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Journal Name:	American Journal of Experimental Agriculture
Manuscript Number:	**2013_AJEA_7978**
Title of the Manuscript:	**Effect of radiation process followed by traditional treatments on nutritional quality of high tannin sorghum cultivar**
Type of the Article	**Original Research Article**

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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	The manuscript entitled "Effect of radiation process followed by traditional treatments on nutritional quality of high tannin sorghum cultivar" represents an interesting investigation on the effect of gamma irradiation on composition and nutritional quality of flour of a high-tannin sorghum cultivar Karamaka. The experiments presented in the manuscript have proven a positive role of gamma irradiation on nutritional quality of sorghum flour – a decrease of the content of antinutrients (tannin, phytate) and no harmful effect on amino acid and metal content composition have been observed. Therefore, the irradiation of sorghum flour is presented as a potential way how to improve nutritional quality of the flour. The data on nutritional quality of irradiated flour are presented comprehensively in the form of four tables – all important nutritional components (amino acid composition, trace metals, content of antinutrients – tannin, phytate). Clear conclusions on the positive (beneficial) effect of gamma irradiation on sorghum flour composition are driven. I am not an expert in the research field of food nutritional quality and safety. Threfore, I am not sure whether the gamma irradiation treatment does not have any side effects on various flour characteristics, not only on flour nutritional quality. Therefore, I have to recommend at least one other reviewer who is an expert in the field of food nutritional quality and safety to be addressed for the manuscript revision.	Thank you for your valuable idea

Minor REVISION comments	I have several minor comments on the manuscript composition, especially English language and grammar. Abstract, Aims: Insert an indefinite article "a" before the words "high tannin sorghum cultivar" Page 2, line 2: Change the words "Most of the African people like to consume sorghum…" to "Most of the African people like consuming sorghum…" Page 2, line 17: Change the plural verb "are" in the sentence to the singular form "is" and correct the spelling of the words "doses up to 10 kGy" in the sentence "Extensive research showed that the macronutrients (carbohydrates, proteins and lipids) content is relatively stable against irradiation doses up to 10 kGy…" Page 2, line 24: Split the long sentence into two shorter ones: "This effect could be related to the structure of each amino acid. Simple amino acids increased upon irradiation, such as glycine,…." Page 2, line 28: Insert a space between "von" and "Sonntage" in the author´s name "Wang and von Sonntage [16]" Page 3, line 1: Correct the verb form „produces" to „produce" in the sentence „…and it was observed to produce off-flavour and bitter taste which can be overcome by using irradiation." Page 3, line 16: Correct the spelling of the word „polyethylene" (not „polythene") in „polyethylene bags" Page 5, line 22 (part 2.8. Statistical analysis): Correct the sentence „Significance was accepted at P≤ 0.05." (NOT P≥ 0.05 as written in the manuscript – THIS HAS TO BE CORRECTED). Page 5, line 30: Insert an indefinite article „an" before the word „increase" in the sentence „…and the level of reduction increased with an increase in radiation dose as reported……"	All comments considered carefully and indicated in red.

	Page 6, line 14: Insert an indefinite article „an“ before the word „increase“ in the sentence „…and the rate of reduction increased with an increase in radiation dose as reported……“ Page 6, line 21: Insert the verb “were” in the sentence “However, when traditional treatments were applied in combination with radiation process, further reduction was observed….” – insert a comma “,” before the words “further reduction was observed” Page 6, line 23: Insert a space between the number and the corresponding unit in the words “105.40 mg/100 gm” Page 7, lines 8 and 9: Insert the verb “were” in the sentence “When traditional treatments were applied in combination with radiation process, further improvement in IVPD was observed….” – insert a comma “,” before the words “further reduction was observed” Page 7, line 10: Correct the verb form from the singular form “agrees” to the plural form “agree” in the sentence “The results obtained agree with the results obtained by El-Niely [32]…“ Page 7, line 12: Split the long sentence into two shorter ones: „The results obtained agree with the results obtained by El-Niely [32] who studied the influence of irradiation on in vitro protein digestibility of broad beans irradiated at 2.5, 5, 10 and 20 kGy. “ –the first sentence “El-Niely [32] observed that *in vitro* protein digestibility….” – the second sentence Page 7, line 13: Insert the past participle tense in the sentence “El-Niely [32] observed that *in vitro* protein digestibility had been improved by 4.5, 10, 16 and 20%, respectively.” Page 7, line 15: Insert a comma before and after the words “especially phytate” in the sentence “…and after radiation is likely to be due to reduction in antinutrients, especially phytate, which degraded….” Page 7, line 16: Insert a comma after the words “On the	

	other hand,……" ("On the other hand, the reduction in IVPD may be…." Page 7, lines 22, 23, 24: Insert a space between the number and the corresponding unit in "100 g" Page 7, line 25: Change the singular form of the verb "is" to the plural form of the verb "are" in the sentence "Variations in extractability between Na, K and Mg are likely to be due to the binding ability of such minerals…." Page 7, line 28: Insert the word "content" at the end of the sentence "Radiation of raw flour had no significant (P≤0.05) effect on total Na, K and Mg content, but significantly…" Page 8, line 14: Insert an indefinite article "an" before the words "an increase in radiation dose" Page 8, line 15: Insert a comma "," after the word "Generally,…." Page 8, line 20: Insert a space between the number and the unit in "100 g" Page 8, line 21: Insert a comma both before and after the word "respectively" Page 9, line 2: Insert a comma "," both before and after the word "generally" in the sentence "Radiation at all levels followed by fermentation of raw flour gave varying changes in total and extractable minerals for the cultivar but, generally, there is a significant (P≤0.05) increase in total as well as in extractable minerals…." Page 9, line 4: Change the word "great" to the word "significant" in the sentence "However, cooking of radiated flour had no significant effect on content, but significantly…" Page 9, line 10: Insert an indefinite article "an" before the words "an increase in radiation dose…" Page 9, line 14: Change the plural form "Tables 4" to the singular form "Table 4" Page 9, line 19: Correct a typhoo (a spelling mistake) in the words "polar and non polar amino acids" (NOT: "bolar and non polar amino acids")	

	Page 9, line 20: Insert an indefinite article "an" before the words "increase in gamma radiation" Page 9, line 21: Insert a comam "," both before and after the word "respectively" in the sentence "Hoosmand and Klopfenstein [36] reported that lysine content decreased by 7 and 13%, respectively,…" Page 9, line 29: Insert a space between „von" and „Sonntage" in teh author´s name „von Sonntage" Page 10, line 2: Write „*Mucuna pruriens*" in *italics* since plant scientific names have to be written in *italics* Page 10, lines 5 and 17: Replace„aspartic" by the term „aspartic acid" – the name of the amino acid is „aspartic acid" (not „aspartic") Page 10, line 20: Insert an indefinite article „a" before the words „negative effect on some amino acids [17]."	
Optional/General comments	The manuscript is written comprehensively, all data are clearly presented. **The data on nutritional quality of irradiated flour are presented comprehensively in the form of four tables – all important nutritional components (amino acid composition, trace metals, content of antinutrients – tannin, phytate). Clear conclusions on the positive (beneficial) effect of gamma irradiation on sorghum flour composition are driven.** **I am not an expert in the research field of food nutritional quality and safety. I am not sure whether the irradiated flour is safe for human consumption without no health risk. Therefore, I am not sure whether the gamma irradiation treatment does not have any side effects on various flour characteristics, not only on flour nutritional quality.** The manuscript can be accepted for publication after a minor revision.	