

Biorefinery of Wastes of Meat Processing for Agricultural Applications

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Extended Abstract

Tremendous amount of keratin and bone wastes are generated daily in the poultry and meat industries in the world, which might be recycled as biofertilizers in agriculture.

Recycling the biogenic elements (N, P, S, Ca) present in bone, feather or hair wastes facilitates these elements to return into the biogeochemical cycle. Mineralization of bone and feather wastes might provide essential elements for the agricultural plants [1,2,3]. For several popular crops, the sulfur supplementation has also serious economical impact [4].

Two bacteria were used, *Pseudomonas* sp. F1 can mobilize the P from bone. The supernatant of this culture supplemented with keratin was augmented with *Bacillus licheniformis* KK1. After one day and a week of incubation, the protein, orto-phosphate, TOC/TN and sulfate contents of the supernatants were measured.

The supernatant of *Pseudomonas* sp. F1 contained orto-phosphate (released from bone) more than enough for the growth of *Bacillus licheniformis* KK1. The liquid containing soluble form of nitrogen, phosphorous, calcium and sulfur is an “easy to use” bio-based fertilizer targeting various cultivated plants.

Biorefinery of food wastes for production of bio-products such as biofertilizer is one of the most promising environmentally sound processes, which is not only advantageous as waste management, but also leads to reduced dependence on non-renewable sources such as phosphate rocks (in production of P fertilisers).

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References

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