## UPTAKE OF PHARMACEUTICALS FROM SOIL INTO PLANTS AND INVERTEBRATES

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An understanding of the uptake of pharmaceuticals from the natural environment into plants and wildlife is essential for assessing risks top predators and to humans. However, our understanding of the factors and processes affecting the uptake of pharmaceuticals from soils into crops and invertebrates is currently poorly developed. This paper will present the results of a series of investigations into the uptake of veterinary and human pharmaceuticals into a range of soil organisms. The studies have explored the effects of a range of factors including the pharmaceutical physic-chemical properties, environmental parameters and species traits on uptake. Possibilities for modeling uptake based on chemical properties have also been explored. Results show that pharmaceuticals can be accumulated from soils into invertebrates and plants and that the degree of uptake varies by pharmaceutical, test organism and soil type. To model uptake, an approach that combines information on chemical properties, key species traits and changing soil properties is therefore probably required. Results have also been used to assess the potential risks of pharmaceuticals in slurry and soils to humans and predatory wildlife species. The results of these investigations indicate that the current risks are low.