers prepared chips in varying proportions (75%) RF, 25% Sugarcane Bagasse (SB); 50% RF, 50% Sugarcane Bagasse (SB); 25% RF, and 75% (SB). Descriptive statistics, namely Mean and Standard Deviation, was used in analyzing the data collected from 47 respondents, twenty (20) student, ten (10) chef, ten (10) parents, seven (7) faculty and staff. Results showed varied levels of acceptability in treatments. The respondents evaluated the product based on 5-point Hedonic Scale. Kruskal-Wallis H test at 0.05 alpha level was applied to Inferential Data Analysis. The results showed that the sensory acceptability in the aspect of Appearance for Treatment A is Very Acceptable, Treatment B is Moderately Acceptable, and Treatment C is Slightly Acceptable. For Aroma, Treatment A and B were Very Acceptable. According to Taste, Treatment A and B were Very Acceptable, whereas Treatment C is Moderately Acceptable. In terms of Taste, Treatments A and B were Very Acceptable, whereas Treatment C is Moderately Acceptable. For Texture, Treatment A is Very Acceptable, Treatment B is Moderately Acceptable, and Treatment C is Slightly Acceptable. These results imply that although sugarcane bagasse chips overall achieved favorable sensory ratings, improvements in aroma and texture, particularly in Treatment C, could greatly enhance consumer acceptability. Accurate knowledge of these sensory acceptability levels is critical for the improvement of product formulations and increasing market appeal.

KEYWORDS: *Sugarcane Bagasse Chips, Sensory Acceptability, Appearance, Aroma, Taste, Texture, Treatment Groups, Hedonic Scale, Experimental Research, Mean and Standard Deviation.*

INTRODUCTION

Background of the study

Sugarcane bagasse is a stringy material containing cellulose as its main element. It's produced in large amounts across the world. It's a kind of waste material that comes from the sugar assiduity. It's most generally used in paper diligence, but experimenters have suggested that different mechanical and chemical treatments can help to prize cellulosic filaments, pure cellulose, cellulose nanofibers, and cellulose nanocrystals (Md. Arif, 2021).

According to Quereshi (2020), the expansion of the Indian sugar assiduity is directly linked to the adding product of lignocellulosic sugarcane bagasse. Each time, roughly 75 to 90 million tons of wet residual bagasse are generated from around 600 functional sugar manufactories in India. As a result, both the sugar assiduity and experimenters are prompted to concentrate on the effective use of this derivate. It has been noted that India has significant implicit to make use of residual sugarcane bagasse (RSB) for producing value- added chemicals, manufacturing pulp and paper, generating electricity, and colorful other operations.

Bagasse is burned as energy in the sugarcane shop or used as a source of cellulose for manufacturing beast feeds. Paper is produced from bagasse in several Latin American countries, in the Middle East, and in sugar- producing countries that are deficient in timber coffers. Bagasse is the essential component for the product of pressed structure board, auricular pipe, and other construction accoutrements and can be made into a number of biodegradable plastics. Bagasse is also employed in the product of furfural, a clear tintless liquid used in the conflation of chemical products similar as nylons, detergents, and indeed drugs (Britannica, 2024).

Sugarcane is an important crop in the Philippines planted throughout the country but is most abundant in the Visayas and particularly on Negros Island (Oñal Jr, Garcia, de la Cruz, & Pitallar, 2024)

Negros Occidental is a fiefdom in the Philippines located in the Negros Island region. It's known as the “sugar coliseum of the Philippines”, producing further than half of the nation’s sugar affair. The geography consists of alluvial plains and hilly and mountainous areas. A mountain range lines the eastern part of the

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fiefdom that forms the base of the border participated with another fiefdom, Negros Oriental (Tongson, 2019).

This study tries to prove if the chips attained from sugarcane bagasse are respectable grounded on different kinds of treatments similar as appearance, aroma, taste, texture and overall adequacy. Such a study decides if sugarcane bagasse is useful as a cumulative for snack medication since it focuses on how this influences the sensitive rates of the chips.

