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Herbicide absorption and translocation in plants and soil using radioisotopes

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Understanding pesticide metabolism in plants and microorganisms is a key component for the development, the safe and efficient utilization of these compounds, and for bioremediation of these chemicals in contaminated soil and water. The use of isotopes as tracers may offer additional information, since they allow and may be differentiated with great accuracy from the ions of the compound, which are already in the environment, even when both show a similar chemical behavior. The liquid scintillation spectrometry technique (LSS) is knowingly the most adequate one in order to determine the radiation with low penetration power, such as β radiation, emitted by ^{14}C , since it shows adequate sensitivity and reproducibility. The use of a certified pattern for the studied herbicide is indicated for the adequate calibration of the liquid scintillation equipment (scintillation counter). In order to quantify the radiolabeled herbicide, the main purpose of preparing samples is obtaining a homogeneous and stable solution that is adequate for the LSS analysis. Thus, radioisotopes were used for environmental behavior and in plants studies, since they provide some advantages in comparison to chemical measures, including greater sensitivity, stepwise description of a particular element in a metabolic system, and pesticide position and detection through x-ray films and/or radio image (in plants) and liquid scintillation (in plants and soil), respectively.

Biography

Lydia Bondareva has completed her PhD from Lomonosov's State University, Moscow, Russia. She is Senior Researcher in F.F. Erisman Federal Scientific Centre of Hygiene, Department of the Analytical Methods of Control, Russia. She has more than 70 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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