HUNAN PERFLY BIOTECH CO., LTD.

Address: No.1038 Zhongqing Road, Jinxia Economic Development Zone, Kaifu District, Changsha, Hunan, P. R. China

Tel: +86-731-84699028/84699058/84699158

Fax: +86-731-84699030

Web: http://www.perfly-bio.com

PERFLYBIO®

PerMicro Cyc

Broad-spectrum Bacteriostasis

Strong Resistance

Controllable Quality

Safe Antibiotics-free

PERFLYBIO / www.perfly-bio.com

PeMicro Cyc is a microecological preparation with high cost performance and broad-spectrum bacteriostatic function, produced by Hunan Perfly Biotech Co., Ltd. It has a significant inhibitory effect on pathogenic bacteria such as *Escherichia coli, Salmonella, Shigella, Vibrio, Staphylococcus aureus,* and *Clostridium perfringens*.

Composition

This product contains *Bacillus subtilis* and cultures, the effective viable bacteria is 1.0X 10^{10}cfu/g.

Species

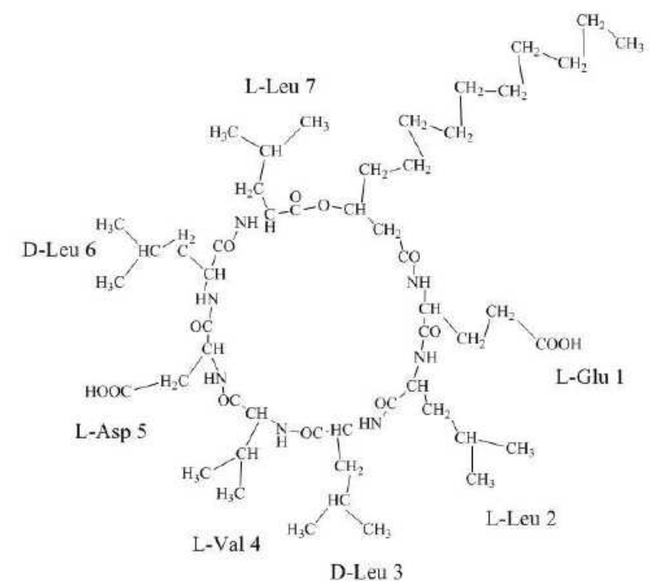
For livestock, poultry, aquatic products, etc.

Intestinal health is vital important to the production performance of breeding animals and economic benefits. Before antibiotics are banned, it is common for us to use antibiotics to regulate the structure of intestinal flora and to control pathogenic bacteria, thereby promoting growth by resisting bacteria. After antibiotics are banned, it is commonly required for breeding animals to resist bacteria. So how to promote growth by resisting bacteria is husbandry pursue.

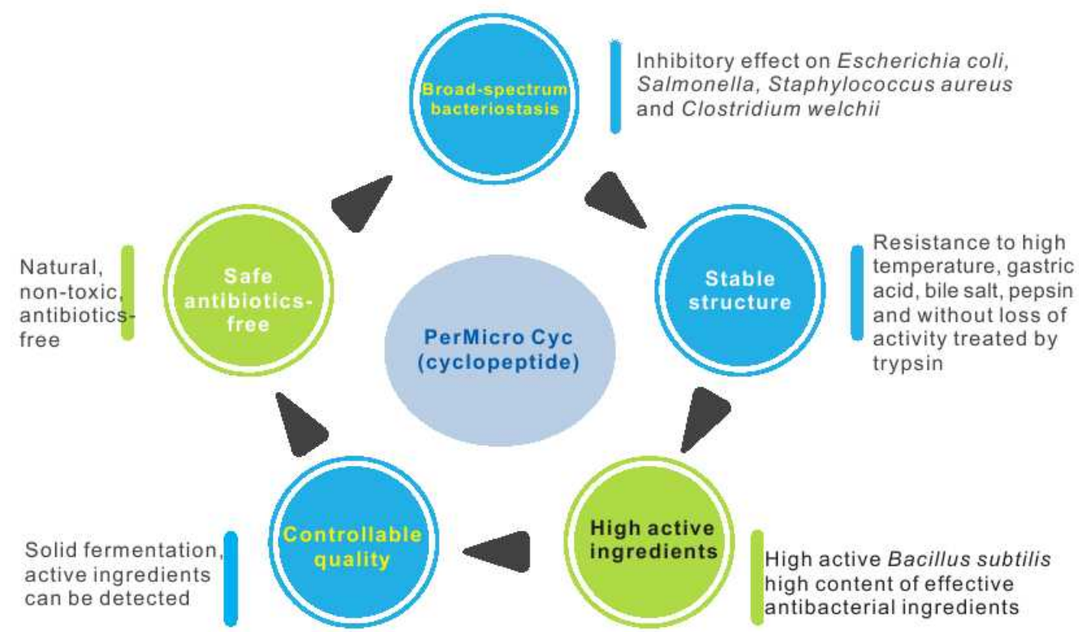
Subtilin (cyclopeptide) is the metabolite of *Bacillus subtilis*, and it is a functional active peptide with broad-spectrum antibacterial function. It has a significant inhibitory effect on pathogenic bacteria such as *Escherichia coli, Salmonella, Staphylococcus aureus, Clostridium welchii, Clostridium botulinum, Vibrio*, etc., and has a good effect on regulating the body's immunity and reducing inflammation. Subtilin (cyclopeptide) is harmless to the human body, non-toxic, self-degradable, non-polluting to the environment, not deactivated in high temperature, acidic and alkaline environments, strong resistance to stress, and meets the requirements of feed processing technology.

