BIOENERGY AND PLANT NUTRIENTS IN WASTE AND SEWAGE SYSTEMS

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Abstract
Human existence is dependent on Renewable Organic Matter (ROM) in products derived from plant and animal kingdom. Food, feed and fibers contain the solar radiation energy that has been converted into bioenergy in the biomass of the plants during photosynthesis. At least 16 essential chemical elements must be available for plants during this process.

Bioenergy and the chemical elements are during harvest transported from cultivated fields to human settlements. Long-term survival is about balance between production on cultivated fields and sustainable return of well treated residues of ROM from all human activities back to cultivated fields.

Using sustainable management of material originating from ROMs in waste and sewage system will have significant positive effects on biodiversity, health, environment and climate. When talking about the need for transition to a more circular bioeconomy, it is obviously beneficial to develop the neglected biological transformation processes.

The most up to date is the utilization of bioenergy and plant nutrients hidden in the food waste. The content of bioenergy and plant nutrients in human waste, it means urine and faeces without dilution with water, begins to be discussed.

Here is presented a proposal for a system for the treatment of food waste and human waste - including hygienic and user-friendly collection devices - which will directly affect 10 of the 17 UN's Sustainable Development Goals 2015 – 2030 and the other goals are indirectly affected. By acting locally, we can influence globally.

Keywords: bioenergy, plant nutrients, renewable organic matter (ROM), food waste, human waste, wastewater, sustainable management, SDG 2030

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