



SDI Review Form 1.6

Journal Name:	Advances in Research
Manuscript Number:	Ms_AIR_36703
Title of the Manuscript:	Plasma Treatment –A tool to improve seed quality – A Review
Type of the Article	Minireview Paper

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:

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



SDI Review Form 1.6

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	<p>There are several problems on the assumptions added to the paper. For instance: several times it is stated that glow plasma is obtained by electric current and argon (as in line 12, i.e., “In glow discharge method plasma is formed by passage of electric current through a low pressure gas (argon). It is created by applying a voltage between two electrodes in a glass tube containing argon gas”). However, the electric current is just the result of plasma formation; furthermore, the description is more adequate for capacitive plasma, however plasma can be induced – one of the upmost examples is ICP, Inductively Coupled Plasma. It is also important to point out that plasma can be obtained with several distinct reactants, not only argon, as the text actually stated in several occasions, to explain the reasons for changes on seed surface and microorganisms persistence.</p> <p>Please: consider that abstract must emphasize what is important on the paper. For instance, in line 14, “When the voltage exceeds a certain value, the gas in the tube ionizes, transforms into plasma”. It is very particular information, again incorrect - since it is possible to obtain glow discharge plasma without a tube, that it is not important to understand the aim of the paper. On the other hand, on line 15 “Plasma can be generated either under low pressure or at atmospheric pressure” it is an interesting argument but there is no connection with the next information, regarding seed treatment and, more important, it does not clarify which pressure is the ideal for that treatment.</p> <p>I could not understand the idea on line 20 “Here, a dry seed treatment i.e. plasma treatment is employed” since it is a review paper, none experimental result was presented.</p> <p>Connections between sentences is important, but it is neglected on the whole text; for instance, lines 31-35 (“ The reactor is filled with a gas (an inert gas or a reactive gas) at a pressure ranging from a few mTorr to atmospheric pressure. A positive effect of low temperature plasma treatment on germination of various agricultural crops has been found (Sera B <i>et al</i> [1]). Due to the potential difference, electrons that are emitted from the cathode by the omnipresent cosmic radiation are accelerated away from the cathode, and give rise to collisions with the gas atoms or molecules (excitation, ionization, dissociation)”) three different sentences tried to discuss two different assumptions and in this situation the information about seed treatment seems to be irrelevant but it is not; low temperature plasmas are quite important for organic and/or living species but the other sentences deal with plasma formation and the voltage applied not temperature.</p> <p>Line 44 (the tremendous heat generated by fusion reaction has same effect on the atom of gas) – it is not clear the meaning of “effect on the atom of gas”; moreover, fusion reaction means high energy, not the case with glow discharge.</p> <p>Line 46 – again, no connection among Neon and Fluorescent light and plasma TV</p> <p>Line 64 – (Here, a dry seed treatment i.e. plasma treatment is employed to increase the seed coat permeability without increasing the moisture content of seed unlikely priming and other such treatments) – same comments made to abstract</p> <p>Line 70 – (In the present studies, plasma treatment was used to investigate and study their individual as well as combined effects on the seed quality of vegetable crops.) - it is a review !</p>	<p>Added</p> <p>Corrected</p> <p>Corrected</p> <p>Corrected</p> <p>Corrected</p> <p>Corrected</p> <p>Corrected</p> <p>Corrected</p>



