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Distribution and bioavailability of Diuron residues in different fractions of soils amended with vermicomposts.

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The effect of two new vermicomposts obtained from winery wastes on the distribution of radiolabel ^{14}C-diuron in an agricultural sandy loam soil with low organic carbon content (0.3 %) was studied. Each treatment, soil alone (S), amended (5%) with spent grape marc (SGM) and biosolid vinasse mixed with vine shoot (SBvs) were incubated at 20ºC and 80% field capacity. Soda-lime traps were installed in each sample to determine the mineralized amount. At different times, 0, 9, 27 49 and 77days, physical fractionation was carried out to separate five fractions, coarse waste (W), sediment (SED), Microaggregates (MA), colloidal (C) and dissolved organic mater (DOM). The residual ^{14}C activity in the each extract was determined by Liquid Scintillator Counter (LSC) and their correspondent air dried fractions were previously combusted for $^{14}CO_2$ determination. The $^{14}CO_2$ from the traps were measured by LSC. In the amended soils there is a new fraction (W) which, in an important way, contributes in the distribution of ^{14}C-diuron and it is higher for the soil amended with Bvs vermicompost. The mineralized amount was lower than 0.6% in all the samples. The DOC concentration in the DOM phase increase with the vermicompost addition being higher for Bvs. Nevertheless, the ^{14}C-diuron determined in this phase is lower in the presence of both vermicomposts and independent of the humification degree of these amendments. The non-extractable fraction increase with time in the three treatments and no significant amendment effect was observed. In a dynamic environment the addition of these new vermicompost to sandy soil with low O.C. content could decrease the residues amount bounded to the DOM fraction and thus minimize it leaching potential.