



SDI Review Form 1.6

Journal Name:	American Journal of Experimental Agriculture
Manuscript Number:	2014_AJEA_11035
Title of the Manuscript:	Evolution of physicochemical parameters during storage of the inflorescence sap deriving from four Ivorian coconut (Cocos nucifera L.) varieties
Type of the Article	Original Research Article

General guideline for 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.

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(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



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PART 1: Review Comments

	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)
Compulsory REVISION comments	Line 2: this should be "Changes in physicochemical parameters during storage of the inflorescence sap derived from four" Line 6: replace "involving with" with "in" Line 7: this should be "inflorescence sap derived from MYD, WAT, PB 121+ and PB 113+ varieties, during storage." Line 10: replace "and then a sample was" with "and then a sample for each variety was" Line 11: should be "constituted by mixing the collected saps. Three samples of the coconut sap from each variety, each collected on a different day (three days of collection)" Line 12: this should be "were stored at 35±2 °C. Then 10 parameters were assessed during 120 h (5 days) of storage" Line 14: replace "important decreasing was concerning with the total" with "important decrease were observed for the total" Line 17: replace "significant rising was recorded with the total titrable" with "significant increases were recorded for the total titrable" Line 18: delete "with the" Line 19: replace "contents led respectively to" with "contents were recorded respectively," Line 20: replace "reached also peaks of 606.84 mg/L to 1316.24 mg/L" with "reached a peak of to 1316.24 mg/L from 606.84 mg/L" Line 21: replace "varieties with highest contents" with "varieties with the highest contents" Line 22: delete "contents" and "of the sap" Line 23: replace "evolution" with "changes in" Line 24: this should be "fermentation of the saps of different coconut varieties. Due to its highest polyphenol content, the sap" Line 25: replace "deriving" with "derived"	Line 2: OK Line 6: OK Line 7: OK Line 10: OK Line 11: OK Line 12: OK Line 14: OK Line 17: OK Line 18: OK Line 19: OK Line 20: OK for the deletion of "also". But the phrase must stay because the peak values varied between 606.84 (for MYD) and 1316.24 (for WAT). Line 21: OK Line 22: OK Line 23: OK Line 24: OK Line 25: OK



