

# More Fat is A Long Beak Shell of Secondary Metabolism Product of Antibacterial Activity Study

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**Abstract:** To plant pathogenic fungi is ecological system of important composition part can metabolism many kinds of biological activity material. Using paper-disc method detection more fat is a long beak shell bacteria (*Ceratocystis adiposa*) Fermentation extract 130 of pathogenic bacteria of antibacterial activity and the potential antibacterial activity COMPOUNDS OF THERMAL, Acid-base and light stability detection at the same time application OSMAC Strategy looking for more fat is a long beak shell production of antibacterial compounds of best Culture Conditions. Results show that: more fat is a long beak shell bacteria extract on gram-positive bacteria---*Cereus bacillus* (*Bacillus cereus*), *Slow bacillus* (*Bacillus lentus*), *Garcinia micro-cocci*

*Micrococcus luteus* Has Antibacterial Activity, MIC respectively 6.25, 3.125 and 1.562 5 mg/ml Antibacterial compounds has is good heat-resistant, Acid and alkali and resistance to radiation medium Style, Training time and inoculation amount will influence more fat is a long beak shell bacteria antibacterial compounds of Multi-fat is a long beak shell bacteria antibacterial compounds of development use provide reference.

**Keywords:** Plant Pathogenic fungi; more fat is a long beak shell bacteria; secondary metabolism product; antibacterial activity; Liquid Culture

Plant Pathogenic fungi is caused by plant disease of main pathogenic micro-also to human bring widely of medicinal value. According to literature reports of biological but some Pathogenic Fungi to forestry bring destroying the at the same time points Plant Pathogenic Fungi itself or its cause of plant disease organization

First time from yew (*Taxm brevifolia*) Separation of the bark from the cypress (*Taxomyces andreanane*), The endophytic fungi Enough to produce a Terpenoid-Paclitaxel, is recognized in the world today [21.] The most effective anti-tumor drugs. Wang Wait. Studies have found that endophytic fungi from the genus (*Ulocladium sp.*) Fermentation Broth Extraction *Candida Albicans*, *Aspergillus*, *Staphylococcus aureus*, *Bacillus subtilis* and other fungi and bacteria have good antibacterial activity.. Dori<sup>[10]</sup>, There is no report on the antimicrobial activity of the second metabolites of the bacteria, which is the pathogen of sugarcane black rot. This study first detection more fat is a long beak shell bacteria on 130 of pathogenic bacteria of antibacterial activity determination of minimum inhibitory concentration and detection extract antibacterial compounds of stability at the same time with single bacteria more production (One strain-many compounds OSMAC) Strategy liquid culture more fat is a long beak shell bacteria concentration culture medium get extract detection antibacterial activity explore the best culture conditions for Directional training Plant Pathogenic Fungi, Separation purification activity compounds of Research Foundation.

Into 50 mg/mL Extract Solution spare.

1.2.2 Detection extract antibacterial activity preparation for try bacteria suspension: respectively will 130 of for try

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strain inoculation in Solid LB Medium on, 37°C Constant Temperature Training 12 h Activation strain pick single colony inoculation 5 mL Liquid LB Medium in, 37, 180 r/min The culture of to bacteria concentration ( $1 \times 10^6 \sim 6 \times 10^6$ ) [22] 10 cfu/mL Spare. Antibacterial Experiment using paper-disc method. Will the bacteria uniform coating in LB Solid Medium on respectively drop and 10  $\mu$ L More fat is a long beak shell of Different Extract Solution in filter paper ( $\phi=5$ mm) The at the same time a filter paper of drop and 10  $\mu$ L DMSO As a negative control wave dry after posted coated with for try bacteria of Medium on, 37°C Constant Temperature Training 24 h After measurement antibacterial Circle Diameter. 3 Times technology Heavy

Complex experimental. To determine the minimum antibacterial activity (MIC): The two times dilute

ML The more fat is a long beak shell bacteria extract DMSO Solution detection more fat is a long beak shell bacteria extract of thermal, Acid-base and light stability.: Thermal stability Detection: In 30, 50, 70, 90, 100°C Hot water isolated elsewhere

1A water bath Heating 30 min Spare. Acid-Base Stability Detection: the of a Extract Solution PH Value 3, 5, 7, 9, 11 Spare. Light Stability Detection: Take 5A Extract Solution placed UV lamp under irradiation 30, 60, 90, 120, 150 min Spare. With

Paper method detection processing after the extract antibacterial activity were 3 Times technical repeat experimental.

