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Journal Name:	American Journal of Experimental Agriculture
Manuscript Number:	2013_AJEA_8631
Title of the Manuscript:	<i>EFFECTS OF GAMMA IRRADIATION ON SEEDS GERMINATION, PLANTLETS GROWTH AND ANTIMALARIAL ACTIVITIES OF PHYLLANTHUS ODONTADENIUS Müll Arg.</i>
Type of the 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	Although the manuscript may contain valuable data, the authors might have interpreted them incorrectly, namely, the authors seemed to mix up the physiological response and genetic alteration caused by radiation. No, it's not mixture or confusion between physiological effects and gene modifications. Physiological effects were often responses of enzymes or proteins changed which are expression of DNA change. Ionizing radiation induces reactive oxygen spaces (ROS) when irradiated to cells, which leads to the various stress responses including a production of secondary metabolites. Some of ROSs attack DNA and induce mutations, which occur randomly on the chromosomes, and it is quite low probability that the radiation changed plant gene(s) to produce specific secondary metabolites. Yes, physiological effects were often linked to gene modifications and that often in the second generation (Yoshihara et al., 2013). It's explained by indirect attacks of ROS on DNA band. This part is greatly physiological because we evaluated in vitro antiplasmodial activities of metabolites induced by radiations. Dysfunctions of oxygen metabolism generate an excess of very reactive chemical species known as « reactive oxygen species » (ROS), among them are free radicals (like $\cdot\text{OH}$, $\text{O}_2^{\cdot-}$, $\text{RO}_2^{\cdot-}$), and non-radical products (like H_2O_2, RO_2H). These species, and particularly the radical species, create oxidative damages	



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	on biological macromolecules (DNA, lipids, proteins), which can considerably disturb the cell machinery (Gardès-Albert et al., 2003). If one would like to obtain the mutant plants producing more antimalarial products, the screening needs to be done from a quite large population of M2 lines. Then, you may examine the isolated candidate(s) of mutant(s). The M1 shows no phenotype unless it has dominant mutation(s). Here, the authors seem to have examined the bulk of M1 and M2 plants, a mixture of plants which may or may not have mutations on various genes. It is highly likely that the elevation of antimalarial products shown here is simply because of physiological responses but not genetic change(s) due to ionizing radiation. Generally, the effects of mutation were more pronounced in M1 in M2 compared to the control because of the phenomenon of acclimatization that relate to physiological, non-heritable changes that occur during the life of an individual. If authors' aim is simply to produce more secondary metabolites by physiological responses, they should not describe about genetic alterations. Without more detailed analysis of genetic alterations, this simply makes readers confused. Dysfunctions of oxygen metabolism generate an excess of very reactive chemical species known as « reactive oxygen species » (ROS), among them are free radicals (like $\cdot\text{OH}$, $\text{O}_2^{\cdot-}$, $\text{RO}_2^{\cdot}$), and non-radical products (like H_2O_2, RO_2H). These species, and particularly the radical species, create oxidative damages	
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<u>Minor</u> REVISION comments	There are so many typos on the references. The authors should be more carefully. Ok!	
<u>Optional/General</u> comments		