

## YIBEIKANG S Application Effects on Animals

### Application effects on pigs

Applying YIBEIKANG S in feed increases feed intake and daily weight gain. Supplementation of 200g/t and 300g/t in feed increased daily weight gain by 3.31% and 7.24% separately. Feed intake had the trend of increase with the increase of supplementation dosage. It is indicated by the trial that supplementation of YIBEIKANG S can improve feed intake, daily weight gain, and feed utilization in pigs. As the dosage of YIBEIKANG S is increased, there is an increasing trend on feed intake. It is indicated by the trial that, adding different levels of YIBEIKANG S in pig's diet could increase pig's feed intake and daily weight gain, lower feed conversion ratio, and improve feed utilization.

### Pig's growth performance

	Dosage (g/t)	Daily weight gain (g/pig)	Daily feed intake (kg/pig)	FCR
Control Group	---	736.4	1.90	2.58
Trial Group 1	200	760.8	1.94	2.55
Trial Group 2	300	789.7	1.99	2.52

### Application effects on chickens

Applying YIBEIKANG S in feed increases feed intake and daily weight gain. Daily weight gain of the trial group added with 200g/t YIBEIKANG S is increased by 2.34%. Feed intake of the trial group added with 300g/t YIBEIKANG S is 5.27% higher than that of control group. As the dosage of YIBEIKANG S is increased, there is an increasing trend on feed intake. It is indicated by the trial that, adding different levels of YIBEIKANG S in chicken's diet could increase chicken's feed intake and daily weight gain, lower feed conversion ratio, and improve feed utilization.

### Broiler chicken's (average) growth performance in whole period (1-42 days old)

	Dosage (g/t)	Daily weight gain (g)	Daily feed intake (g)	FCR
Control Group	---	51.2	85.4	1.67
Trial Group 1	200	52.4	85.9	1.64
Trial Group 2	300	53.9	86.1	1.60

## Product Specification and Recommended Dosage

### In feed (gram per ton formula feed)

Form	Activity (U/g)	Piglet	Growing Pig	Broiler Chicken	Layer Chicken	Other Animals
Solid	≥10000	400	200	300(Starter) 200(Grower and Finisher)	300-400	100-300

## Storage and Shelf Life

Solid-form product shall be stored at room temperature. Shelf Life: 12 months.

## Precautions

As the dose rate of the product is small, please premix before addition into complete feed and ensure mixing uniformity. Finish using the product soon after it is unsealed. Seal the original package tightly after use, and avoid moisture.

# Glucose Oxidase YIBEIKANG S

Product manual



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# 01 | YIBEIKANG S

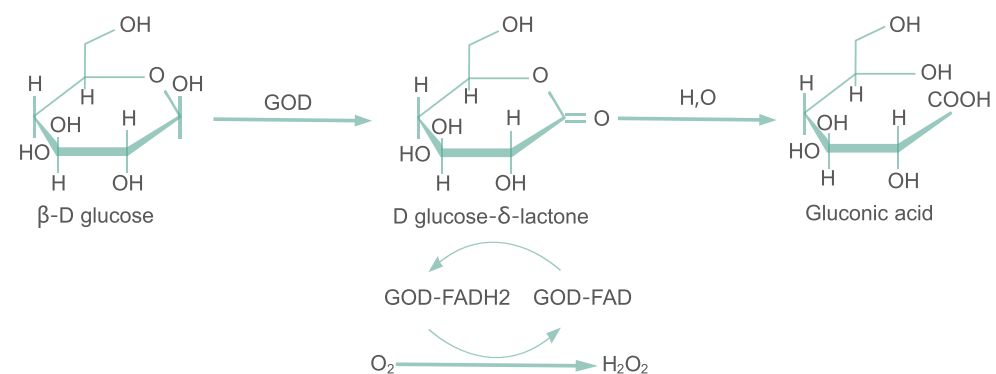
Glucose Oxidase

## YIBEIKANG S

YIBEIKANG S, a high-activity glucose oxidase product developed and manufactured by Guangdong VTR Bio-Tech Co.,Ltd. with the application of modern bioengineering technology, advanced microbial breeding technology, fermentation technology, and post-treatment technology etc., for the aim of adjusting livestock and poultry intestinal conditions, improving the balance of intestinal micro-flora, restraining mycotoxin, and improving the growth of beneficial microbes.

### Introduction

The main active ingredient of YIBEIKANG S is glucose oxidase, which oxidizes glucose to generate gluconic acid and hydrogen peroxide and decreases the pH of intestines, and creates acid condition for the growth of beneficial microbes, e.g. lactic acid bacteria. Hydrogen peroxide, produced by the reaction, has sterilization effect. When hydrogen peroxide accumulates and reaches a certain level, it directly inhibits the growth and reproduction of pathogenic bacteria, e.g. E. coli, salmonella, pasteurilla, staphylococcus, and vibrio.



Catalytic mechanism of Glucose Oxidase



# 02 | YIBEIKANG S

Glucose Oxidase

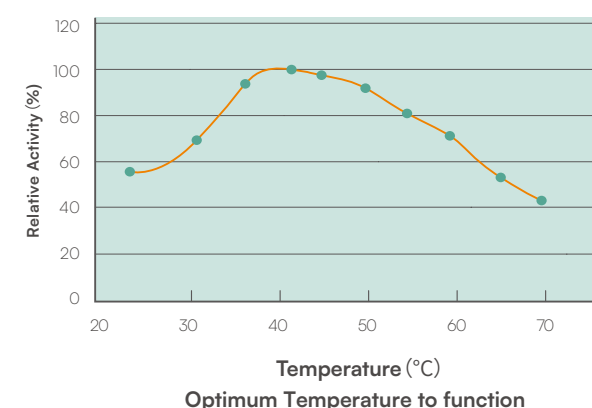
## Definition of Activity

The amount of enzyme required to catalyze the conversion of 1μmol of β-D-glucose to D-gluconic acid and H<sub>2</sub>O<sub>2</sub> per minute at pH5.5 and temperature 37°C is one unit of enzyme activity (U).

