

because the  $1 \times 10^7/\text{mL}$  with the mortality of  $1 \times 10^8/\text{mL}$  mortality difference, so the  $1 \times 10^7/\text{mL}$  concentration is optimum, The  $LT_{50}$  of spore suspension with dipping method is 7.4d,; The  $LT_{50}$  of feeding method is 8.9d, The feeding method is the best method of indoor bioassay of locusts. The phenol oxidase activity in the locust, the optimum time of *B. bassiana* infection is 48h.

3. The control effect of lawn locust, results: Suspoemulsion mortality rate was 74.2%, Bt bacterium mortality rate was 72.2%, *B. bassiana* bacteria mortality rate was 70.1%.

4. Test the population dynamics of *B. bassiana* surviving in lawn during 30 days by PPDA medium, we found that different strains of time has a great influence to the Spore viability. Each cell showed obvious changes, the overall downward trend evident. After application the lawn every part of colony persistent distribution for soil > leaf > air; the best application time is 6:00 p.m.

5. On the basis of screening different levels of carbon, nitrogen sources, the trial will *B. bassiana* high pollen preparation process needed nutritional requirements, the orthogonal experiments are conducted under the different raising temperature with different supplementary carbon and nitrogen sources. Spore germination rate, Pr1 protease activity, bioassay, as the main index, Screening to determine a suitable high pollen powder formulations of *B. bassiana* is : 95% *B. bassiana* + 2% maltose + 3% peptone, *B. bassiana* powder suitable for cryogenic preservation, the optimum temperature is  $-20\text{ }^{\circ}\text{C}$ ,  $4\text{ }^{\circ}\text{C}$  and room temperature. The optimum water content is 5%, 10%.

When *Beauveria bassiana* invades the skin surface of insects, it secretes various enzymes to destroy the body wall to complete the infection. For different types of insects, the effect of each enzyme is different; similarly, for the same insect, different types of *Beauveria* The type and amount of secreted enzymes are also different. This requires us to make a reasonable analysis of its host, enzymes and enzyme amount when judging whether a strain of *Beauveria bassiana* is excellent. In the next step, we need to make a more complete analysis. Screening system and evaluation system of *Beauveria bassiana* strains.

In conclusion, we get the optimum storage condition and D4-2-1 with high toxicity can be used as the next step Orthoptera garden lawn locust biocontrol fungi. based on all the data from physiology, biochemical and bioassay analysis.

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## EFFECTS OF SOIL REMEDIATION AGENTS AND MICROBIAL AGENTS ON SOIL ENZYME ACTIVITIES

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**Summary.** *Soil remediation agents and microbial agents can improve crop yield and improve crop quality, and amaranth is rich in a variety of nutrients, many of the body needs vitamins, proteins and various minerals. Therefore, soil remediation agent and microbial agent were used to treat amaranth. The results are as follows: In the cultivation process of amaranth, if the soil remediation agent is applied, the applied concentration should be  $2\text{ g}\cdot\text{L}^{-1}$ ; If the application of microbial agent, the application of concentration should be  $1\text{ g}\cdot\text{L}^{-1}$ .*

### 1. Introduction

Soil remediation agent is a kind of soil improver, which can improve the physical properties of soil, promote the absorption of crop nutrients, regulate the structure of the microbial community in the soil, increase the microbial activity, and thus improve the soil enzyme activity [1]. In order to protect the land, realize the sustainable development of land use and improve the yield and quality

of crops, scientists have developed and developed a variety of new soil improvers, and explored the effects of different soil improvers on saline-alkali land improvement [2,3].

Microbial agents refer to the viable bacterial preparations made by the separation and purification of microorganisms in the soil or by processing and propagation, which have the functions of reducing diseases and insect pests, enhancing the organic nutrients in the soil, promoting the growth and development of crops, increasing the yield and quality, and improving the activity of soil enzymes[4,5].

Repair agent and soil microbial agents has high efficiency, low cost, can protect the characteristics of the soil environment, and can promote root growth, improve the condition of soil and crop physiological metabolic rate, improve the continuous cropping soil enzyme activity, avoids the single fertilizer make the soil nutrient imbalance, soil damage. In this experiment, soil remediation agents and microbial agents were used to treat soil respectively to study their effects on soil enzyme activity.