1.2.4 OSMAC Strategy looking for best Culture Conditions To different time, Inoculation amount and medium respectively training more fat is a long beak shell bacteria on its different of extract do activity detection specific as follows: sterile conditions under ground more fat is a long beak shell bacteria cell. Different Medium: respectively inoculation in GSY1, GSY2, GSM1, GSM2, GSB, GSP, GSL, GSS, GST, GSP-S, Omam Liquid Medium in; Different time: in GSSL Liquid Medium in training 5, 10, 15, Natural 20 And 25 d The A; different inoculation amount: Ground 0.2, 0.4, 0.8, 1.6, 3.2

Cell the in GSSL Liquid Medium in training, 28, 150 r/min Shaker Culture 10 d After harvest training.

## 2. Results and Analysis

### 2.1 Detection more fat is a long beak shell bacteria extract Antibacterial Activity

Activity Detection results show that more fat is a long beak shell bacteria extract 13 Of pathogenic bacteria in 3 Of Gram-positive bacteria (Cereus bacillus, Slow bacillus of and rattan Candida albicans) has obvious of antibacterial activity antibacterial circle diameter respectively 8, 1, 8, 0, 8, 7 mm. More fat is a long beak shell bacteria extract in containing effective of Antibacterial Material. More

Fat is a long beak shell bacteria extract cereus bacillus, Slow bacillus of and rattan Candida albicans MIC Were not same respectively 6.25,

1.562 5.3. 125 mg/ml. MIC The small (pathogenic bacteria of extract of sensitivity the greater the pathogenic bacteria of more fat is a long beak shell bacteria extract of sensitivity size for cereus bacillus < Garcinia micro-cocci < Slow bacillus. More fat is a long beak shell of secondary metabolism product in activity components of Gram-positive bacteria has is good antibacterial role.

### 2.2 More fat is a long beak shell bacteria extract Stability

As shown in figure 1 Shown in more fat is a long beak shell bacteria extract solution after different temperature processing, Regulation PH Value and UV irradiation different time after cereus bacillus of and rattan Candida albicans still has antibacterial activity on slow bacillus of no antibacterial activity. Garcinia micro-cocci

The more fat is a long beak shell bacteria extract of sensitivity high. With the temperature increased, PH Value increase UV light time of increase extract cereus bacillus of and rattan Candida albicans of antibacterial activity change is small antibacterial circle diameter present up and down floating of trend no obvious increase or reduce, antibacterial Effect similar can concluded that more fat is a long beak shell bacteria extract containing effective antibacterial

components and has high temperature resistant, Acid and alkali and resistance to UV radiation of Ability.

### **2.3 Comparison of antibacterial activity of different media on the extracts of the bacteria**

Fatty beak shell bacteria in 10 Medium, the extracts extracted with ethyl acetate were extracted and concentrated. 3 Kinds of pathogenic bacteria of suppression effect see table 1. Liquid Medium GSB, GSL, GSM1, GST,

GSP, GSY1, GSY2, Omam Can be make more fat is a long beak shell bacteria produce the cereus bacillus, Slow bacillus, Garcinia micro-bacteria have antibacterial activity of secondary metabolism product antibacterial Experimental show that different medium culture more fat is a long beak shell bacteria get of extract cereus bacillus of and rattan Candida albicans of antibacterial effect difference between obvious, the slow bacillus of have broad-spectrum antibacterial activity, GSL is best medium. GSM2, GSS Training more fat is a long beak shell bacteria of extract 3 Of pathogenic bacteria with different of Antibacterial Activity.

### **2.4 Inoculation amount of more fat is a long beak shell bacteria extract Antibacterial Effect**

More fat is a long beak shell of different inoculation amount Training 10 d After harvest extract by figure 2 The activity Experimental show that inoculation amount will influence more fat is a long beak shell bacteria extract of three pathogenic bacteria of Antibacterial Activity. With the inoculation amount of increase extract of antibacterial activity increased Inoculation 0.4 g This mycelium culture harvest of extract start have antibacterial activity inoculation amount in 1.6 g When extract can significantly suppression garcinia micro-cocci of growth of three pathogenic bacteria of antibacterial effect best. Continue to increase inoculation amount extract antibacterial activity reduce. In different inoculation amount under extract of garcinia micro-cocci of antibacterial effect always is better than cereus bacillus of and slow bacillus of the antibacterial effect similar can

See garcinia micro-cocci on more fat is a long beak shell bacteria extract of sensitivity is high.