## Zymological Properties of YIBEIKANG S

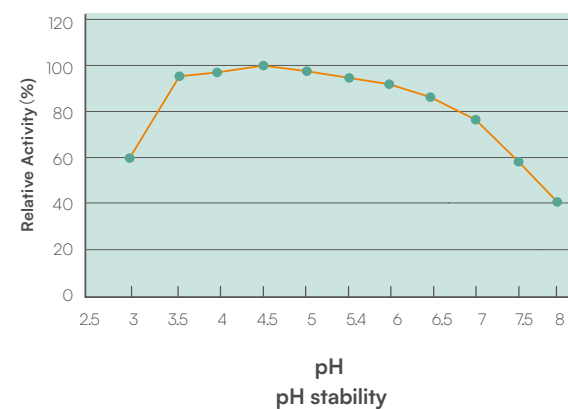
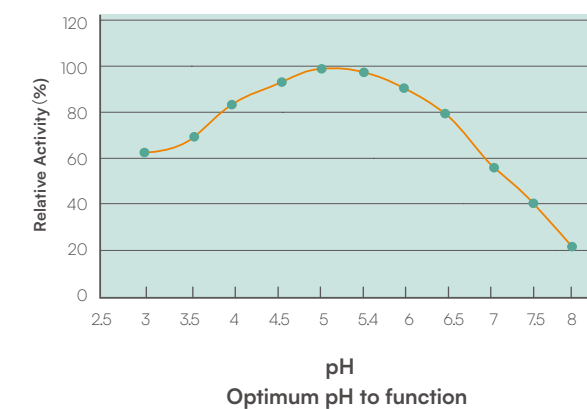
### Optimum temperature to function

The optimum temperature for YIBEIKANG S is 35-40°C, in accordance with body temperature of livestock and poultry, in which the product fully functions.



### Optimum pH to function and Acid-Base Resistance Properties

YIBEIKANG S functions with stable activity in pH range of 3.0-8.0, and peaks in pH 5.0 condition. The product has high activity in animal digestive tracts. It has better acid resistance property when mixed in feeds.



# 03 | YIBEIKANG S

Glucose Oxidase

## YIBEIKANG S Function

### Eliminate the living conditions of intestinal pathogens, reduce infection, and partly replace antibiotics

Glucose oxidase catalyzes glucose in intestines to generate hydrogen peroxide, which has sterilization effect. When hydrogen peroxide accumulates and reaches a certain level, it directly inhibits the growth and reproduction of E. coli, salmonella, pasteurilla, staphylococcus and vibrio.

### Prevent and relieve poisoning from different mycotoxin

Glucose oxidase can minimize the toxic effect of mycotoxins in feed and therefore improve animal immunity. Glucose oxidase can detoxicate by destroying the chemical structure of several kinds of mycotoxin such as toxin by aspergillus flavus, aspergillus niger, penicillium. Especially it detoxify Aflatoxin B1 quite well.

### Keep the ecological balance of intestinal flora, and improve immunity

Oxygen in intestines is consumed in the process of glucose oxidative reaction, which creates anaerobic conditions for the growth and reproduction of anaerobic beneficial microbes. Moreover, the large scale proliferation of beneficial microbes forms microecological competitive advantages and inhibits the survival of pathogenic bacteria, e.g. E. coli, salmonella. As a result, with pathogenic bacteria controlled, body immunity of animal is improved.

### Protect epithelial cell of intestinal tract, and keep the outbreak of coccidiosis under control

With an anti-oxidative effect, glucose oxidase eliminates free radicals, preserves the integrity of intestinal epithelial cells, inhibits coccidiosis and pathogens, and improves poultry immune function.

### Lower pH value in gastrointestinal tracts, and improve digestibility and absorption

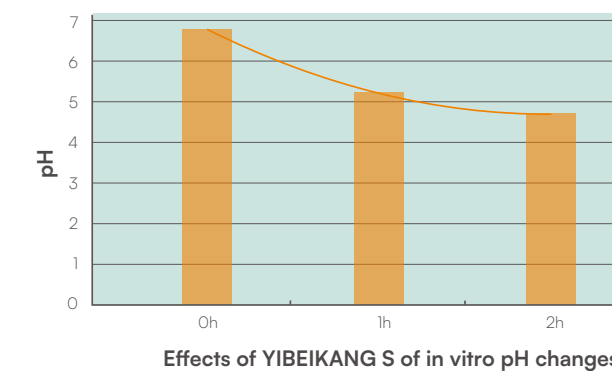
Glucose oxidase catalyzes glucose to generate gluconic acid, which contributes to persistent activity of digestive enzyme and the digestion of feed. It improves feed palatability, and helps animals recover from anorexia, poor digestion and diarrhea.

### Ensure the quality of feed ingredients and feed

Anaerobic conditions created by glucose oxidase accelerates the fermentation of lactic acid bacteria, rapidly reduces ambient pH value, inhibits the reproduction of harmful bacteria, and ensures the quality of silage.

## In vitro pH value change test

Add 100U of YIBEIKANG S into 100ml 5% glucose solution for oscillating reaction for one hour at 37°C temperature, pH value is reduced from 6.8 to 5.2, and to 4.8 after 2 hours. It is indicated that YIBEIKANG S could rapidly oxidize glucose and generate gluconic acid to reduce pH value in digestive tracts.



Effects of YIBEIKANG S of in vitro pH changes