2. THEORETICAL FRAMEWORK

This exploration is predicated on Sustainable Product Development proposition according to Gutterman (2023). The proposition asserts that invention in new products with sustainability is critical in meeting consumer needs as well as environmental issues. With the application of green raw accoutrements, like sugarcane bagasse, businesses can come up with new products that meet contemporary request requirements and palliate waste.

The delineations of the new product proposed by Fuller (2016) are as follows "A product not preliminarily manufactured by a company and introduced by that company into its business or into a new business" or "The donation or rebranding by a company of an established product in a new form, a new package or under a new marker into a request not preliminarily explored by that company". New Product Development is grounded on customized procedures, models and is supported by applicable tools therefore, it brings significant benefits in terms of product costs, product quality and force chain vacuity, which is pivotal for success and business development. also, it's one of the ways to increase the company's profitability.

3. METHODOLOGY

Research Design

The experimenters used quantitative exploration design. According to Jain (2023), Quantitative exploration design is defined as a exploration system used in colorful disciplines, including social lores, psychology, economics, and request exploration. It aims to collect and dissect numerical data to answer exploration questions and test suppositions. Quantitative design has the following benefits there's the possibility of generalizing results to more expansive populations, the prospect of statistical testing and thesis, and the capability to identify patterns and connections between variables.

The design was employed to statistically describe and dissect the sensitive Adequacy of Sugarcane Bagasse (SB) Grounded Chips in three treatments Treatment A (75 Rice Flour (RF), 25 Sugarcane Bagasse (SB); Treatment B (50 RF, 50 SB); and, Treatment C (75 SB, 25 RF), in terms of Appearance, Aroma, Taste and Texture as assessed by Bachelor Science in Hospitality Management pupil.

Participants and Inclusion Criteria

There will be 47 respondents in this study, composed of 20 students, 10 parents, 10 chef and 7 faculty and staff of West Visayas State University- Himamaylan City Campus. Their responses will be gathered, summarized, arranged in tabular forms and analyzed.

Data Collection Instrument

The data collection instrument will be an adapted questionnaire based on the 9-point hedonic rating scale, which is widely used in sensory evaluation research. It includes clear instructions for evaluators to follow when rating the finished products. This questionnaire is designed to assess the product's sensory qualities by allowing evaluators to express their degree of liking or disliking. The content of this instrument includes the title of the study and directions to be followed by the evaluators in assessing the finished product according to the production of sugarcane bagasse chips, focusing on appearance, aroma, taste, texture, and overall acceptability.

Data Analysis Procedure

The accomplished questionnaires collected, the data will be tabulated and analyzed using the appropriate statistical tool.

Mean and standard deviation were use in the descriptive analysis to evaluate the process of producing Sugarcane Bagasse Chips using the adapted instrument as assessed by the respondents.

To answer objective number 1, What is the level of acceptability utilization of sugarcane bagasse in 3 treatments in terms of appearance, aroma, taste, texture and general acceptability?

To answer objective number 2, Is there a significant difference in the level of utilization of sugarcane bagasse in 3 treatments in terms of appearance, aroma, taste, texture and general acceptability?

Ethical Considerations

The researchers seek permission from the Campus Administrator for the gather data from faculty, staff and students in the campus, while for the respondents from the community, a letter was sent to the Barangay Captain for approval to conduct data collection. Upon approval, researchers secured the informed consent of the respondents. Respondents were informed that their involvement in the study were voluntary, and they have the right to withdraw at any point if they feel uneasy during the survey process. Additionally, the researchers ensured that the language used in the survey materials was clear and easy to understood. The anonymity of the respondents was maintained throughout the survey, and their personal information was handled with the highest level of confidentiality.

