

Review of: "[Review Article] Excessive Aluminum in Soil"

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Potential competing interests: No potential competing interests to declare.

This paper has been written with artificial intelligence tools. I will try to give some inputs to the authors, but in my opinion, it must be rewritten completely.

First of all, the authors should seek professional help for writing and editing the manuscript. Consider this sentence:

"This review paper explores the impact of excessive aluminum in soil on plant growth, environmental factors, and human health."

Is there an impact of excessive aluminum on "environmental factors"? It is not clear.

Also, "Recent advances include phytoremediation, genetic engineering, and nanotechnology." Recent advances in what? It is not clear.

Citations in the text: (Horst, J, W., Wang, Y., and Eticha, D., 2010). This way of citing papers is heavy and not necessary. I have never seen a style in which the initials of first names are used when citing in the text.

The literature cited is often very old.

The paper has no line numbers, so I will try to indicate which part has comments.

Pages 1-3, chapter "Effects of Aluminum Accumulation in Soil"

The sentences are very general and do not convey any useful information. For instance, "In acidic soils, aluminum can exist in mobile forms, leading to its absorption and assimilation by plants," or also "The presence of excessive aluminum ions can also stimulate various anatomical and morphological changes in plants, leading to phytotoxicity," or also "Some plant species have evolved mechanisms to tolerate high Al concentrations, and Al can play a role in certain soil microbial processes." In a review, the indications should be more precise; otherwise, the reader has to recover all the original papers cited. This whole chapter does not fulfill the purpose of a review paper.

Page 2, Figure 1: The figure is probably taken from a paper that must be cited. The legend is not clear, and there is no information on the treatments given to the plants. Also, which plant is this? A species name should be required. Finally, the Figure must be cited in the text.

Pages 3-4, chapter "Sources of Aluminum Contamination in Soil"

This chapter is very poor. Three sources of contamination are described too briefly and without any specific information.

Page 4, Figure 2: The legend must be improved to explain what is depicted in the graph. The Figure is not cited in the text.

Pages 4-6, chapter "Assessment Methods for Soil Aluminum Concentration"

"Labile aluminum, which is the portion of aluminum that is not complexed with other ligands such as fluoride, sulfate, and oxalate." This concept has been repeated several times.

If the chapter describes the methods for determining Al concentration, then "soil sampling and analysis" is not one of these methods. All methods require soil sampling, in my opinion. The writing is confusing. Method number 1 is not a method for assessing the concentration; it is a method for extracting Al from soils, and it is not described carefully.

Method number 2 also does not describe any method.

Method number 3 does not describe the method itself. At times, it seems like an advertisement for the Deep Spectral Prediction Network.

This chapter fails to describe the methods and give useful information. Instead, it repeats many times how knowing Al concentration can be useful in several instances.

Pages 6-8, chapter "Remediation Strategies for Aluminum-Contaminated Soils"

"The soil phytoremediation technique can help in the remediation of aluminum-contaminated soil by utilizing plants to extract, stabilize, or degrade the contaminants." Aluminum cannot be degraded. Surely this sentence refers to other contaminants.

"The microorganisms, such as bacteria and fungi, can metabolize the aluminum" I think this is not possible.

"The search results did not provide specific information on bioremediation of aluminum-contaminated soil." This sentence comes from artificial intelligence tools.

Pages 8-9, chapter "Future Outlook: Preventing Aluminum Overload in Agricultural Lands"

This sentence "Additionally, a study on the remediation of petroleum-contaminated soils using bioremediation technology found that the bacterial community structure and physicochemical characteristics of the soil treated using different bioremediation regimens were analyzed. The study found that biostimulation and bioaugmentation significantly increased the removal efficiency of petroleum hydrocarbons (PHs) from the soil, and combined biostimulation with bioaugmentation had the highest PHs removal efficiency (Agnello, C, A. et al., 2016)." is not appropriate at all; it does not refer to aluminum.