## 2. Materials and Methods

### 2.1. Test Materials

Soil remediation agent, microbial agent, soil in greenhouse of shenyang institute of technology.

### 2.2. Test Methods

Remediation agents and microbial agents were added to the soil, and 4 treatments with different concentrations of the two substances were set respectively, with clear water as the control group. Measurement was made one month after treatment. The applied concentrations of the two treatments are shown in table 2.1 and table 2.2.

Table 2.1 Concentrations of restorants and microbial agents (g•L<sup>-1</sup>)

Numble	Restorants	Microbial agents
1	0	0
2	1	0.25
3	2	0.5
4	4	1
5	8	2

## 3. Conclusion

Soil remediation agent can significantly improve the activity of soil catalase, soil cellulase, and soil sucrose. After comprehensive consideration, the most suitable concentration is 4g/L.

Microbial agents can significantly improve soil sucrose activity, soil catalase activity and soil cellulase activity, and the most suitable concentration is 0.25g/L.

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## References

1. Yang kai, liu hongmei, xiao zheng wu. Research progress of soil improvers and their application in various soil improvement [J]. Anhui agricultural sciences, 2008,46 (21) : 39-41.
2. Zhang liming, deng wangang. Research and application of soil improver [J]. Journal of south China tropical agricultural university, 2005 (02) : 32-34.
3. Liu weitao, zhou qixing. Effects of different soil modifiers and their combinations on reducing cadmium and lead contents in Chinese cabbage [J]. Journal of environmental science, 2010,30 (09) : 1846-1853.
4. Song fengming, liu jianhua, wu caiqiong. Overview of the development and application of soil microbial agents [J]. Journal of jiangxi agriculture, 2015,27 (10) : 38-42.

5. Zhang jie, zhu rensheng, wang chunfang. Advances in the application of bacillus subtilis in agriculture [J]. Modern agricultural science and technology, 2019, (13) : 163-170.

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## THE RESEARCH ABOUT RECONSTRUCTION OF RESIDENTIAL BUILDING

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**Summary.** *This paper analyzes and studies the status quo of old houses in the city, and shows the contradictions between old houses and modern life. These contradictions can be resolved to a certain extent through low-cost renovation. And put forward the principles and principles of transformation.*

Since the 1980s, China has built many urban apartments to solve people's living problems. With the development of society, many changes have taken place in the family population, composition(structure), and people's expectations for comfort and effectiveness. People have more demands for housing: such as the desire to increase the area of the house and improve the house type. The problems of old houses are beginning to become prominent.

Old-fashioned housing accounts for a considerable proportion of the total existing housing in cities. The structure of these houses is basically intact, but due to the early construction period, the facilities such as bathroom and kitchen equipment may not be perfect, and the corresponding municipal pipelines for tap water/natural gas/sewage are lacking. The layout is not ideal. In addition, there are problems such as small balcony area, inability to flexibly control temperature of heating, and unreasonable parking facilities.

Reconstruction rather than demolishing and rebuilding houses can reduce the formation of construction waste, which has a positive significance for environmental protection. Adjusting and changing the architectural space according to the development requirements of the city or building and meeting the needs of urban residents are a comprehensive work that selectively preserves or protects and improves environmental quality through various methods.

Commonly used transformation methods are as follow:

- \*Adjusting the building area of the apartment, such as combining two small units into a large unit;
- \*Adding elevators, wheelchair passages, and accessibility measures in the residence as needed;
- \*Adjusting the use of the internal space of the residence to expand the kitchen, bathroom and auxiliary rooms.

Principles of residential reconstruction:

1. The renovation design should be oriented towards the future, combining with the concepts of building energy saving, harmless waste disposal and barrier-free design. [1, c .234-237]

2. According to the specific conditions of the residence, different degrees of transformation can be divided into: general repair, replacement of doors and windows, addition of equipment, addition of floors, and overall renovation of the internal structure of the reservation. There are many ways to update according to the specific situation of the building: *rebuild totally, rebuild partly, renovation, infilling, interior change, and repair.*

3. The renovation should be carried out in different stages and different goals. According to the actual situation, a variety of solutions are provided to meet the needs of different residents.

4. The transformed residences should have better climate adaptability. For example, the thermal insulation performance of northern residences should be improved, and the ventilation and moisture-proof performance of southern residences should be improved.