### **2.5 The effect of culture time on the more fat is a long beak shell bacteria extract Antibacterial Effect**

After different time culture of extract of antibacterial effect as shown in Figure 3 More fat is a long beak shell bacteria culture 5 d The active secondary metabolism

Product, 10 d Activity reached the highest extract of antibacterial effect best. Then antibacterial activity slightly decreased the trend, 25 d When no antibacterial activity reason may is training time is too long more fat is a long beak shell bacteria metabolism the many kinds of secondary metabolism Product, may produce other of compounds damage the secondary metabolism product in pathogenic bacteria have antibacterial activity of chemical material to lose Antibacterial Activity. Training time will influence the fungi extract of Antibacterial Activity.

## **3. Please On**

This study found, GSL Training more fat is a long beak shell bacteria get of extract of antibacterial effect best antibacterial Circle Diameter 9.7 mm And GSM2 And GSS Training more fat is a long beak shell bacteria get of extract no antibacterial activity (Table 1). Medium the more fat is a long beak shell bacteria of metabolism product of antibacterial activity have influence, its Reason May is the strain in different of medium in the different type of secondary metabolism product or secondary metabolism product of yield different. Inoculation amount and training time also will influence the fat is a long beak shell of secondary metabolism product of Antibacterial Effect. So change medium components and culture conditions were will influence more fat is a long beak shell bacteria antibacterial activity components.

From microbial in screening natural source activity compounds is looking for new drug precursor compounds of effective way one. 2002 Years, Bode<sup>[24]</sup>,

And proposed single bacteria more product strategy OSMAC The Strategy by altering the Culture Conditions, In order to obtain a novel structure, we activated the silent biosynthetic gene cluster in microorganisms by culture methods

and enzyme inhibitors.,New compounds with high activity.OsmacStrategy provides an effective way to develop natural products from microbial sources.[25]

Duan.Lu Xuan *et al*In this paper, the research results of single bacteria multi-product strategy are reviewed. The strategy has been successfully used in the study of secondary metabolites of microorganisms living in different ecological environments.[26]

Multiple Active Compounds.NielsenAspergillus niger was cultured in different medium (Aspergillus nidulans),HPLCThe results showed that the Aspergillus niger was cultured in the agar medium (Cya)China will produce Arugosin, While in the yeast extract medium (Ye)China will not produce ArugosinThis indicates that the kinds of medium will affect[27]

Production of primary metabolites.Application of Xiao zhiye and other reportsOsmacMethods Research, cloud, south, pine, small, beetle, insect, symbiotic bacteriaLeptographium bhutanenseFound that its extract contains-Antibacterial compounds have better heat resistance and radiation resistance.OsmacThe strategy can promote the expression of a large number of metabolic pathways in microorganisms. Changing the fermentation conditions of microorganisms can promote the production of various types of compounds, which has a wide range of applicability in the study of microbial secondary metabolites..

At present, only dozens of Plant Pathogenic Fungi with medicinal value have been identified.8 000Seed [13.], It can be seen that the number of Plant Pathogenic Fungi studied is very small, and the research prospect is very broad..Reports on metabolites of Plant Pathogenic Fungi focus on some plant pathogenic fungi with medicinal value.,Pathogenic Mechanism,Population genetics and molecular biology<sup>[28-31]</sup>,And other aspects of the study moreIgnoring its benefits to mankind.

Noodle.Discover novel structures from fungi,Active secondary metabolites is a hot research topic, and the applicationOsmacMethods To study the secondary metabolites of plant pathogenic fungi can enrich the research contents of microorganisms, and provide a possible way to find new antibiotics lead compounds from natural sources..It is the first time that the antibacterial activity of the Secondary Metabolites produced by the fermentation of the bacteria is reported..This study can provide a theoretical basis for the subsequent separation and purification of active substances, and can also provide a reference for the study of active secondary metabolites of plant pathogenic fungi..

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