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# Metabolism Studies.



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IES Ltd is highly experienced in conducting metabolism studies, including the identification of unknown metabolites.

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## Plant Metabolism (OECD 501).

Studies on metabolism in crops are performed to elucidate the metabolic pathway of radiolabelled active ingredients and to identify possible metabolites. IES Ltd offers metabolism studies with a wide range of crops, including grapes, oilseed rape, rice, wheat, corn and many others, covering all required crop testing categories. At IES Ltd, plant metabolism studies are carried out either in greenhouse compartments with controlled temperature and humidity or at a purpose-designed outdoor station under natural environmental conditions. The radiolabelled active ingredient in the proposed commercial formulation is applied according to the intended commercial use pattern and method. Applications can be made to soil, foliage or seed. Crops are harvested at intervals between application and final maturity in order to provide detailed information on metabolic pathway and residue levels. IES also offers studies on post-harvest metabolism in crops, during which the degradation pathway of the active ingredient is analysed upon post-harvest application of a plant protection product. The metabolic pathway is determined under specific, controlled storage conditions.

## Metabolism in Rotational Crops (OECD 502).

Studies on metabolism in rotational crops are conducted to determine the components and amount of accumulated pesticide residue following the application of a substance to soil. The radiolabelled active ingredient is applied to the soil in a confined test system in our greenhouse compartments and/or at a purpose-designed outdoor station under natural environmental conditions. Three rotated crops are harvested at intervals between sowing and maturity and the uptake of the active ingredient by the crop examined. By performing these tests at selected rotational intervals, we are able to simulate scenarios of crop failure and standard rotations following harvest or for the following year.

## In Vitro Comparative Metabolism.

Identification of compounds that have favourable ADME characteristics is a crucial step in the development of agrochemical, cosmetic and pharmaceutical products. IES Ltd offers in vitro metabolism assays for metabolite profiling in different species, metabolic stability determination, and identification using a variety of test systems including liver microsomes, liver S9 fraction.

## In Vitro Skin Penetration.

IES Ltd performs in vitro skin penetration studies to assess the transport of a test item from the outer surface of the skin both into the skin and into the systemic circulation. These studies are required for the assessment of systemic risks from dermal exposure to chemicals in humans and for the development and optimisation of cost-effective formulations. Formulation bioavailability and permeation profiles of the test compound through human skin are determined and a full mass balance of the applied dose can be obtained.