

Advances in Soil Ecotoxicological Risk Assessment of Chemical Stressors

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Soils are a non-renewable resource that provides a habitat for an extremely diverse range of organisms, thereby delivering unique ecosystem services. However, this precious commodity may remain under-protected within regulatory frameworks worldwide, mainly due to our lack of knowledge on the importance of the complex interactions and dependencies that occur within soil. Novel innovations and holistic approaches to the assessment of chemical stressors promote our understanding of their impact on the multiple facets of soil structure and function. This, in turn, is helping to ensure the protection and restoration of soils, and the myriad of life held within. In this session we aim to elucidate the way towards a holistic approach for soil protection. We invite researchers and regulators interested in further untangling the complexity of soil ecosystem processes, species interactions, and their vulnerabilities, in advancing soil protection. Recent scientific progresses in terrestrial ecotoxicological tools and environmental risk assessment procedures for chemical stressors in soils (e.g. [1], [2]) identified critical needs, data and methodology gaps to properly characterize the risk to soil structure and functions (e.g., how do microbial processes fit? What are critical species and components that we should protect?). This session intends to address these gaps and provide a platform to discuss regulatory frameworks. We want to know what are appropriate strategies for effective soil protection, how to perform targeted higher tier testing, and how modelling approaches and field and laboratory tests can be inter-linked. We challenge the scientific community to share and link their scientific innovations to regulatory developments. This might include guidance on the characterization of exposure and effects, the value and design of higher tier testing, statistical power of laboratory and field tests, the development or improvement of ecotoxicological tests that can contribute to the risk assessment process, and most importantly, how to use these innovations to address the protection of biodiversity and soil ecosystem services. Researchers, students and regulators are invited to discuss their work related to the current soil risk assessment schemes - both prospective and retrospective - for different chemical stressors. [1] ECHA (2016): Topical Scientific Workshop: Soil Risk Assessment. Workshop proceedings. ECHA-16-R-09-EN. doi: 10.2823/785130 [2] EFSA PPR Panel (2016): Draft Scientific Opinion addressing the state of the science on risk assessment of plant protection products for in-soil organisms. <https://www.efsa.europa.eu/sites/default/files/consultation/160503.pdf>