



Implementation of the Green Deal in the management of nutrients – phosphorus recovery potential from sewage sludge

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ABSTRACT

This paper presents an analysis of a phosphorus (P) recovery potential from waste generated in one of the mono-incineration plants of municipal sewage sludge (SS) located in Poland. The amount of sewage sludge ash (SSA) generated in the analyzed plant varied from 35.0 Mg in 2019 to 419.0 Mg in 2016, which affects the amount of P potentially recoverable from this waste. The P content in the analyzed SSA was equal to 9.5%, while the P-bioavailability reached 48.3%. The P recovery potential was equal to 31.8 Mg in 2016, which means that from 323.2 Mg of SSA generated, it was possible to recover 31.8 Mg of P. In 2018, the P recovery potential reached 22.1 Mg and it was systematically decreasing to 3.5 Mg in 2020, as a consequence of a reduction in the amount of SS sent for incineration, and thus a reduction in the amount of SSA produced in the installation. Nutrient-rich waste, as SS and SSA should be directed to treatment processes to recover nutrients, which can be further use in the production of mineral fertilizers. The European Commission strongly recommends this solution as a scope of the 'Farm to Fork' strategy which is an integral part of the European Green Deal. Moreover, P recovery from waste for fertilization purposes is also one of the main goals of the Integrated Nutrient Management Action Plan, which is the strategic tool to support a circular economy implementation in water and fertilizer sectors in Europe.

Keywords: Green Deal; Circular economy; Nutrients; Phosphorus (P); Bioavailability
