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## DIVERSITY OF ACARI AND COLLEMBOLA ALONG A POLLUTION GRADIENT IN SOILS OF A PRE-PYRENEAN FOREST ECOSYSTEM

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### Abstract

Mites and springtails are important members of soil mesofauna and have been proven to be good bioindicators of airborne pollutants. We studied the surrounding area of a steel mill located in a mountain valley of North Spain. Previous studies had documented the existence of a pollution gradient in this area due to the emissions of the factory, thus providing an interesting site to investigate the potential effects of pollutants (heavy metals and nitrogen) on soil biodiversity.

The density of Acari and Collembola significantly decreased with the increase in concentration of Cr, Mn, Zn, Cd and Pb. Mites appeared to be more sensitive to heavy metal pollution than springtails. Likewise, the density of these microarthropoda was lower in those soils exhibiting higher nitrogen content.

The species composition of the community of Acari and Collembola changed according to heavy metal pollution. Significant differences in abundance, species richness and diversity were observed between the communities of the sampling sites. Some species were exclusive of the less polluted sites, while other appeared in the most contaminated ones. This different response of soil mesofauna to pollutants suggests that some mite or springtail species could be used as bioindicators of heavy metal pollution.

*Key words:* bioindicators, diversity, heavy metals, nitrogen, soil mesofauna

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