PerMicro Cyc is a probiotic product from the strain screened and optimized by Perfly to go through fermentation and purification, containing antimicrobial metabolites of *Bacillus subtilis,* which has a significant inhibitory effect on pathogenic bacteria such as *Escherichia coli, Salmonella, Shigella, Vibrio, Staphylococcus aureus* and *Clostridium perfringens*.

Cyclopeptide structure



Feature



1. Broad-spectrum bacteriostasis

It has a significant inhibitory effect on pathogenic bacteria such as *Escherichia coli*, *Salmonella*, *Shigella*, *Vibrio*, *Staphylococcus aureus* and *Clostridium perfringens*.

Table 1. The inhibitory effect of PerMicro Cyc on common pathogenic bacteria

	Gram-negative bacteria						Gram-positive bacteria		
	E. coli	*Salmonella*	*Pasteurella*	*Vibrio*	*Bacterium burgeri*	*Pseudomonas aeruginosa*	*Staphylococcus*	*Clostridium welchii*	*Streptococcus*
Salinomycin							++	+	+
Avilamycin							+	++	+++
Bacitracin							++	++	+
Stafac							++	+++	+
Enramycin							++	+++	+
Nosiheptide							++	++	+
Kitasamycin							++	+	+
Olaquindox	+++	+++	++	+		+	+		
Colistin sulfate	+++	+++	+++	+	+++	+++			
Oxytetracycline	+	+	+	+	+		++	+	++
Chlortetracycline	+	+	+	+	+		++	+	++
PerMicro Cyc	+++	+++	++	++	+	+	+++	+++	++

2. Stable and strong resistance

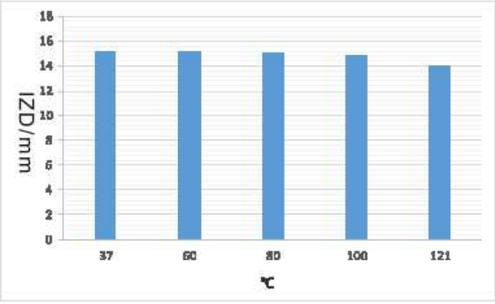


Figure 1. The inhibitory effect of PerMicro Cyc on *E.coli* at different temperature

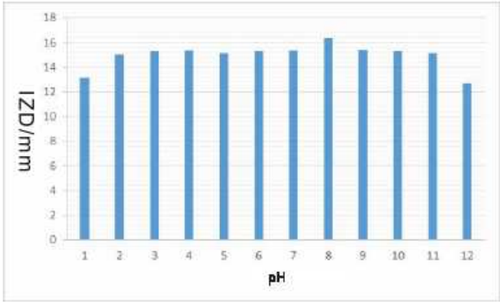


Figure 2. The inhibitory effect of PerMicro Cyc on *E.coli* at different pH

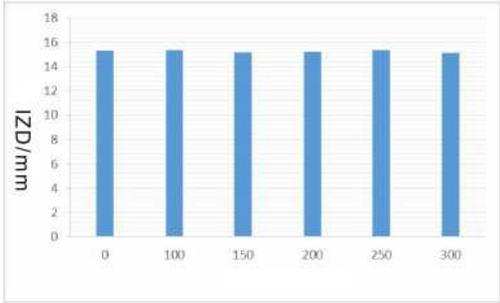


Figure 3. The inhibitory effect of PerMicro Cyc on *E.coli* at different concentrations of pepsin

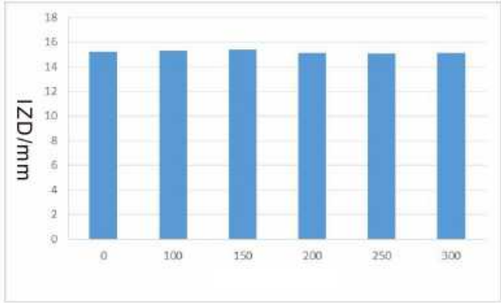


Figure 4. The inhibitory effect of PerMicro Cyc on *E.coli* at different concentrations of trypsin

3. Controllable quality

The content of active ingredients can be quantitatively determined by liquid chromatography.