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	Line 29: replace “and at their full maturity stage, they” with” Line 30: replace “However, the ant’s attacks and the” with “However, ant attacks and” Line 38: this should be “nutrients that are mostly carbohydrates (sucrose, glucose and fructose). There are also amino acids such as” Line 39: replace “minerals of which potassium” with “minerals including potassium” Line 40: replace “deriving” with “derived” Line 42: delete “concerning” Line 43: delete “still” Line 44: replace “so high value-added that” with “so high value-addition that” Line 47: replace “the sap let it logically” with “the sap leads it logically” Line 48: replace “microorganisms involving with both” with “microorganisms associated with both” Line 51: replace “report with the changes” with “report on the changes” Line 54: should be “more about the changes may occur during storage. This study investigates the changes in the physicochemical” Line 58: replace “deriving” with “derived” Line 65: correct the incomplete sentence “Then, the spathes of rank 8 of the coconut trees have undergone the sap harvesting.” Line 68: replace “with hot water boiling at 100 °C.” with “with boiling water at 100°C.” Line 70: replace “placed into isotherm” with “placed in an isotherm” Line 76: should be “repeated for three different days of harvest and the whole study was conducted with 12 samples of coconut sap” Line 79: replace “sample into an oven” with “sample in an oven” Line 80: indicate how long (time) at 105°C, replace “The relative density was valued by measuring the mass of 1 mL of sap. Both needed the use of an” with “The relative density was determined by measuring the mass of 1 mL of sap. Both determinations used an” Line 84: replace “hydrogen was valued with use of a pH-meter” with “hydrogen was determined with a pH-meter”	Line 29: OK Line 30: OK. But ANTS attacks (several ants). Line 38: OK Line 39: OK Line 40: OK Line 42: OK Line 43: OK Line 44: OK Line 47: OK Line 48: OK Line 51: OK Line 54: OK Line 58: OK Line 65: OK (precision is given now) Line 68: OK Line 70: OK Line 76: OK Line 79: OK Line 80: Precision is now given (for 8 hours). OK Line 84: OK
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	Line 85: replace “measured by titration (15) of the sap” with “measured by the titration [15] of the sap” Line 88: replace “were achieved according” with “were determined according” Line 90: replace “were achieved in triplicates” with “were determined in triplicates” Line 94: replace “They consisted in” with “It consisted” Line 104: replace “decreased statistically ($P<.001$) from 14.64-16.47 g/100 g” with “decreased significantly ($P<.001$) from a range of 14.64-16.47 g/100 g” Line 110 and 111: replace “respectively with the MYD, WAT, PB 121+ and PB 113+. This stage didn't show any difference between varieties from 24 h to 48 h.” with “for the MYD, WAT, PB 121+ and PB 113+. From the 24th hour to the 48th hour of storage, the differences in dry matter of the varieties were not significant.” Line 112: replace “are statistically superior to WAT” with “are significantly higher than those for WAT” Line 114: replace “during the storage with means varying statistically from” with “during storage, with means varying significantly from” Line 115 and 116: delete “001). However, the decreasing became significant after 8 h whereas the means were 1.047 (MYD and WAT) and 1.050 (PB 121+ and PB113+).” Line 121 to 127: for the results section please describe the overall trend completely before describing the individual varieties and differences between the different varieties. For some the results section it was well done. Line 131: replace “significant decreasing of the” with “significant decrease in the” Line 132 and 133: replace “Still, the decrease remained insignificant during the earlier storage (12 hours). Meanwhile, the total carbohydrates consisted between 16.08 g/100 mL and 12.85 g/100 mL of the sap,” with “The decrease was not significant during the earlier storage (24 hours). with total carbohydrates ranging between 16.08 g/100 mL and 12.85 g/100 mL of the sap,” Line 133 to 135: delete “considering the four varieties. The significant	Line 85: ok Line 88: ok Line 90: we think that it should be possible to use another verb (such as “achieve”) than the verb “determine”. Line 94: OK Line 104: OK Lines 110 and 111: OK Line 112: ok Line 114: ok Line 115 and line 116: OK for the deletion Line 121 to 127: ok Line 131: ok Lines 132 and 133: ok. But the statistical analysis revealed that the decrease of TCC become significant after <u>12 hours</u> AND NOT after <u>24 hours</u> storage as you noted.