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4. RESULTS AND DISCUSSIONS

Table 1. ***Level of Sensory Acceptability of Sugarcane Bagasse Chips in Terms of Appearance, Aroma, Taste, and Texture in the Three Treatment Groups as Assessed by the Respondents***

Treatment	Component	*n*	Mean	Verbal Description	*SD*
A- 25% Sugarcane Bagasse 75% Rice Flour	Appearance	47	8.30	Very Acceptable	.72
	Aroma	47	8.23	Very Acceptable	.84
	Taste	47	8.15	Very Acceptable	.91
	Texture	47	7.85	Very Acceptable	.96
	General	47	8.13	Very Acceptable	.70
B- 50% Sugarcane Bagasse 50% Rice Flour	Appearance	47	7.45	Moderately Acceptable	1.06
	Aroma	47	7.53	Very Acceptable	.78
	Taste	47	7.55	Very Acceptable	1.30
	Texture	47	7.06	Moderately Acceptable	1.28
	General	47	7.40	Moderately Acceptable	.84
C- 75% Sugarcane Bagasse 25% Rice Flour	Appearance	47	6.30	Slightly Acceptable	1.79
	Aroma	47	6.94	Moderately Acceptable	1.41
	Taste	47	6.60	Moderately Acceptable	1.85
	Texture	47	6.26	Slightly Acceptable	1.95
	General	47	6.52	Moderately Acceptable	1.62

Note: 8.51-9.00 Highly Acceptable; 7.51-8.50 Very Acceptable; 6.51-7.50 Moderately Acceptable; 5.51-6.50 Slightly Acceptable; 4.51-5.50 Neither Acceptable/Unacceptable; 3.51-4.50 Slightly Unacceptable; 2.51-3.50 Moderately Unacceptable; 1.51-2.50 Very Unacceptable; 1.00-1.50 Highly Unacceptable

The sensory acceptability level of sugarcane bagasse chips on appearance, aroma, taste, and texture among the three treatment groups reported different levels of acceptance. Treatment A- was the most generally accepted (M=8.15, SD=0.91) with all the components; appearance (M=8.30), aroma (M=8.23), taste (M=8.15), and texture (M=7.85) with Very Acceptable ratings. Treatment B- with a mean overall of 7.40 (SD=1.06), Moderately Acceptable, in which aroma (M=7.53) was Very Acceptable and texture (M=7.06) was the lowest of the components. Treatment C- had the lowest overall rating (M=6.52, SD=1.62), translated as Moderately Acceptable, with its texture (M=6.26) and flavor (M=6.94) in Slightly Acceptable. These results would indicate that although sugarcane bagasse chips generally scored positive sensory assessments, improvements in aroma and texture, particularly in Treatment C could widely enhance consumer satisfaction. Identification of these in-depth preferences is crucial in optimizing product formulations and increasing market acceptance.

The level of sugarcane bagasse in chip manufacture is a determining factor of texture, flavor, and general acceptance by consumers. Ensuring the right balance helps achieve consistent quality and regulatory compliance (Licona-Aguilar, Lois-Correa, Torres-Huerta, Domínguez-Crespo, Urdapilleta-Inchaurregui, Rodríguez-Salazar, & Brachetti-Sibaja, 2023).

Table 2. ***Differences in the Sensory Acceptability of Sugarcane Bagasse Chips Among Three Treatment Groups***

Acceptability	*n*	Mean Rank	Kruskal Wallis H	*df*	*p*-value
Treatment Group A	47	99.15			
Treatment Group B	47	67.68	40.248	2	.000
Treatment Group C	47	46.17			

$p < .05$, significant

The test yielded a statistic of $H = 40.248$ with a p-value of 0.000, indicating a statistically significant difference in acceptability among the treatment groups. This suggests that at least one group differs in sensory acceptability from the others.

Given the significant result, post-hoc analyses are necessary to identify which specific groups differ from each other. Hence, the Dunn's test with Bonferroni adjustment was employed to perform pairwise comparisons while controlling for the increased risk of Type I errors due to multiple comparisons.

