Review Form 3

Journal Name:	European Journal of Nutrition & Food Safety
Manuscript Number:	Ms_EJNFS_128938
Title of the Manuscript:	**Identification of the sweetest dwarf varieties for the production of sugar based on coconut water in Côte d'Ivoire**
Type of the Article	**research Artical**

General guidelines for the Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

https://r1.reviewerhub.org/general-editorial-policy/

Important Policies Regarding Peer Review

Peer review Comments Approval Policy: https://r1.reviewerhub.org/peer-review-comments-approval-policy/
Benefits for Reviewers: https://r1.reviewerhub.org/benefits-for-reviewers

Review Form 3

PART 1: Comments

	Reviewer's comment	Author's Feedback *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.	**This manuscript contributes significantly to the scientific understanding and practical applications of coconut cultivation and utilization, particularly in the context of dwarf coconut varieties. Its importance can be outlined as follows:** **1. Advancement of Coconut-Based Agro-Industry** **The study identifies dwarf coconut cultivars with high sugar content in their water, providing critical insights for industries aiming to develop coconut water-derived sugars. This information is valuable for the agro-industrial sector, especially in producing sugar alternatives for diabetic individuals and energy drinks.** **2. Dwarf Coconut Varieties as Economic Drivers** **By highlighting cultivars such as the Sri Lanka Green Dwarf and Tacunan Green Dwarf with superior Brix values, the manuscript underscores their potential to generate higher economic value compared to other varieties. This can guide farmers and stakeholders in choosing the best cultivars for economic gain and sustainability.**	
Is the title of the article suitable? **(If not please suggest an alternative title)**	**"Identification of High-Sugar Dwarf Coconut Varieties for Coconut Water-Based Sugar Production in Côte d'Ivoire"**	

Review Form 3

Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	**Here are some suggestions to improve the abstract for better clarity and academic rigor:** 1. **Refine the opening statement:** Begin with a broader context to engage a wider audience, then narrow it to the specific focus of your study. 2. **Clarify key terms: Ensure terms like** "Brix level" and "total soluble solids" are easily understood, even by readers outside the field. 3. **Focus on precision:** Replace vague expressions like "likely to contain more sugar" with more definitive phrases based on the study results**.** 4. **Enhance conclusion clarity:** State the practical implications of the findings more directly. **Revised Abstract** Coconut cultivation is a vital cash crop with significant potential for employment generation, particularly for youth and women. Its diverse applications in the agro-industry include the use of coconut water for consumption and the production of sugar suitable for diabetic diets. This study aimed to identify high-sugar-yielding dwarf coconut varieties in Côte d'Ivoire. Ten dwarf cultivars were selected from the international collection, and a total of 150 nuts, harvested from 50 randomly selected trees (3 nuts per cultivar), were analyzed. Biochemical parameters, including Brix level, dry matter, pH, reducing and total sugars, and macronutrient content, were determined using standard methods. Among the varieties, the Malayan Red Dwarf exhibited the lowest dry matter content (6.22±0.32%), while the Sri Lanka Green Dwarf had the highest (7.46±0.05%). All cultivars exceeded the Codex Alimentarius 2022 standard of 5.0% Brix, with green cultivars such as Tacunan Green Dwarf, Thailand Green Dwarf, Brazil Green Dwarf, Pilipog Green Dwarf, and Sri Lanka Green Dwarf showing total soluble solids values close to or above 7. These findings highlight high-Brix cultivars as promising candidates for the production of coconut water sugar, offering potential for value-added agro-industrial products. **This revised version enhances clarity, precision, and flow, while emphasizing the study's relevance to the scientific community and practical applications.**	
Is the manuscript scientifically, correct? Please write here.	Your manuscript is well-written, but there are a few areas that could be refined for clarity, conciseness, and scientific accuracy. Here's a revised version of your abstract and introduction, along with some recommendations for improving the scientific tone and structure: 1. Abstract Coconut cultivation, recognized as a valuable cash crop, is increasingly promoted for its potential to provide employment opportunities for youth and women. Every part of the coconut is utilized in agro-industries, with coconut water being consumed as a beverage and also serving as a source of sugar for diabetics. This study aimed to identify dwarf coconut cultivars with the highest sugar content in their water. Ten dwarf cultivars were selected from the international collection in Côte d'Ivoire. A total of 150 9-month-old nuts were harvested from 50 randomly selected trees, with three nuts per cultivar. After water extraction, Brix levels, dry matter, pH, reducing and total sugars, and macronutrients were analyzed using standard methods. The results revealed that Malayan Red Dwarf exhibited the lowest dry matter (6.22 ± 0.32%) compared to Sri Lanka Green Dwarf (7.46 ± 0.05%), which had the highest value. All cultivars exceeded the Codex Alimentarius 2022 standard of 5.0% for Brix. Additionally, several dwarf green cultivars had high total soluble solids, with values near or above 7, including Tacunan Green Dwarf, Thailand Green Dwarf, Brazil Green Dwarf, Pilipog Green Dwarf, and Sri Lanka Green Dwarf. In conclusion, these high-Brix cultivars are suitable for coconut water sugar production. Introduction Coconut cultivation spans approximately 12 million hectares globally, with an annual production of 61.5 million tonnes of copra (FAO, 2014). This crop serves as a primary source of income for 10 million families worldwide (Yao et al., 2011). In Côte d'Ivoire, coconut plantations cover 50,000 hectares, primarily in the coastal regions, yielding approximately 70,000 tonnes of copra annually (Assa et al., 2012). Coconut cultivation sustains over 20,000 families in these areas, where alternative cash crops are limited (MINADER, 2014). Copra, the primary by-product of coconut harvesting, is valuable, but other parts of the coconut plant are also utilized. The husks are employed for making ropes and nets, and the shells are used for fuel and activated charcoal (CIRAD, 2007). The kernel and water within the nut are vital components, with coconut water being used in various industries. Coconut palms are categorized into three ecotypes: tall, dwarf, and hybrid (Prades, 2011). Tall varieties represent the majority of global plantations, while dwarf palms are generally cultivated for their "mouth	

