Hungary. We assessed two soil types under different long-term tillage practices, conservation tillage (CT) that leaves 30% more residue on the soil surface and conventional-ploughing tillage (PT). A pot experiment with maize as the crop was carried out using the composite soil (0-20 cm) of CT and PT; a randomized block design with four replications was employed. Three level of molasses concentration, 0 g L-1, 0.05 g L-1, and 0.2 g L-1, were applied. LC, dehydrogenase (DHA), β-glucosidase activity, plant height, and dry weight biomass were measured in the end of experiment (after eight weeks). The results indicated that LC in CT increased by 7.61-21.23% over the increase in molasses concentration. LC concentration was significantly higher in the CT than in the PT soil. β-glucosidase activity increased along with the increase of molasses concentration by 11.42-30.43% in CT and 16.03-34.76% in PT, however, the significantly different has appeared only in PT soil. Molasses application affected the DHA as well. The activity of dehydrogenase increases by 39.49-80.76% and 12.44-16.00%, respectively, in CT and PT. Nevertheless, no significance occurred in the tillage system or the molasses concentration. In our study, we also found that the different molasses concentrations did not affect the plant height and dry weight biomass in CT and PT. However, applying each molasses concentration in CT markedly escalated the plant height and dry weight biomass compared to PT. The enhancement of soil biological activity and plant growth by the Molasses application allows a promising strategy for maintaining the soil health of agricultural land.

Environmental geochemical study on urban soils of Salgótarján, Hungary

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Strontium is a large ionic lithophile element, moderately incompatible in solid phases, and is considered mobile during fluid transports. Its stable isotopes used in soil sciences for decades demonstrating their potential as significant tracers to describe chemical weathering and other pedogenic processes on both short- and long-term scales. Physicochemical and biological processes have no significant effect on Sr isotopic fractionation since it can be a useful tool to monitor contamination in the soil. In the natural environment, the $^{87}Sr/^{86}Sr$ ratio depends on the amount of radiogenic

^{87}Sr being generated continuously by ^{87}Rb decay. Therefore, the $^{87}Sr/^{86}Sr$ ratio is elevated in the natural environment, whereas contamination of anthropogenic material (like coal ash) increases Sr concentration and decreases the $^{87}Sr/^{86}Sr$ ratio in soils (like urban soil).

This study shows how $^{87}Sr/^{86}Sr$ ratio can be used as a "fingerprint" to identify source(s) of contamination in urban environment. From the N-NE part of Salgótarján city, 15 urban soil samples and 1 sample from the local coal ash cone, and 1 brown forest soil sample were collected to shed light on anthropogenic contamination produced by the former industrial activities, particularly coal-fired power plant (CFPP) in the residential areas.

Our results show that there are three groups of samples showing different natures of $^{87}Sr/^{86}Sr$ ratio with increasing distance from CFPP. More than 50% of samples followed a linear correlation showing that $^{87}Sr/^{86}Sr$ ratios increase with increasing distance from CFPP, in other words, urban soils with higher $^{87}Sr/^{86}Sr$ ratios contain higher natural components compared to those with lower 87Sr/86Sr ratios. Two sample clusters, situated above and below the linear pattern, separately, contain the highest (roadside: 87Sr/86Sr: 0.7196) and the lowest (playground: $^{87}Sr/^{86}Sr$: 0.7103) $^{87}Sr/^{86}Sr$ ratios. None of them are the closest and furthest distance from the CFPP, suggesting that these samples were affected by additional, unidentified contamination source(s).