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

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Potential competing interests: No potential competing interests to declare.

Though this article does not contain anything new since my review, which I published in 1988, there are some improvements in this version with respect to the version I had downloaded on Jan 29th, 2024. The author has realized that Al is a main constituent of the earth's crust. It should be talked about concentrations of available aluminum instead. Available aluminum comprises mainly the aquo-ion, and the fluoride and sulfato-complexes. Acidification of soil can lead to aluminum toxicity if Al is not bound to humics - but not in reverse. The text about sources of Al contamination has been copied and pasted from the text about other metals. However, environmental impacts of Al-smelters do not derive from Al itself, but from corresponding fluoride emissions! Alumina ($Al_2O_3$) nanoparticles act in the lung physically like quartz and silicates. The text about health risks and exposure has been copied and pasted from the text about other metals. Aluminum, however, passes the gut almost completely because it has its maximum insolubility in the circumneutral range, which is an adaptation of terrestrial animals to the fact that Al is a main constituent of the earth's crust. The use of KCl or water to get soluble Al is nonsense and subject to laboratory blanks. Because of hydroxide precipitation, you have to use weak acids. X-ray fluorescence provides total Al, which is not environmentally relevant. Modelling of Al species assumes equilibrium conditions at a given ionic strength, which is hardly reached in the case of Al. The hydroxo-complexes are kinetically rather inert, and the speciation depends on which direction you approach from. Therefore, sophisticated methods have been developed to discriminate Al species via molecular weight. Remediation by liming is only effective if you reach circumneutral conditions because $Al^-$ is alkali-mobile as aluminate.