

Land use impacts on soil chemical properties (Vilnius, Lithuania)

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Human induces important changes in soil properties. This is especially noticeable in urban areas as consequence of the anthropogenic activities that normally are a cause of soil degradation. These impacts on soil may have important impacts on the services provided, as consequence of sealing and the accumulation of heavy metals induce water runoff and transport of pollutants. The high concentration of heavy metals in soils have also negative implications for human health. The objective of this work is to study the impacts of different land uses on soil properties namely, extractable Calcium (Ca), Magnesium (Mg), Sodium (Na), Potassium (K), Phosphorus (P), Aluminum (Al), Manganese (Mn), Iron (Fe), Zinc (Zn), Copper (Cu), Boron (B), Chrome (Cr), Silicon (Si), Sulfur (S). For this, we sampled (10 per site) in forests covered by different species with reduced human disturbance (Quercus robur, Acer plantanoides, Pinus sylvestrus and Picea abies), areas with a moderate (semi-natural grassland and managed semi-natural grassland) and high human impact (artificial grassland and urban soils). The results showed that Ca, K, and S content was significantly higher in urban soils comparing with the other land uses. Mg, Na, Cr, P and Si were significantly high in artificial grassland, while Mn, B and Cu were high in semi-natural grassland. Al and Fe were significantly high in Picea abies and Zn in Quercus robur forest. Urban land-uses induced an important impact on soil chemistry, especially in the content of Ca, Mg, Na, K, especially in an area where naturally, soils are acid. Other elements were also identified in important amounts such as Mn, Cr and Cu were observed in areas subjected to human impact.