



# Alternativas microbiológicas para la remediación de suelos y aguas contaminados con fertilizantes nitrogenados [

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text (article)

Analítica

Nitrogen (N) is the most important nutrient for plant production and therefore it is necessary to fertilize with quantities of it that allow ensuring the proper development of crops. Currently, chemical synthesis fertilizers containing ammonium ( $\text{NH}_4^+$ ), nitrate ( $\text{NO}_3^-$ ) or urea ( $\text{CO}(\text{NH}_2)_2$ ), are the most commonly used. However, the way in which they are dosed and applied to soils is not suitable, since they are used in high quantities with little efficiency, generating a high environmental impact by causing salinity, toxicity and pollution problems in soils and water, which in turn has effects on ecosystems and health. Recognizing this problem, and taking into account the need to continue generating both products and mechanisms, that allow to guarantee the productivity of agricultural systems and their contribution to the economy and food security of countries in a sustainable way, they have been raised varied solutions in this regard. This paper sought to analyze the effects generated by nitrogen fertilizers in soil and water, as well as the alternatives proposed by several authors that minimize the impact of these compounds on the environment. After conducting a systematic review of various studies on the subject, it was observed that in the literature of the last 20 years, the use of microorganisms for bioremediation is highlighted, as well as the application of biofertilizers as the most relevant and efficient alternatives to counteract in a sustainable way the contaminating effects with nitrogen fertilizers

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