

The Anaerobic Digestions as Key Factor in Proposing the Recovery of Renewable Fertilizers in a Circular Economy Frame

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The regular production and use of mineral fertilizers in agriculture have a long track record of impacts on the environment beyond the mere addition of nutrients to the soil. Nevertheless, it has been estimated that the world demand for fertilizer will increase by 7.9 % in 5 years (from 2017 to 2022) according to Food and Agriculture Organization (FAO). Producing fertilizers requires energy and/or fossil origin raw material. In addition, the production of P and K fertilizers relies upon non-renewable and extracted resources that are becoming depleted and are concentrated (e.g., P) in only a few countries. The Circular Economy has been indicated as a new productive paradigm to produce goods, and it consists in the redesign of productive processes to allow the successive recovering of wastes for new productive processes, avoiding the use of new resources. The Anaerobic digestion (AD) allows by using agricultural and municipal wastes producing the digestate and derived products, having both optimal amendment and fertilizers properties to be used to substitute synthetic mineral fertilizers. From waste to fertilizers through anaerobic digestion it has become a reality and a real example of Circular economy in Agriculture.