

***Callotrix clavata* development W.G.S. in soil treated with herbicide atrazine at agronomic rate**

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More than 70% of agricultural tillage in Argentina is made as direct seeding, so weed control is done primarily with the application of herbicides. Atrazine (2-chloro-4-ethylamino-6-isopropylamino-s-triazine) is one of the most widely used herbicides for dicotyledonous weeds and for some grasses in corn and sorghum. In the 2010 campaign were used 7,854,873 liters (CASAFE 2011). Furthermore, there is evidence that repeated application of some herbicides (eg. atrazine, 2,4-D, paraquat, trifluralin) for many years can aggravate a negative impact and change the structure of the microbial community and, as a consequence, affect the ability for biodegradation(1). This would have consequences not only in biological processes associated with soil fertility and crop productivity, but also in the mechanisms of biodegradation of the herbicide themselves(2).

The objective of the work was to analyze the influence of atrazine on the community of soil cyanobacteria in an experimental plot planted with *Zea mays* L. under direct seeding. Surface soil samples were obtained with two treatments "without atrazine" (T1) and "with atrazine" (T2). They were taken until the 180 day of the crop. For the phycolological analysis, cultures using Watanabe medium in chamber at a temperature of 20-30°C with photoperiod of 12 h light 12 h dark were performed.

The determination of atrazine residue in soil samples was performed with a validated protocol. Briefly, the methodology consists in an extraction with methanol followed by SPE clean-up and UHPLC MS/MS determination. The LOD and LOQ limits were 20 ng/kg and 50 ng/kg respectively.

The results establish that the community of cyanobacteria that developed in T1 consisted of: *Cylindrospermum musicola* Kützing ex Born. et flah., *Nostoc commune* Vaucher, *Nostoc muscorum* Ag. ex Born. et flah., *Nostoc calcicola* Bréb. ex Born. et flah., *Oscillatoria subbrevis* Schmidle, *Oscillatoria animalis* Ag. ex Gomont, *Phormidium bohneri* Schmidle, *Phormidium tenue* (Menegh.) Gomont, *Phormidium corium* (Ag.) Gomont. While *Clavata Callotrix* W.G.S. developed exclusively in T2, at the expense of the remaining taxa.

These preliminary results allow us to infer the impact of the herbicide on the structure of communities of edatophyta cyanobacteria and the possibility of tolerance of *Callotrix clavata* WGS to atrazine, justifying the need for further ecotoxicological tests for testing and determining their tolerance limits.

(1) Seghers, D., Reheul, D., Bulcke, R., Siciliano, S., Verstraete, W. and Top, E.M. **2004**. *FEMS Microbiol. Ecol.* 46, 139-146.

(2) Moreno, J., Aliaga, A., Navarro, S., Hernández, T., García, C. **2007**. *Appl. Soil Ecol.* 35, 120-127.

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