

## XIX CONGRESO DE LA SOCIEDAD ARGENTINA DE MICROBIOLOGÍA GENERAL

22 al 25 de octubre del 2024

Centro cultural y Pabellón Argentina de la Universidad Nacional de Córdoba, Córdoba, ARGENTINA.

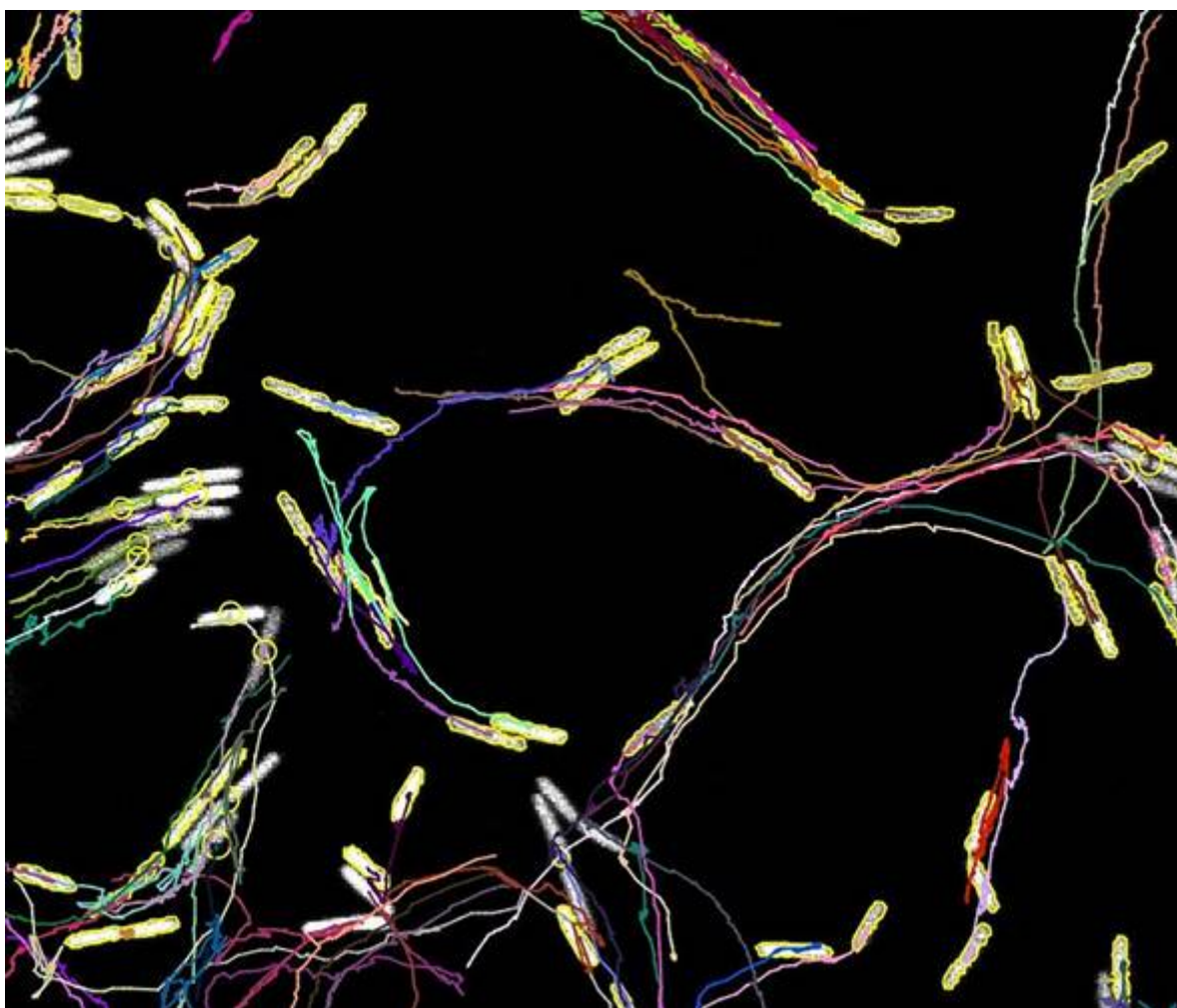


Foto: Se hace camino al andar. Celeste Dea. 1er puesto. Concurso fotográfico SAMIGE 20 años.

## DIVERSITY OF ALGAE AND CYANOBACTERIA GROWING IN HEAVY METAL-CONTAMINATED SITES

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Environmental pollution has become one of the major concerns due to its detrimental effects on human health, ecosystems, and how it can affect ecological balance and resource availability. Algae and cyanobacteria are present in all types of soils. These photosynthetic microorganisms are concentrated in the topsoil and can be used as bioindicators of contaminated soils in ecological monitoring. In this work, heavy metal (HM) contaminated soils from the province of Córdoba were evaluated in order to: a) characterize the community of soil algae/cyanobacteria and b) evaluate the seasonal variability of the soil algae/cyanobacteria composition. Soil samples (n = 20) were collected during two seasons (summer and autumn) from 3 sites (sites I, II and III) ranging from soils with low to high HM content (Pb: 380-14,542  $\mu\text{g g}^{-1}$ ; Cu: 59-3,259  $\mu\text{g g}^{-1}$ ; Zn: 1967-63,323  $\mu\text{g g}^{-1}$ ) and a control site (Pb: 29-73  $\mu\text{g g}^{-1}$ , Cu: 20-45  $\mu\text{g g}^{-1}$ , Zn: 116-163  $\mu\text{g g}^{-1}$ ). In the laboratory, the soil was sown in capsules with sterilized Watanabe medium and grown for 9 weeks. The algae and cyanobacteria were identified over time and the final relative abundance was analyzed. We identified 17 species of Cyanobacteria, 3 species of Chloroplastida and 1 species of Herterokontophyta. The number of species was significantly different between the sites, with the most contaminated soil presenting the lowest number of soil algae species. Considering the seasons, the number of species was not significantly different. The most abundant species were Cyanobacteria; *Leptolyngbya fragilis* (Gomont) Anagnostidis & Komárek and *Kamptonema chlorinum* (Kützinger ex Gomont) Strunecký predominated in autumn, while in summer were *L. fragilis* and *L. tenuis* (Gomont) Anagnostidis & Komárek. Additionally, only *L. tenuis* was present in the soil with the highest concentration of HM. Our results indicate that soil algae/cyanobacteria species are adapted microorganisms and should be considered for studies of remediation of contaminated soils in Córdoba.

Palabras clave: Algae - Cyanobacteria - Heavy metal - Soil pollution