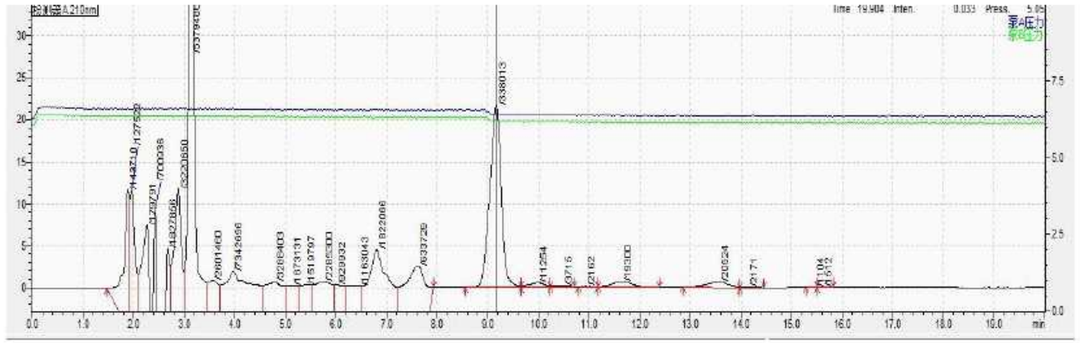


Figure 5. The content of active ingredients determined by HPLC

4. Safe and antibiotics-free

Table 2. The antibiotics in PerMicro Cyc

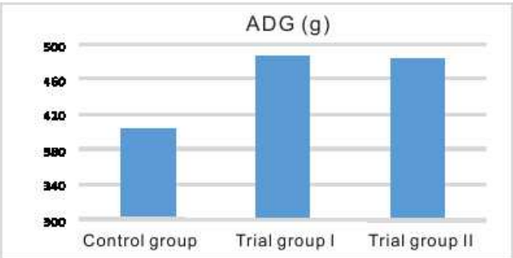
Name	Result	Name	Result
Chlortetracycline	No detection	Quinocetone	No detection
Oxytetracycline	No detection	Stafac	No detection
Salinomycin	No detection	Colistin sulfate	No detection
Kitasamycin	No detection	Avilamycin	No detection
Bacitracin	No detection	Enrofloxacin	No detection
Nosiheptide	No detection	Clenbuterol	No detection
Olaquindox	No detection	Ractopamine	No detection

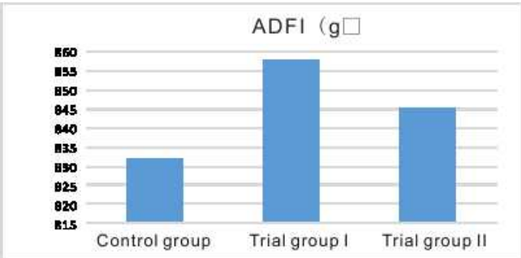
▶PAGE 03-04

Applied effects

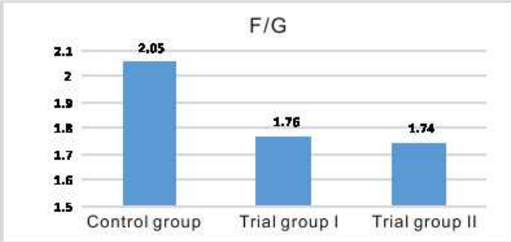
1. The effects on pig nursery feed

90 piglets were selected for this trial, each weight was 10 kg. They were randomly divided into three groups, each group had three replicates, each replicate had 10 piglets. The rearing trial lasted for 30d. Control group was fed with basal diets, trial group I was fed with 75ppm chlortetracycline,50ppm quinocetone and 50ppm kitasamycin based on basal diets; trial group II was fed with 500g/t PerMicro Cyc.