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	decreasing started at 24 h whereas the means were 12.11, 12.34, 12.47 and 12.58 g/100 mL with the WAT, MYD, PB 121+ and PB 113+, respectively. Line 137: replace “stayed statistical constant from each variety. Moreover, during the 120 h of storage” with “stayed statistically not significant from each variety. Moreover, at the 120th h of storage” Line 138: replace “differ statistically the saps” with “differ significantly for the saps” Line 140: should be “The reducing sugars contents showed statistical significant differences ($P<.001$) between start and end of the storage.” Delete “indeed” Line 142: replace “0.56, 1.81 and 1.87g/100 mL (respectively from the, WAT, PB 113” with “between 0.56, 1.81 and 1.87g/100 mL (respectively for WAT, PB 113+.” Line 145: replace “recording slight means of” with “recording slightly lower means of” Line 148: delete “whole treatments revealed various” and “($P<.001$) fluctuating between 0.14 and 2.84 g/100 mL” Line 149: should be “without any difference between the varieties. The proteins contents were statistically stable until the 8th” Line 188: rephrase or delete Line 190: replace “till 24 h (6.71 mg/L). Later, they rose” with “at 24 h (6.71 mg/L). Later, rose” Line 195: replace “increasing of” with “increase in” Line 210: should be “effects of microorganisms. Till dates, numerous of authors have reported the chemical processes” Line 211: replace “by-products resulting from [11; 22]. Indeed,” with “by-products of these processes [11; 22].” Line 212: should be “the carbohydrates of the unfermented coconut sap revealed a greater proportion of sucrose [4]. During fermentation, the sucrose is converted into” Line 213 and 214: delete “thanks to enzymes such as hydrolases.” Line 216-218: these facts have not been related to the findings of this study. The information is not enough for the conclusion. The initial stage leads to changes in pH the favours the growth of the next set of	Line 133 to line 135: OK Line 137: revised Line 138: revised Line 140: OK Line 142: revised Line 145: revised Line 148: revised Line 149: revised Line 188: ok (deleted) Line 190: ok Line 195: ok Line 210: ok Line 211: ok Line 212: ok Lines 213 and 214: ok Line 216-218: ok. Revised
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	microbes whose growth and other activities leads to changes in pH that favours the next set of microbes for the third stage Line 220: delete "of saps produced by oil palm. Otherwise," Line 226: replace "sugars involves a continuous decreasing of the relative density from the" with "sugars resulted in a continuous decrease in the relative density for each of the" Line 227: replace "After five days of storage, the majority of sugars are consumed so that the relative" with "After five days of storage, most of the sugar had been consumed so that the relative" Line 228: Replace "sap becomes close to that of the inner water whose value is 1." with "sap became close to that of water whose value is 1 g/L." Line 230 -231: Are soluble solids all sucrose? Did u determine sucrose content in this study, was the ref 4 study similar to this study. Line 231-233: discuss this clearly; show the times when the other molecules contributed to the total soluble solids. Line 235: sentence not clear Line 236: delete "which undergoes" Line 237: delete "directly the glycolysis chain reactions" Line 237-8: there is no data to show this was the case, the amounts of glucose and fructose were not separately determined. The increase was due to the breakdown of sucrose to glucose and fructose. Line 239: replace "24 h of storage. That is opposite to the works of Xia" with "24 h of storage, while a study by Xia" Line 244: delete "microbial proteins" Line 248-52: the deduction is not clear and difficult to understand what you are trying to say. Line 253-63: since the microbial succession was not studied for this fermentation this discussion should be made to reflect that and therefore show that that as has been shown for the fermentation of palm wine it was possible that similar microbial action took place. Line 264-5: replace "polyphenols bindings with plant sap's other molecules." with "polyphenols bound with other molecules." Line 266: delete "inner the sap" Line 267: replace "the decreasing of total" with "the decrease in total"	Line 220: ok Line 226: ok Line 227: ok Line 228: ok. Revised. Please note that 1 Kg (or 1 g) of water has a volume of 1 L (or 1 mL), so 1 kg/L or 1 g/mL. And the relative density of the water is 1. According to the method of calculation of the density [(m/v) of sap divided by (m/v) of water), this character is expressed without any measured unit. For example, 1.05 but not 1.05 g/mL. Line 230-231: Of course, the total soluble solids are not all sucrose. But the investigations of ref 4 highlighted that carbohydrates (the main macromolecules of the unfermented coconut sap) are mainly constituted of sucrose. Thus talking about the soluble solids concerns principally the carbohydrates and also the sucrose at the beginning of the fermentation. Line 231-233: ok. Revised Line 235: ok. Revised Line 236: OK Line 237: ok Line 237-238: ok. Revised Line 239: ok Line 244: ok. Revised Line 248-252: ok. These phrases are deleted as they are not indispensable for the discussion. Line 253-263: ok. Revised
