**The environmental impacts of landfills and the available alternatives for governments and local communities**

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**ABSTRACT**

Assessing the impact of a landfill on soil involves using phytotoxicity and genotoxicity techniques. Depending on our study in Morocco, it is worth noting that the germination rate of seeds can vary significantly based on the plant species and samples. For example, the germination rate for seeds in control soil is quite high, at 99.2%. However, the germination rate for seeds in soil obtained from landfills can be much lower, ranging from 5% to 79.2%. Among the different types of seeds tested, lettuce seeds exhibited the lowest germination rate, ranging between 5% and 20%. The germination index (GI) also varied greatly depending on the species, ranging from 0.5% to 169.8%. Additionally, soils from landfills had a lower GI compared to control soil. The mitotic index (MI) was found to be lower in landfill soils, ranging between 3.3% and 8.3%, compared to control soil, which ranged from 8.9% to 9.5%. Finally, the micronucleus (MN) was found to be very low in the control soil, hardly exceeding 0.3‰, while it increased in other soils obtained from landfills, ranging from 1‰ to 6.2‰. We believe that closing landfills is necessary to stop the ecological impact. Recycling and sorting waste are reasonable solutions.

**Keywords:** Landfill, soil, genotoxicity, recycling, sorting.

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