Adding sugarcane bagasse to snack foods aids sustainability by utilizing farm waste and enhances nutritional value through higher dietary fiber levels. Morales-Tapia, González, and Campos-Vera (2023) proved that sugarcane bagasse was usable in cookie doughs without any adverse effects on sensory attributes like texture and flavor, further increasing fiber levels. Such findings point to the potential of sugarcane bagasse as a functional food to use in new-age and health-focused snack food production.

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Table 3. *Post* ***Hoc Test for the Utilization of Sugarcane Bagasse for The Sugarcane Bagasse Chips Production***

Pairwise Comparisons of Treatment

Treatment Group	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
Group 3 and Group 2	21.511	8.400	2.561	.010	.031
Group 3 and Group 1	52.979	8.400	6.307	.000	.000
Group 2 and Group 1	31.468	8.400	3.746	.000	.001

Note: *Significant if p < .05.* Significance values have been adjusted by the Bonferroni correction for multiple tests.

Results of the pairwise comparisons using Dunn's test with Bonferroni adjustment revealed significant differences between Group 3 and Group 2 (adjusted $p = 0.031$); between Group 3 and Group 1 (adjusted $p = 0.000$); and between Group 2 and Group 1 (adjusted $p = 001$).
This indicates that the group with the greater mean acceptability score (Group 3) is much more acceptable than the group with the smaller mean (Group 1) and is also more acceptable than Group 2.

The major differences detected by Dunn's test with Bonferroni correction show that using sugarcane bagasse in chip manufacture provides different acceptability levels among treatments.

Post hoc tests like Dunn–Bonferroni are most beneficial in food science studies due to the fact that they ascertain reliable results where more than two groups are compared. As highlighted by Din, Chia, and Nor (2020), correct statistical corrections in studies of sensory and product development are essential to reduce false positives and ascertain whether differences in consumer preferences seen are real or by chance. This justifies concluding that Group 3's greater acceptability is statistically sound and not an artifact of multiple testing.

5. CONCLUSIONS

According to the research, it is clear that sugarcane bagasse can be used acceptably as a component in the manufacture of chips, although its acceptability is greatly dependent on the ratio used. Treatment A (75% rice flour + 25% bagasse) was rated "Very Acceptable" every time for appearance, odor, flavor, and texture, showing that bagasse can be successfully added to snack foods without loss of sensory attributes when used at maximum levels. Treatments with greater proportions of bagasse, however, had lower grades, underscoring the critical need to formulate accordingly to retain desired attributes.

The findings also confirm that sugarcane bagasse chips are a feasible and innovative product idea. Through utilizing a crop by-product, the research not only minimizes waste but also encourages sustainability and provides prospects for value-added food production. This is in harmony with the vision of facilitating environmental responsibility while meeting the demands of consumers for healthier, high-fiber snack foods.

In addition, the encouraging feedback from students, parents, faculty members, and chefs assure that the product has potential market acceptance. Their positive assessment of appearance, smell, and taste, especially in Treatment A, confirms the viability of launching sugarcane bagasse chips as an environmentally friendly snack alternative. Although issues of texture improvement and formulating remain, these can be met through ongoing product development and testing.

In general, the research concludes that sugarcane bagasse chip production is feasible and promising. It is backed by positive sensory assessment, sustainability advantages, and consumer acceptability, making it a worthwhile innovation through waste minimization, food diversification, and livelihood opportunities for the people.

6. RECOMMENDATIONS

Given the outcomes and findings, the following are the recommendations drawn:
More product development and research projects should be undertaken employing sugarcane bagasse as a main ingredient in foods. Similarly, various formulations and variants of sugarcane bagasse chips should be tried by mixing it with other native ingredients to improve flavor, texture, and nutritional content.

Explore the use of natural flavorings and intensifiers. Utilizing herbs, spices, or vegetative ingredients can enhance the overall flavor and scent of the chips without sacrificing their attractiveness for health-oriented and environmentally conscious consumers.
Improving product quality continuously is key. To address this, additional market research needs to be done to define consumer preferences, shelf-life performance, and scalability of production for sugarcane bagasse chips to act as a point of reference for future improvements.

