

Emerging contaminants in organic soil amendments

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Organic fertilizers or soil improvers comprise biogenic wastes of different kind and origin, e.g. agricultural and municipal green waste, food waste, animal manure, and sewage sludge, and are amended to soil either in their original or processed form (e.g. composted, digested or pyrolyzed). Such materials can be contaminated with a plethora of (organic) contaminants. They can originate from the feedstock material itself (e.g., phyto- or mycotoxins, steroid hormones), are residues of everyday chemicals used in private households, industry or agriculture (e.g., (veterinary) pharmaceuticals, personal care products, pesticides, (micro-)plastics), or unintended products of biowaste processing (e.g., dioxins, polycyclic aromatic hydrocarbons). Application of organic fertilizers and improvers to soil inevitably leads to inputs of these contaminants into terrestrial ecosystems, where they are subject to subsequent environmental fate and transport processes. The width and breadth of the topic is illustrated with a recent compilation of contaminants regulated and monitored in external organic matter and some case studies conducted in the research group of the presenter.

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