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	Line 269-70: delete “The enzymes could have been synthesized by microorganisms.” Line 271-3: what shows that there was enzyme synthesis? What is the optimum temperature and pH of these enzymes and how do they compare with the pH and temperature in this study? Line 273-6: delete “Besides, the results reveal a higher presence of total polyphenols in the sap deriving from WAT during the storage. It could explain the greater resistance of the tall coconuts trees, than the dwarves and their hybrids, against diseases. Indeed, the polyphenol compounds are anti-oxidizing agents protecting the biomolecules against degradation. Moreover, they have anti-ageing function for the organisms [34; 35].” Line 278-9: delete “According to Onah <i>et al.</i> [36], the tannins would have protective effect on the hemoglobin. So, the coconut sap could strengthen the immune reaction of the organism.” Line 282-84: the study did not determine the production of alcohol and the microbes involved with that Line 284-88: this is a summary of the results Line 288-9: there is no results or data in this study that leads to this conclusion	Line 264-265: ok Line 266: ok Line 267: ok Line 269-270: ok Line 271-273: ok. Revised. Line 273-276: ok Line 278-279: ok Line 282-289: ok. The conclusion section has been revised and performed
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Minor REVISION comments	Line 33: replace “revival of the sector” with “revival of this sector” Line 36: replace “coconut [3]” with “coconut production [3]” Line 41: replace “ thanks” with “due” Line 46: replace “shelf life remains a” with “shelf life of the sap remains a” Line 105: delete indeed Line 108: this should be “WAT were significantly lower than those of MYD, PB 121+ and PB 113+. After 24 h of storage, the decrease in the dry” Line 152: replace “values of 2.34 to 2.84 g/100 mL with the four” with “values ranging from 2.34 to 2.84 g/100 mL for the four” Line 153 to 155: rephrase to show the decrease and stabilization Line 158-9: replace “stages. Statistically, the acidity differentiated the four coconut 159 varieties (P<.001)” with “Statistically significant difference were observed between the acidity of the four coconut varieties (p<0.001)” Line 240: replace “<i>et al.</i> [23] who indicated the highest values (0.8%)” with “<i>et al.</i> [23] indicated the highest reducing sugar content (0.8%)” Line 241: the very same plant? or same variety. Line 242: what is the optimum temperature of the hydrolases involved with is hydrolysis?	Line 33: ok Line 36: we think that the word “coconut” is more suitable. Line 41: For us, “thanks to” explains more positive effect than “due to”. So we think it can remain. Line 46: it’s important to not repeat the same word within this short sentence. Line 105: ok Line 108: ok Line 152: ok Line 153-155: ok. Revised Line 158-159: ok. Revised Line 240: OK Line 241: the same plant (coconut). Line 242: Hydrolases are enzymes. And the optimum temperature of the enzymes is generally close to 40 °C.																																																						
Optional comments	• A closer look at the graph, specifically looking at the duration at which there was a decrease or increase in the variables analysed will provide a more revealing discussion. For example, the protein increases 4 hour after every increase in reducing sugar after a change in pH. Dry matter and soluble solids reduced after an initial reduction in sugar and each time reducing sugar increases. <table><tr><td></td><td>0</td><td>4</td><td>8</td><td>12</td><td>24</td><td>36</td><td>48</td><td>72</td></tr><tr><td>Dry matter</td><td></td><td></td><td></td><td>↓</td><td></td><td>↓</td><td></td><td></td></tr><tr><td>Soluble solids</td><td></td><td></td><td></td><td>↓</td><td></td><td>↓</td><td></td><td></td></tr><tr><td>Density</td><td></td><td></td><td>↓</td><td></td><td></td><td>↓</td><td></td><td></td></tr><tr><td>Total carbohydrate</td><td></td><td></td><td>↓</td><td></td><td></td><td>↓</td><td></td><td></td></tr><tr><td>Reducing</td><td></td><td>↓↑</td><td></td><td>↓↑</td><td></td><td>↓↑</td><td></td><td></td></tr></table>		0	4	8	12	24	36	48	72	Dry matter				↓		↓			Soluble solids				↓		↓			Density			↓			↓			Total carbohydrate			↓			↓			Reducing		↓↑		↓↑		↓↑			We expressed all the results in graphs. We think they highlight the main changes.
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Dry matter				↓		↓																																																		
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sugar																													
Protein/ microbial population			↑		↑↓																								
pH		↓		↓		↓																							
<u>General</u> comments	• Use “statistically significant” or “significant difference” or “significantly different” not “statistically” • Replace most of the “indeed” with “specifically” • Replace “deriving” with “derived” • The 95% confidence intervals, standard deviations or standard error of the means should be reported. • Separately describe and discuss the overall trends first then following it up with the specific differences between the varieties one after another.	OK OK We didn’t mention the standard error of the means in number but we indicated them on the graphs. OK																											