It is strongly suggested that the product be formulated for mass production and commercialization. Further research can look into other local raw materials to further enhance chip formulations. As a handy and convenient snack, sugarcane bagasse chips are strong contenders as a healthy street food or an eco-friendly snack choice, both locally and among tourists. With its innovation and sustainability component, continuous experimentation with sugarcane bagasse can result in the production of novel, high-quality food products.

*For Sugarcane Farmers and Producers***,** the suggestion is for sugarcane farmers and producers to venture into a partnership

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with nearby food manufacturers or small-scale entrepreneurs to provide sugarcane bagasse for value-added products like chips. Through converting what would normally qualify as a waste product into a source of revenue, farmers can diversify their income and help provide for more sustainable agricultural measures.

*For Housewives***,** housewives are invited to try sugarcane bagasse chips as a healthy and environmentally friendly snack that can be produced at home. With appropriate preparation and seasoning, this product has the potential to provide a healthier choice compared to commercial junk foods, which is suitable for school snacks, home use, or even a small business undertaking.

For Potential Customers, customers are invited to shop innovative, environmentally sustainable food like sugarcane bagasse chips. Customers who buy into snack foods produced from agricultural waste reduce their impact of food waste and advocate for environmentally friendly consumption while experiencing a distinctive and high-fiber snack option.

For Researchers other researchers are encouraged to undertake further studies on enhancing the formulation, preservation, and nutritional analysis of sugarcane bagasse chips. Comparative studies involving other agricultural by-products or investigating alternative cooking processes (e.g., air-frying versus deep-frying) can further support the continuous innovation and development of sustainable food technologies.

