

Review Form 1.6

Journal Name:	Biotechnology Journal International
Manuscript Number:	Ms_BJI_74924
Title of the Manuscript:	Risk Factors for Spoilage of Groundnut Seeds in Shops During Marketing
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. To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

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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)
<p>Compulsory REVISION comments</p>	<p>The topic, that the manuscript attempts to investigate, is of primary interest. Seed spoilage is one of the major problems faced by seed vendors in major markets especially in Sub-Sahara Africa. However, the author must reorganize some sections of the manuscript in order to make it attractive to readers.</p> <p>Although this is a descriptive study, all the steps taken in data collection and analysis must be succinctly presented. Although the author attempted to show the sampling techniques used in this study, it seems to me that the nothing has been done to show how the data was analyzed. Meanwhile the M&M section is well written, it is tedious to replicate resulting to a limited scientific soundness. I suggest the author reorganizes the text and information contained under the following subheadings:</p> <ul style="list-style-type: none"> ➤ Study site ➤ Survey materials ➤ Sampling procedure ➤ Data collection procedure ➤ Data analysis procedure <p>This will make the methodology attractive and easy to replicate.</p> <p>The study site should be the first item to be presented under the M&M section before the survey materials.</p> <p>Among the risk factors of oilseed spoilage, the author did made mentioned of varieties of seed marketed and knowledge of exact origin of oilseeds. These seeds are small-grain and large-grain varieties. But the author failed to tell us which variety among the two is liable to attack which makes it a risk factor for spoilage. The author also mentioned that the seeds are mainly from the North, East and centre part of the country. The question here is: How is that a risk factor for oilseed spoilage? Is it a 'rule of thumb' that any oilseed from the North, East, Centre of Côte d'Ivoire is liable to fungal attack? The author simply outlined these factors and failed to tell us the reason while they are considered as risk factors of oilseed spoilage. I suggest this should be revised.</p> <p>The discussion is not enough. The author has spent time describing his results and comparing with previous findings without giving his justifications and how his findings fill a gapping knowledge void in this regard. I strongly suggest the author addresses the following;</p> <ul style="list-style-type: none"> ➤ Present his findings and give his own justification or hypothesis that may explain his results (<i>this has partially been done by the author</i>), ➤ Compare his findings with previous findings in this domain, ➤ Finally, give new insights that his findings have added to the previous literature or the knowledge gap that his findings have come in to fill. <p>The Conclusion Section should have some suggestions and/or recommendations for proper groundnut seeds storage. You cannot conclude a scientific finding without some plausible suggestions.</p>	<p>We have carefully observed your criticisms. Please find attached some information to try to better understand our discussion:</p> <ul style="list-style-type: none"> - In terms of the varieties of groundnut seeds found in the sales shops. We have said that the two varieties of groundnut seeds are most often found separated or mixed together when sold. The study did not focus on one variety that might spoil, but rather on the contamination of all seeds sold in the shops, which could be a potential spoilage risk factor, as other food products are also stored in most of the same shops (information not prescribed in the survey). - In terms of knowledge of the exact origin of the groundnuts sold. We mentioned the results that 100% of the people surveyed did not know the exact origin of the groundnuts sold in the commune of Adjamé, 94% in Yopougon and 92% in Abobo. As justification, we said that the ignorance of traders of the exact origin of groundnuts sold in shops could be due to the illiteracy of most traders. For in our country, the illiteracy rate is very high. This has been reported by several works carried out such as those of [10] who showed that 73.4% of groundnut paste sellers in the markets of the city of Abidjan are illiterate, [11] who also reported that in Côte d'Ivoire, illiteracy affects more than the adult population and [12] who stated that in Côte d'Ivoire, high illiteracy is linked to difficulties in enrolment, retention and completion of the primary cycle. All this information is supporting evidence for our rationale. - The supply of groundnuts is generally from the North, Centre and East of Côte d'Ivoire. These results could be explained by the fact that the main groundnut seed production areas in Côte d'Ivoire are those covering the entire northern and central part of the country. As mentioned above, groundnut seeds are most often transported and traded in Abidjan, the economic capital of Côte d'Ivoire, which is located 600 km or sometimes 700 km from the production areas. Moreover, transport is most often carried out in conditions where the groundnut seeds are exposed to rain but also to heat, which favours the development of moulds and mycotoxins that can lead to the contamination of groundnut seeds. All these elements are considered risk factors for spoilage of oilseeds, in particular, groundnuts. This is therefore a major public health concern for consumers. - The storage of groundnut seeds in polythene bags. We said in our comments that the use of polyethylene bags adapted for the storage of groundnut seeds could be justified by the absence of technical supervision structures that should regularly sensitise producers and traders on good post-harvest practices. Also, the low cost of the polyethylene bag compared to others such as jute bags would justify this choice. The use of polyethylene bags, which are generally poorly aerated, favours the development of moulds [12]. The lack of ventilation can cause a temperature change that can lead to condensation of water in the air. This could increase the moisture content of the peanut seeds, thus favouring the development of moulds and the synthesis of aflatoxins. - In terms of the length of time groundnuts are sold. We have said that groundnuts are sold during storage for weeks or even months. This means that the storage period for groundnuts can be short or long depending on whether the selling price is suitable. The long periods of

