

STSM Final report: Disentangling role of diversity and abundance pattern of soil fauna in transformation of soil organic matter (SOM) across various biomes.

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Short time scientific mission in research group of dr. Juan J. Jiménez at IPE-CSIC, Spain, was focused on literature review and meta-analysis. In terrestrial ecosystems, more than 50% of net primary production is returned to the soil via decomposition of plant litter. Litter decomposition is driven by multiple factors including climate, litter, substrate quality and soil fauna. Many studies have recognized that soil fauna significantly affect decomposition rates by directly affecting microbial activity. However, role of diversity and abundance pattern of soil fauna have been often overlooked. Meta-analysis was aimed on review of existing data from recent literature regarding to role of soil fauna (meso- and macro-fauna) in transformation of SOM across various biomes. Obtained data were analyzed using advanced statistical software such as metafor and Rmisc packages in R program. Main goal was intensive study of recent literature and discussion with experts for soil fauna in research group of dr. Jiménez at IPE-CSIC, Spain to explore two following questions:(i) How is diversity and abundance patterns of soil fauna across biomes? (ii) How diversity and abundance patterns of various faunal guilds related to SOM transformation across various biomes? To do this, I analyzed data obtained from recently published research papers focused on distribution and diversity of soil fauna. First week of COST action was focused on summary of existing papers and its relations on diversity of soil fauna and transformation of SOM. Second week was mostly focused on discussion with dr. Jiménez at IPE-CSIC, Spain and on analysis of obtained data using modern statistical approaches. In total 46 original research papers related to distribution and abundances of soil fauna were found on Scopus and WoS database. I have prepared two tables based on analyzed data. First table shows distribution of various soil faunal taxa across various biomes. Second table shows distribution and abundance of various guilds related to transformation of SOM. Obtained data will be useful for writing of manuscript focused on distribution and abundance of various taxa across biomes. Results obtained during this COST action will be also discussed in regular COST meetings and presented on international conference such as International Ecological Congress 2017 in Beijing. Finally, Short Term Scientific Mission the context of COST Action ES1406 well fit my previous research. This COST action will be undoubtedly good starting point from which I will benefit for my other career goals (e. g. Grants from Czech Grant Agency, Marie-Curie actions, Fulbright funding, Newton fellowship, Endeavor fellowship etc.).