

Study on the Development of Bio-organic Fertilizer from Feather Powder by Acidification and Its Promoting Effect

In modern agriculture, with the large-scale expansion of poultry farming, the output of poultry feather waste is increasing. In 2008, the annual output of China has exceeded 700,000 t [1].

[Automatic feather powder processing machinery for sale](#)

On the one hand, feathers as waste can not be properly treated, which will cause a wide range of environmental pollution and restrict economic development; on the other hand, because feathers are rich in keratin resources, if keratin can be used reasonably, it will be a good recyclable resource [2-3]. [Microwave Heating Machinery and Equipment](#)

Chemical treatment is a common method of feather resource utilization, including acid hydrolysis and alkali hydrolysis. It is mainly used in feed industry and amino acid industry. It can obtain high conversion rate of amino acid. A lot of studies have shown that sulfuric acid hydrolysis process is the best production process [4-5].

After extracting specific amino acids from feather keratin by acidolysis, the remaining mother liquor still contains abundant nutrients. If it is discarded, it will waste resources and pollute the environment. It is urgent to develop high value-added utilization technology.

Bio-organic fertilizer is a kind of microorganism which is composed of specific functional microorganisms and organic materials which are mainly from animal and plant residues (such as animal manure, crop straw, etc.) and are treated harmlessly and decomposed.

Fertilizer and organic fertilizer effect fertilizer [7-9]. The key index of bio-organic fertilizer product quality is the number of viable bacteria. Adding exogenous amino acid solid-state fermentation technology to promote the reproduction of functional microorganisms is an important means of producing high-efficiency bio-organic fertilizer [10-12].

Rapeseed meal is the main raw material for foreign addition at present, and the amount of rapeseed meal has been reached in a large number of studies.

50%, although the fertilizer effect is very good, but because of the high cost of rapeseed meal, this kind of bio-organic fertilizer has excellent effect, but the large-scale promotion is limited [13].

Therefore, considering the development of more cheap protein source solid waste as an exogenous addition of amino acids in bio-organic fertilizer production to replace some cakes, on the premise of ensuring the quality of bio-organic fertilizer, the cost of fertilizer will be greatly reduced, which will provide guarantee for the rapid development of bio-organic fertilizer industry.

From the point of view of resource utilization and cost saving, this experiment studied the effect of acid-hydrolyzed feather powder as an exogenous amino acid additive on the number of

functional bacteria in solid-state fermentation and the promoting effect of fertilizer on plants, in order to develop a new resource utilization technology of acid-hydrolyzed feather powder.

