

In recent years, controlled freezing point (CFP) technique has been applied in the storage of blueberry, spinach, green beans, pears, *Penaeus vannamei* and chicken. Researchers have showed that the shelf life of fresh pork can be prolonged appreciably by using CFP. However, the study about CFP on the storage of beef storage is rarely reported comparing to the wide application of CFP in fruit, vegetable and aquatic products. Therefore, in this study, we focused on the possibility of using CFP to promote the shelf life of beef.

During the storage of meat products, the degradation and oxidation of proteins were the main reasons for the disordered and damage muscle structure. The main purpose of this study was to used different texture indicators (-SH content, myofiber diameter, SL, MFI and SF) to evaluate the influences of Cv, Zv and Fv on the beef texture.

This study analyzed the texture of *Longissimus dorsi* of beef. The oxidation of proteins caused the continuous decrease in -SH content; during the rigor mortis and rigor-off processes, SL initially decreased and then increased as the decrease in myofiber diameter; MFI constantly increased with the function of endogenous enzymes and micro-organisms; SF of meat decreased initially and then increased, and meat tenderness changed accordingly. In summary, the lower temperature brought the better quality at a time point. Cv condition significantly delayed the process of qualitative change in meat products, and played a positive role in assuring meat quality, comparing with Zv and Fv condition.

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PATHOGENICITY OF BEAVERIA BASSIANA AGAINST LOCUSTA MIGRATORIA MANILENSIS

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Summary. *Locusta migratoria manilensis* (Meyen) is one of lawn pests, feeding a variety of grasses. Locusts nibble grass blades on the lawn great harm, leading to deterioration of the ecological environment, affecting people's appreciation entertainment. Therefore, prevention is important for landscape ecological protection lawn locusta. The traditional chemical control of environmental pollution, not very environmental protection. Maximize the use of biological control can reduce the pollution of the surrounding environment, while at the pest control meet the people close to the green demand. *B. bassiana*, as an entomogenous fungi, had been widely used for pests control for several decades, which could be a potential control way efficient control and keep species diversity, ecological balance, excellent control. However, very few research was reported for locusta control on garden lawn by using *B. Bassiana*.

This experiment was 5 dominant strains, screening of high virulent strains of locusts, by impregnation method and feeding method, get the best method of indoor bioassay of locusts, The phenol oxidase activity in the locust, *B. bassiana* pathogenicity by time. All the research provide the feasible basis for additive proportion and field application, The conidia of *B. bassiana* powder in germination rate, Pr1 protease activity bioassay to *Ostrinia furnacalis*. *B. bassiana* powder obtained long-term preservation conditions, thereby prolonging the shelf life of *B. bassiana* formulation. also support for new garden lawn biological control research. The result of this study are as follows:

1. The dominant strain 5 tested were effect on locusts are pathogenic, dead larva mortality in 50.%-80.%, The strain D4-2-1 on locust dead rate is highest, so D4-2-1 high virulent strains.

2. Through the locust bioassay of dipping method and feeding method, test data show that at spore concentration is 1×10^8 /mL, it has the best control effect on *Locusta migratoria manilensis*. But

because the 1×10^7 /mL with the mortality of 1×10^8 /mL mortality difference, so the 1×10^7 /mL concentration is optimum, The LT50 of spore suspension with dipping method is 7.4d,; The LT50 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