REFERENCES

1. *Albertsen, L., Wiedmann, K. P., & Schmidt, S. (2020). The impact of innovation-related perception on consumer acceptance of food innovations–Development of an integrated framework of the consumer acceptance process. Food Quality and Preference, 84, 103958.*
2. *Alvarez-Henao, M. V., Cardona, L., Hincapié, S., Londoño-Londoño, J., & Jimenez-Cartagena, C. (2022). Supercritical fluid extraction of phytosterols from sugarcane bagasse: Evaluation of extraction parameters. The Journal of Supercritical Fluids, 179, 105427.*
3. *Anbarasan, R., Gomez Carmona, D., & Mahendran, R. (2022). Human taste-perception: brain computer interface (BCI) and its application as an engineering tool for taste-driven sensory studies. Food Engineering Reviews, 14(3), 408–434.*
4. *Binte Abdul Halim, F. N., Taheri, A., Abdol Rahim Yassin, Z., Chia, K. F., Goh, K. K. T., Goh, S. M., & Du, J. (2023). Effects of incorporating alkaline hydrogen peroxide treated sugarcane fibre on the physical properties and glycemic potency of white bread. Foods, 12(7), 1460.*
5. *Britannica, T. Editors of Encyclopaedia. (2024, June 20). Bagasse. Encyclopedia Britannica. https://www.britannica.com/technology/bagasse*
6. *Britannica, T. Editors of Encyclopaedia. (2024, October 11). Taste. Encyclopedia Britannica. https://www.britannica.com/science/taste-sense*
7. *Britannica, T. Editors of Encyclopaedia. (2024, October 17). Food processing. Encyclopedia Britannica. https://www.britannica.com/technology/food-processing*
8. *Caivano, J. L., & Green-Armytage, P. (2022). Appearance. In R. Shamey (Ed.), Encyclopedia of Color Science and Technology. Springer.*
9. *Çakmakçı, R., Salık, M. A., & Çakmakçı, S. (2023). Assessment and principles of environmentally sustainable food and agriculture systems. Agriculture, 13(5), 1073.*
10. *Chapman, R., & Bernays, E. (2024, July 8). Chemoreception. Encyclopedia Britannica. https://www.britannica.com/science/chemoreception*
11. *Dahl, W. J. (2020, April 14). Modifying texture for the older adult. EDIS. https://edis.ifas.ufl.edu/publication/FS156*
12. *Din, N., Chia, S. L., & Nor, M. H. M. (2020). Sensory evaluation and consumer acceptability in food product development. Current Research in Food Science, 3, 1–10.*
13. *Fiorentini, M., Kinchla, A. J., & Nolden, A. A. (2020). Role of sensory evaluation in consumer acceptance of plant-based meat analogs and meat extenders: A scoping review. Foods, 9(9), 1334.*
14. *Fuller, G. W. (2016). New Food Product Development: From Concept to Marketplace (3rd ed.). CRC Press.*
15. *Gaytancıoğlu, O., Yılmaz, F., & Geçgel, Ü. (2024). The effect of fatty acids profile in potato and corn chips on consumer preferences. Foods, 13(20), 3292.*
16. *Guiné, R. P., Florença, S. G., Barroca, M. J., & Anjos, O. (2020). The link between the consumer and the innovations in food product development. Foods, 9(9), 1317.*
17. *Gutterman, A. (2023). Sustainable Product Development.*
18. *Herrero, M., Thornton, P. K., Mason-D'Croz, D., Palmer, J., Benton, T. G., Bodirsky, B. L., ... & West, P. C. (2020). Innovation can accelerate the transition towards a sustainable food system. Nature Food, 1(5), 266–272.*
19. *Hutchings, J. (2021). Food, expectations, colour and appearance. In Color & food: From the farm to the table (p. 17).*
20. *ISIC. (2023). Aroma, taste and flavour. https://www.coffeeandhealth.org/coffee-and-the-senses/aroma-taste-andflavour*
21. *Jain, N. (2023). What is quantitative research design? Definition, types, methods and best practices. https://ideascale.com/blog/quantitative-research-design/*
22. *Kumar, R., Chambers IV, E., Chambers, D. H., & Lee, J. (2021). Generating new snack food texture ideas using sensory and consumer research tools: A case study of the Japanese and South Korean snack food markets. Foods, 10(2), 474.*
23. *Le Quéré, J.-L., & Schoumacker, R. (2023). Dynamic instrumental and sensory methods used to link aroma release and aroma perception: A review. Molecules, 28(17), 6308.*
24. *Mahmud, M. A., & Anannya, F. R. (2021). Sugarcane bagasse–A source of cellulosic fiber for diverse applications. Heliyon, 7(8).*
25. *Morales-Tapia, A. A., González, F., & Campos-Vera, E. (2023). Application of sugarcane bagasse as a potentially functional ingredient in cookies formulation: A study on physicochemical, sensory, and texture profile properties. Revista Mexicana de Ingeniería Química, 22(2), Alim238. https://doi.org/10.24275/rmiq/Alim238*
26. *Nederkoorn, C., van den Heuvel, E., van den Brand, A. J. P., Swart, N., Schreuder, C., & Hendriks-Hartensveld, A. E. M. (2025). Tactile tastes: Testing the relation between tactile thresholds, liking of textures, and pickiness in eating. Appetite, 204, 107767. https://doi.org/10.1016/j.appet.2024.107767*
27. *Oñal Jr, P. A., Garcia, J. G. A., de la Cruz, A. E., & Pitallar, J. V. (2024). Influence of bio-stimulant to rooting and biomass of*

ISSN (Online): 2455-3662
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Volume: 11| Issue: 10| October 2025|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2025: 8.691 || ISI Value: 1.188

sugarcane setts at pre-tillering stage. International Journal of Multidisciplinary: Applied Business and Education Research, 5(6), 2244–2257.