▶PAGE 05-06



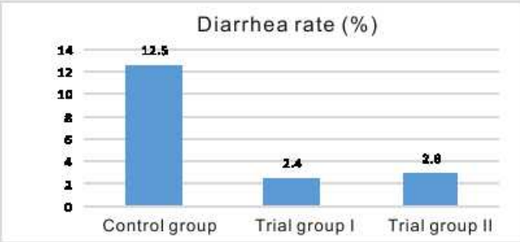
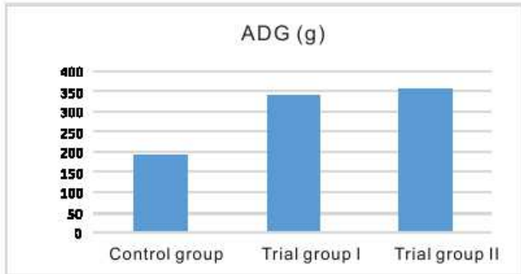
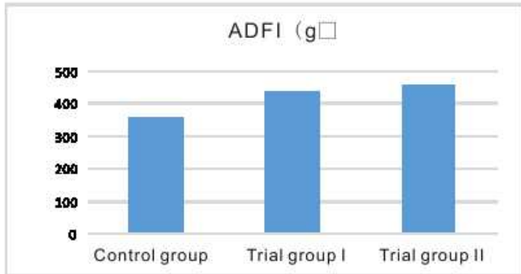


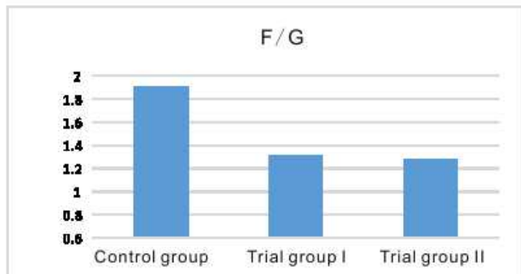
Figure 6. The effect of PerMicro Cyc on production performance and diarrhea rate of weaned piglets in nursery feed

2. The effects on pig creep feed

90 weaned piglets (21-day-old)were selected for this trial. They were randomly divided into three groups, each group had three replicates, each replicate had 10 piglets. The rearing trial lasted for 30d. Control group was fed with basal diets, trial group I was fed with 75ppm chlortetracycline,50ppm quinocetone and 50ppm kitasamycin based on basal diets; trial group II was fed with 500g/t PerMicro Cyc.







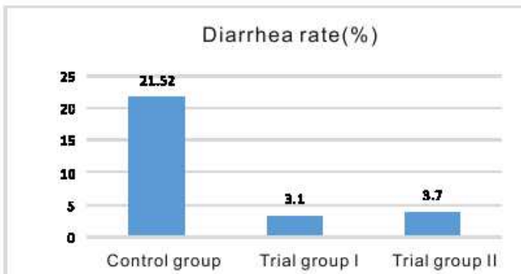
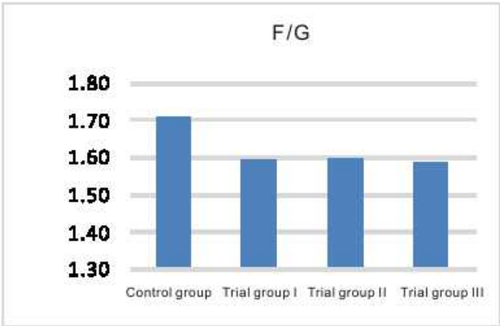


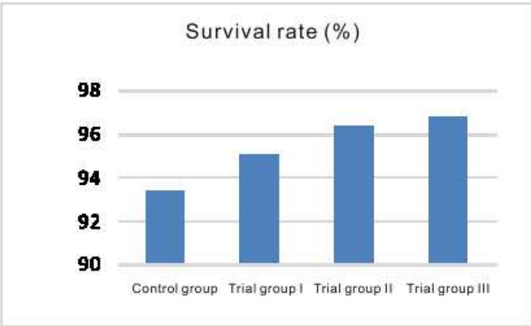
Figure 7. The effect of PerMicro Cyc on production performance and diarrhea rate of weaned piglets in creep feed

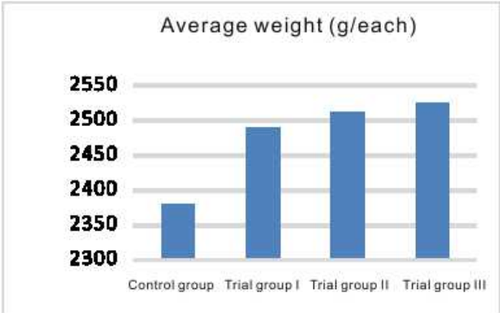
3. The effects on broiler feed

1200 feather healthy AA broilers(1-day-old) were selected for this trial, each weight was 41g, male and female were in half. They were divided into four groups, each group had three replicates, each replicate had 100 feather. Control group was fed with basal diets, trial group I was fed with 12ppm enramycin based on basal diets; trial group II was fed

with 150g/t PerMicro Cyc based on basal diets; trial group III was fed with 300g/t PerMicro Cyc based on basal diets; the rearing trial lasted for 42d. Anticoccidial drug can be normally used in control group and trial groups.







