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Dynamics of nitrogen mineralization in a soil cultivated with wheat (*Triticum durum L.*) under conventional tillage at Mexicali Valley, Baja California, Mexico

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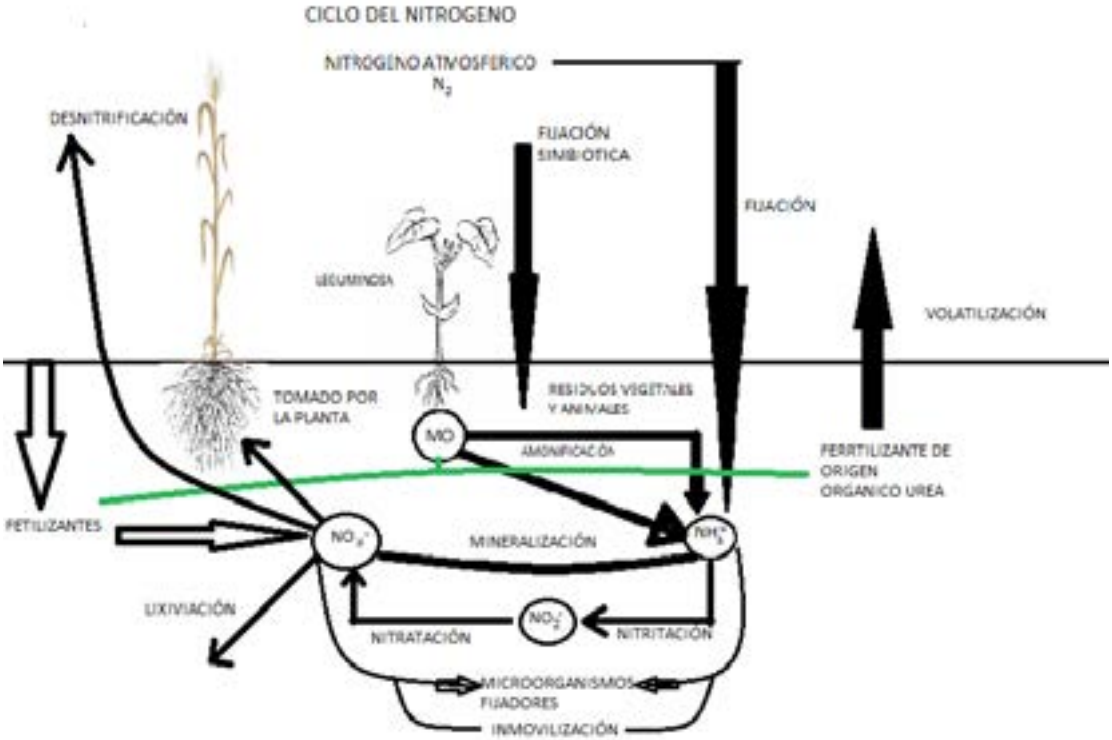
The dynamic of nitrogen mineralization in agricultural production systems under arid conditions is related to soil management, use of nitrogen fertilizers and climatic conditions that are regulating the processes of mineralization in these systems. In the arid valley of Mexicali, there is no information regarding the assessment of the dynamic of nitrogen mineralization in conventional tillage systems most widely used in this place. The aim of this study was to evaluate the nitrogen mineralization in a soil cultivated with wheat under conventional tillage in the Mexicali Valley, Baja California. This study was conducted at Institute of Agricultural Science, UABC, located in Mexicali Valley, BC, Mexico. The experimental plot, with a soil aquic haplotorrert was cultivated with wheat *(Triticum durum)* cycle 2014-2015, with applications of doses of nitrogen fertilizer (0, 200 and 400 kg ha-1). Soil samples from each treatment were taken, at a depth of 30cm, weekly until the end of the crop cycle. Nitrogen mineralization (NO3-) was obtained from KCl extraction and Kjeldhal method, moisture soil (%) by gravimetric method and temperature by using a digital thermometer. An accumulative tendency of mineralized nitrogen at the time was obtained for all treatments. The tendency was described by a linear function ($y = ax + b$), with the values of b as mineralization rate. A statistical means trial test was carried out (Tukey $p < 0.05$). The magnitude of the nitrogen mineralization was 753, 942 and 1125 mg N at a rate of 49.6, 43.9 and 11.2 mg N Kg-1 soil día-1 for doses 0, 200 and 400 Kg N ha-1 respectively, whit differences ($p > 0.05$) between them. Highest doses of nitrogen applied to the soil increase ($p < 0.05$) the magnitude and decrease the rate of nitrogen mineralization under evaluated conditions.



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Biography

Silvia M Aviles has her expertise in Soil Fertility, Sustainable Use of Soil and Water Research Group. Her evaluation is based on nitrogen and carbon dynamic in the soil on agricultural production systems in an arid zone that let to get information to improve soil management and considering also climatic change and greenhouse gases emissions. She has been working several years in research, evaluation and teaching at the University.

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