SDI Review Form 1.6

	<p>Line 76 (it to a strong electromagnetic field, applied with a laser or microwave generator at temperatures above 5000oc) – the text implies that the microwave generator was at 5000°C</p> <p>Line 78 – Wikipedia is not a good source for academic reviewing</p> <p>Line 78 (Plasma can be generated either under low pressure or at atmospheric pressure Ionization of a gaseous molecule to produce plasma is carried out by applying sufficient discharge voltage and frequency. It is created by applying a voltage between two electrodes in a glass tube containing argon gas. When the voltage exceeds a certain value, the gas in the tube ionizes, transforms into plasma) – you already stated that; please, see the comments above.</p> <p>Line 88 (various types of discharge, including corona discharge, glow discharge and arc discharge and the characteristics of the plasma produced will be introduced) – that sentence, which is included in the Abstract on the book of San Wong & Mongkolnavin, does not make sense on this context because you will address only glow discharges (line 104)</p> <p>Line 110 (Gas plasma is a gas in which some of the atoms or molecules have become ionized; in) you already explain that.</p> <p>Line 112 (We used oxygen as the process gas to strike and apply plasma, with the oxygen gas supplied from a gas bottle) irrelevant information on the review context. By the way, the information is found in [Stefani S. Griesser, Shakti Prakash and Hans J. Griesser, PLASMA DISCHARGE TREATMENT FOR IMPROVED GERMINATION OF SEEDS AND KILLING OF FUNGAL SPORES ON SEED COATS, Final project report to the Australian Flora Foundation on Project available at http://www.aff.org.au/Griesser_Plasma_treatment_of_%20seeds_Final.pdf] but not explained properly on the text. The same occurs on line 141.</p> <p>Line 115 (Thus, in the study we used low temperature plasmas, often called glow discharges, to treat seeds, and we used air as the process gas for reasons of cost and the ability to create reactive oxygen species in the plasma glow) that is not true in this paper, since it is a review</p> <p>Line 150-152 – this information was cited on line 31</p> <p>Line 170 (A combination of secondary electron emission at the cathode and ionization in the gas, gives rise to self sustained plasma) it is a phrase on [RAMAKRISHNA, Seeram; MA, Zuwei; MATSUURA, Takeshi. Polymer membranes in biotechnology: preparation, functionalization and application. World Scientific, 2011, page 82] but it is out of context in this part of the text</p> <p>Line 177 – Conclusions must coupe with the main information of the text. Moreover “Future work” – line 192 – does not make sense, maybe tendencies or something else.</p> <p>Plagiarism issue: There is some information obtained in “Samanta, Kartick, Manjeet Jassal, and Ashwini K. Agrawal. "Atmospheric pressure glow discharge plasma and its applications in textile." (2006)" available at http://nopr.niscair.res.in/bitstream/123456789/24496/1/IJFTR%2031%281%29%2083-98.pdf that was not cited on the references There are many phrases removed from the references but not properly cited.</p>	<p>The highest recorded temperature of a plasma is not hotter than nuclear reaction. There is a continuum of phenomena that happens at high temperature that includes and extends beyond the nuclear reaction. Corrected/ review is corrected by springer</p> <p>Corrected</p> <p>Corrected</p> <p>All of the material was published in physics stack exchange by springer. Corrected/added</p> <p>Corrected/ parts are describe due to the contents are same for some parameters for gas plasma.</p> <p>Corrected / added</p> <p>Corrected</p> <p>Corrected</p> <p>Corrected / rewrite for the suggested paragraph in this review</p> <p>Yes, you are right sir this part is not belonging from this review and this is published elsewhere in biotechnology journal.</p> <p>Corrected/ added as the editor suggested.</p> <p>Corrected Corrected Corrected Corrected</p>
--	--	--



SDI Review Form 1.6

Minor REVISION comments	<p>Line 40 – “be found in the form of Lightening- when a powerful (NOT power full) current forms between two highly charged”</p> <p>You use the work of “Samanta, Kartick, Manjeet Jassal, and Ashwini K. Agrawal. "Atmospheric pressure glow discharge plasma and its applications in textile." (2006)” available at http://nopr.niscair.res.in/bitstream/123456789/24496/1/IJFTR%2031%281%29%2083-98.pdf but it is not cited on the references. By the way, this paper informs that Sir W. Crookes identified this stated of matter in 1879 and Langmuir named as plasma in 1928; maybe it would be interesting the reviewing of the first paragraph in Introduction (lines 27 - 32)</p>	<p>Corrected</p> <p>Added</p>
Optional/General comments	<p>My suggestion is: Read the work of Kartick Samanta again and then the paper [Bogaerts, Annemie, et al. "Gas discharge plasmas and their applications." <i>Spectrochimica Acta Part B: Atomic Spectroscopy</i> 57.4 (2002): 609-658] and rewrite your text.</p>	<p>Rewrite as u suggested</p>