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S7/P51: EFFECT OF FRESH AND COMPOSTED ESPRESSO SPENT COFFEE ON SOIL AND *LACTUCA SATIVA* L. MINERAL COMPOSITION

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Espresso spent coffee grounds (ESC) comprises solid residues obtained after espresso coffee preparation, which are massively generated worldwide, being unfortunately disposed together with common garbage. Still, there are several references about its application as organic fertilizer in domestic cultivation, due to their richness on mineral compounds, especially potassium. However, their effect or safety on agriculture remains unknown.
In this study, a greenhouse experiment was undertaken to examine the potential of using ESC either in fresh or in composted form to enhance mineral composition of the soil and of *Lactuca sativa* L. plants. With this purpose, lettuce plants cv. “Four seasons” were grown in topsoil (control) or topsoil mixed with different amounts of fresh (2.5, 5, 10, 15, 20%, v/v) or composted (5, 10, 15, 20, 30%, v/v) ESC. The amounts of K, Mg, P, Ca, Na, Fe, Mn, Zn and Cu were determined in the topsoil and in the several mixtures of topsoil- ESC after crop harvest, as well as on lettuce plants after 32 days of culture.
After harvesting, an increment on soil micronutrients contents was noticed on both fresh and composted ESC treatments, especially when applied at highest concentrations, though total mineral content was higher in the former. Secondly, lettuce analysis proved a progressive decrease of the total mineral content and of all mineral elements, excepting K and Cu, with the increase of fresh ESC amounts applied. On the contrary, there was a major increment of essential major elements in lettuce when low concentrations of composted ESC were used. For instance, K content increase up to 40%, Mg up to 20%, and Na up to 10% by the presence of only 5% of composted SCG. Hence, this fact enables the statement that small amounts of this pre-treated coffee residue improve plants nutritional features.

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