



INVESTIGATION OF THE POTENTIAL USE OF FISH- FARM SLUDGE FOR BIOGAS PRODUCTION IN TURKEY

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Introduction

Excessive and unconscious fishing, adverse environmental factors have led to the rapid decline of natural fish resources and even the risk of extinction of some species. Aquaculture and fish farming are presented as a solution to declining fish stocks. Aquaculture can be described as: the production of consumable sea and freshwater organisms with economic value by means of scientific methods in natural and artificial environments having the optimum ecological conditions starting from egg production and keeping all life stages under conditions ⁽¹⁾. According to the data of the General Directorate of Fisheries (BSGM) in 2017, our total installed aquaculture production capacity in our country was 487,859 tons / year. In 2017, 52.15% of this capacity was in marine and 47.84% in inland water.

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phosphorus, potassium and micronutrients and they give these nutrients to soil in their mixtures with soil. They are usually liquid, sludge or dried as desired by the end users ⁽³⁵⁾. Bergheim et al. (1998) reported that zinc and cadmium concentrations of fish sludge from biogas production were close to the upper limits for use in agriculture ⁽²⁶⁾. Gebauer and Eikebrokk (2005) determined that the waste from the fish sludge gasification study is liquid and can be used as liquid fertilizer in cultivated land and meadows ⁽³³⁾.

Conclusion

Studies show that anaerobic biotechnology can be used in the production of biogas from animal and agricultural wastes. Biogas production is in the status of renewable energy. Fish fecal waste has been found to be a potential substrate for biogas production. Fish waste is one of the areas of waste management. It is more meaningful to consider waste as a raw material rather than thinking about disposal. In terms of sustainable environment and the use of renewable energy resources, the use of fish farm waste as a raw material in biogas plants is of great importance for our country. Emphasis should be placed on making investments, research and development activities. The evaluation of the water and the nutrients contained in the treatment plants in agricultural irrigation is of great importance in the world that is getting warmer and with decreasing water resources ⁽³⁷⁾. Using fecal wastes as a potential green energy source, fish are the basis for the development of environmentally friendly and economical development of mud mass and volume in the field considerably. The biogas potential obtained by the processing of fresh water and sea water fish farming wastes, which are rich in lipids and proteins, is also possible to obtain fertilizer with nutritional value as a by-product. The anaerobic digestion of these biodegradable wastes will provide a solution to reduce both this environmental problem and the consumption of fossil fuels.

Keywords: Fish farm fecal sludge, biogas, bio-fertilizer.

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