28. *Pandiselvam, R., Krishnan, R., Manikantan, M. R., Jacob, A., Ramesh, S. V., & Beegum, S. (2024). Impact of slice thickness and baking temperature on the physicochemical quality and nutritional properties of newly developed baked coconut chips. Journal of Food Biochemistry, 2024(1), 3272394.*
29. *Quereshi, S., Naiya, T. K., Mandal, A., & Dutta, S. (2020). Residual sugarcane bagasse conversion in India: Current status, technologies, and policies. Biomass Conversion and Biorefinery, 1–23.*
30. *Rațu, R. N., Veleșcu, I. D., Stoica, F., Usturoi, A., Arsenoaia, V. N., Crivei, I. C., ... & Brumă, I. S. (2023). Application of agri-food by-products in the food industry. Agriculture, 13(8), 1559.*
31. *Rustagi, S. (2020). Food texture and its perception, acceptance and evaluation. Biosciences Biotechnology Research Asia, 17(3), 651–658.*
32. *Saha, S. (2024). What is experimental research: Definition, types & examples. https://www.entropik.io/blogs/experimental-research*
33. *Saleh, M., & Lee, Y. (2023). Instrumental analysis or human evaluation to measure the appearance, smell, flavor, and physical properties of food. Foods, 12(18), 3453.*
34. *Santos, F., Eichler, P., Machado, G., De Mattia, J., & De Souza, G. (2020). By-products of the sugarcane industry. In Sugarcane Biorefinery, Technology and Perspectives (pp. 21–48). Academic Press.*
35. *Schifferstein, H. N. J., & Oude Ophuis, P. A. M. (2021). Aroma and its impact on food perception: A review of sensory and psychological aspects. Food Research International, 145, 110421.*
36. *Strid, A., Hallström, E., Sonesson, U., Sjons, J., Winkvist, A., & Bianchi, M. (2021). Sustainability indicators for foods benefiting climate and health. Sustainability, 13(7), 3621. https://doi.org/10.3390/su13073621*
37. *SUZUKI, Y., SHIDA, S., YAMAMURA, Y., & TERADA, N. (2024). Evaluation of chewing sound of potato chips using loudness spectrum and sharpness. International Journal of Affective Engineering.*
38. *Tongson, E. E. (2019). Simulating impacts of ENSO and climate change on sugar cane production in Negros Occidental Province, Philippines. Climate, Disaster and Development Journal, 4(1), 11–19.*
39. *Ueda, J., Spence, C., & Okajima, K. (2020). Effects of varying the standard deviation of the luminance on the appearance of food, flavour expectations, and taste/flavour perception. Scientific Reports, 10, 16175. https://doi.org/10.1038/s41598-020-73189-8*
40. *Ungureanu, N., Vlăduț, V., & Biriș, S. Ș. (2022). Sustainable valorization of waste and by-products from sugarcane processing. Sustainability, 14(17), 11089.*
41. *Vijerathna, M. P. G., Wijesekara, I., Perera, R., Maralanda, S. M. T. A., Jayasinghe, M., & Wickramasinghe, I. (2019). Physico-chemical characterization of cookies supplemented with sugarcane bagasse fibres. Vidyodaya Journal of Science, 22(1).*
42. *Wang, S., Chen, H., & Sun, B. (2020). Recent progress in food flavor analysis using gas chromatography–ion mobility spectrometry (GC–IMS). Food Chemistry, 315, 126158.*
43. *Yamane, T. (2024, September 17). Sugarcane. Encyclopedia Britannica. https://www.britannica.com/plant/sugarcane*
44. *Yamane, T. (2024, October 26). Sugarcane. Encyclopedia Britannica. https://www.britannica.com/plant/sugarcane*
45. *Ybañez, Q., Sanchez, P., Buladaco II, M., & Rosales, J. E. (2022). Synthesis and characterization of nanozeolite from sugarcane bagasse ash and its nutrient loading potential. The Philippine Agricultural Scientist, 105(4), 317–324.*
46. *Zheng, Y., dos Santos Luciano, A. C., Dong, J., & Yuan, W. (2022). High-resolution map of sugarcane cultivation in Brazil using a phenology-based method. Earth System Science Data, 14, 2065–2080.*