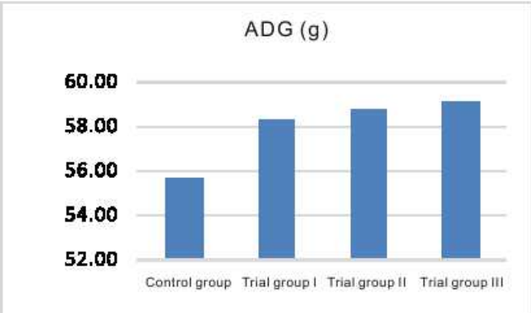
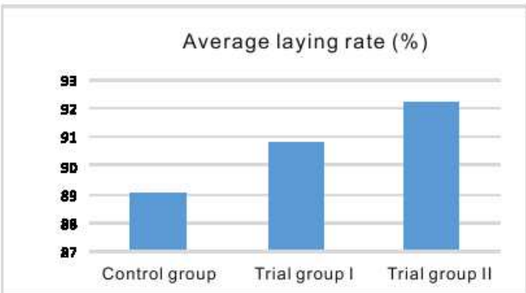
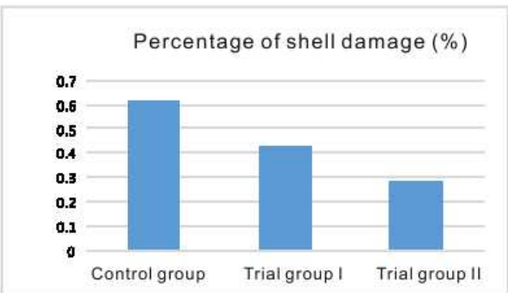


Figure 8. The effect of PerMicro Cyc on production performance of AA broilers

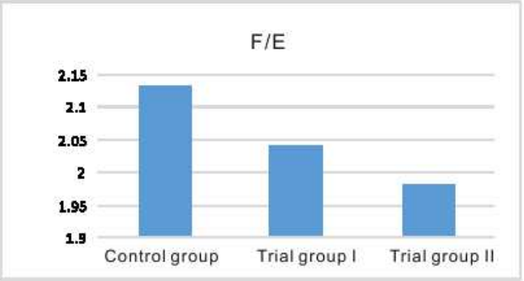
4. The effects on laying hen feed

900 HY-LINE VARIETY BROWN laying hens (300-day-old) were selected for this trial. They were divided into three groups, each group had three replicates, each replicates had 100 feathers. Control group was fed with basal diets, trial group I: basal diets+100g/t plant essential oil, trial group II: basal diets+150g/t PerMicro Cyc, pre-start period had 7 days, formal trial period had 6 weeks.





▶PAGE 07-08



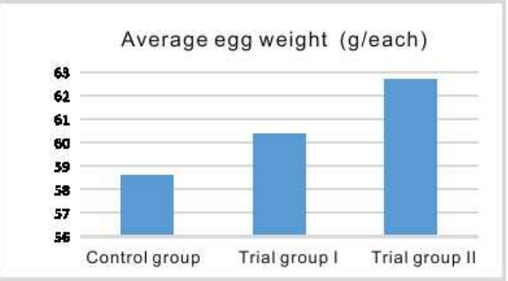


Figure 9. The effect of PerMicro Cyc on production performance of laying hens

Usage & dosage

1. Dosage

Compound feed allowed to add this product, concentrated feeds, premixes are in proportion to add this product after conversion:

	Creep feed	Nursery feed	Pig feed	Meat poultry	Laying poultry	Aquatic
Dosage	300-500 g/T	200-500 g/T	200-300g/T	100-200g/T	100-200g/T	200-500g/T

2. Usage

In order to ensure uniformity in the feed, the use of this product need to be premixed firstly, and then gradually added to the follow-up feed.

Note

1.This product has no contraindications and can be used in conjunction with drugs, essential oils, benzoic acid and other additives.

2.This product has no residue, no withdrawal period, and can be used for a long time.

3.The product is a fermented product, and there are slight color differences between batches, but it does not affect the product effect.

4.This product is used as soon as possible after unpacking, the remaining parts need to tie up and keep in dark place.

5.Keep away from heat, moisture and direct sunlight, not with toxic and harmful substances mixed.

Package

This product is packaged in a bag, the net weight of product is 25kg, and details see the package label.

Shelf life

Under the condition of original package, the shelf life is 12 months.