	nuts," and hybrids and tall palms are more suited for copra production (UNCTAD, 2016). The demand for coconut-derived products, including coconut milk, water-based drinks, and coconut water-based soft drinks, has risen sharply in recent years (Prades et al., 2012). Coconut water is also used in traditional medicine, microbiology, and can be processed into vinegar and wine (Sanchez et al., 1985; Augustine, 2007). Recently, immature coconut water has gained attention as a potential source for table sugar production, deemed a profitable activity (Akpro, 2019). Several studies indicate that the sugar content of immature coconut water correlates with its total soluble solids (Assa et al., 2007; Akpro, 2019). Akpro et al. (2018) demonstrated the feasibility of producing various forms of sugar from 8–9-month-old coconut water. Furthermore, dwarf coconut varieties are generally sweeter than tall and hybrid varieties, with their water being more favored for consumption due to its superior taste (Prades et al., 2012). Previous research has also identified several key nutrients in coconut water, including potassium, and it is recognized as a low-fat, carbohydrate-rich liquid with sugars such as fructose, glucose, and sucrose (Assa et al., 2006; Naozuka et al., 2011). Given these properties, coconut water has gained recognition as an energy drink for athletes (Rolle, 2007). Côte d'Ivoire hosts an international collection of coconut palms, including 16 varieties of dwarf coconuts. However, no comparative studies have focused on their sugar content. This study aims to identify the sweetest dwarf varieties suitable for water-based sugar production from immature coconuts, based on biochemical analysis. Recommendations for Improvement: Consistency in Terminology: Ensure consistent naming conventions for the varieties. For example, "Sri Lanka Green Dwarf" is listed as both "Sri Lanka Green Dwarf (PGD)" and "PGD" in different sections. It's helpful to use the full name throughout for clarity. Scientific Rigor: Be more explicit about how statistical significance is tested (e.g., describe the specific statistical tests used beyond the DUNCAN test, such as ANOVA, if applicable). Avoid Repetition: Some points are repeated, such as the mention of the FAO's recommendation for coconut water as an energy drink. This could be summarized once to keep the focus on the study. Clarify Acronyms and Units:	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	However, to ensure the most up-to-date information, especially considering the rapid developments in areas like food science, biotechnology, and agriculture, you might consider adding the following types of references: 1. **Recent Reviews and Meta-Analyses**: These can help provide a more holistic view of the state of research in your area. For instance, articles published in the past few years in top journals such as Food Chemistry, Journal of Food Science, or Comprehensive Reviews in Food Science and Food Safety would likely have summarized the latest research and trends in coconut water analysis and uses. 2. **Recent Advances in Biotechnology**: Coconut water and its byproducts are of interest in areas like fermentation and bioengineering. Looking for recent papers in these fields could expand your scope. For example, recent research on using coconut water in fermentation or as a medium for growing probiotics could be of interest, as well as its potential in bioplastics or biofuels. 3. **Industry Reports and Market Analysis (2020-2024):** The coconut water market has been growing globally, so including reports from organizations such as Euromonitor International, Grand View Research, or Research and Markets could provide current industry insights. 4. References on Sustainability and Agricultural Practices: As coconut cultivation has environmental	

	impacts, particularly in the tropics, adding recent literature on sustainable practices for coconut farming, climate impacts, or innovations in sustainable coconut production would help to round out your references. 5. Recent Patents and Technological Innovations: Looking at patents or technological breakthroughs related to coconut water processing or its byproducts could also offer more recent insights into industrial applications. Some journals you might want to consider for recent articles include: Food Research International International Journal of Food Science & Technology Food and Bioproducts Processing Journal of the Science of Food and Agriculture	
Is the language/English quality of the article suitable for scholarly communications?	The article is largely suitable for scholarly communication, but the language could be made slightly more concise and precise in some areas. Some sentences are a bit long and could be broken down into shorter, clearer ones. Refining these aspects will improve the flow and readability, ensuring that the content is more easily accessible to a broader academic audience.	
Optional/General comments		

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

Name:	**Narendra Kumar Yadav**
Department, University & Country	**MPUAT, India**