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		<p>sale of groundnut seed stocks could be explained by economic reasons. Indeed, in order to cover all the capital invested or to make a profit, traders are forced to sell all the groundnut seeds available, whatever the duration. This long duration of sale of groundnut seeds could be one of the critical periods of their contamination.</p> <p>- In terms of spoilage of groundnuts during storage. We said that more than the majority of traders (64%) claimed to be unaware of spoilage of groundnut seeds during storage. This means that the risk of contamination could be high due to ignorance of the poor storage of groundnut seeds inside the shops. According to [17], practices such as improper storage of groundnut seeds in shops contribute to their contamination with moulds and aflatoxins. Groundnut seeds are among the most susceptible food products to fungal contamination in the pre- and post-harvest stages due to their content of proteins, oils, fatty acids, carbohydrates and minerals that provide a rich medium for fungal growth [18-19]. According to traders, the main causes of spoilage of groundnuts are storage time, moisture and insects. However, most developing countries, notably Côte d'Ivoire, do not have good storage facilities in the informal sector as is the case here. This could lead to cross-contamination of groundnut seeds especially by insects which depreciate the nutritional quality of the groundnut and promote the development of moulds as already reported by [20].</p> <p>- In terms of spoilage of peanut seeds during marketing in the shops. We said that the majority of traders (81.1%) faced with spoilage reject spoiled peanuts during marketing in the shops. According to these traders, the main way to obtain healthy groundnut seeds during marketing is to sort and reject the spoiled seeds. However, other traders (12.66%) do not reject spoiled peanut seeds for the production of peanut paste. This practice represents a real health risk for consumers. Indeed, previous work on the storage of peanut seeds and paste during marketing in markets has revealed the presence of various pathogenic fungal genera [21-22] but also of mycotoxins, notably aflatoxin B1 (Keita et al., 2013). Moreover, the level of exposure to aflatoxin B1 of consumers of peanut paste from peanut seeds during storage varies between 2.072 ng/kg/day and 2.193 ng/kg/day according to the work of [7]. Indeed, according to these same authors, statistical modelling of the data from this work using @RISK software leads to a population at risk of aflatoxin B1 exposure estimated at between 10.1 and 15.6% compared to the tolerable daily intake of 1 ng/kg/day. This means that there is a real cancer risk when considering the margin of exposure values for cancer which are well above the threshold value of 10,000.</p>
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<p>Minor REVISION comments</p>	<p>There are some grammatical errors in the manuscript. I have an impression that the author is a non-English speaker. I strongly suggest the author invites a native English to proofread the manuscript for minor grammatical errors. The author should choose to use British or American English. For example, “favorable” and “favourable” are two different spellings noticed in this manuscript. The author should choose to use one of them. In the last paragraph of the Discussion Section, the author wrote ...“Other work has indicated...” I think it should be “Other works have indicated...”</p> <p>Personal pronouns are not suitable for scientific publications in English, albeit that is done in French publications. For instance, the use of “we” in this manuscript has no raison d’etre.</p> <p>The author must revisit the Result Section and correct the numbering.</p>	<p>The observations have been revised in the correction of the manuscript</p>
<p>Optional/General comments</p>	<p>Even though the author have made mentioned of risks factors of seed spoilage at post-harvest, I think the author should have addressed the risk factors in terms of:</p> <ul style="list-style-type: none"> ➤ Pre-harvest conditions ➤ Harvest and post-harvest ➤ Transport and transit ➤ Warehouse storage <p>This is because some factors leading to seed spoilage originate from pre-harvest conditions, transport and transit conditions and warehouse storage only cannot be accountable for this spoilage.</p> <p>For further reading:</p> <ul style="list-style-type: none"> • Dange, S. R. S. & Patel, V. J. (1984). Effect of relative humidity and storage period on fungi invasion and viability of groundnut seeds. <i>Bulletin of grain technology (India)</i>, 22: 225-231. • Fagbohun, E. D. & Faleye, O. S. (2012).The Nutritional and Mycoflora changes during storage of groundnut (<i>Arachis hypogaea</i>). <i>International Journal of Agronomy and Agricultural Research</i>, 2(6):15-22. • Subrahmanyam, P., Wongkaew, S., Reddy, D., Demski, J., McDonald, D., Sharma, S. & Smith, D. (1992). Field diagnosis of groundnut diseases. <i>Information Bulletin No.36.Int.Crops. Res. Inst. For the Semi-Arid Tropics (ICRISAT) India</i>, 78pp. • Sullivan, G. A. (1984). Seed and seedling diseases In: Compendium of peanut diseases. Porter D.M., Smith D. H. & Rodriguez K. (Eds.) pp 37-38, St Paul Minesota, USA Phytopathological Society. 	

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)
<p>Are there ethical issues in this manuscript?</p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	<p>We have carefully observed your reviews and have the same part 1.</p>