

- 11 Diego P M , James C N , David E B. Stability and stabilization of potential feed additive enzymes in rumen fluid[ J ]. Enzyme and Microbial Technology , 2000( 26 ) :171~177
- 12 周利梅. 微生态制剂在饲料中的应用[ J ]. 粮食与饲料工业 , 2000( 11 ) :29~31
- 13 曾庆亮. 新型饲料添加剂—微生态制剂. 饲料工业 , 1999 , 20( 2 ) :24~25
- 14 姜文侠 , 史连生 , 李 韬等. 饲用微生态制剂—益生菌[ J ]. 动物科学与动物医学 , 2000 , 17( 2 ) :57~59
- 15 罗本荣. 利用微生态制剂 , 提高饲料安全性[ J ]. 四川畜牧兽医 , 2000( 23 ) :125
- 16 何丽华 , 郭建文 , 胡永红. 益生素的分类及应用简介[ J ]. 江西畜牧兽医杂志 , 2001( 6 ) :36~37
- 17 刘春朝 , 钱新民 , 高登文等. 光合细菌饲料添加剂的发酵工艺及蛋鸡饲养实验[ J ]. 饲料工业 , 1995 , 16( 4 ) :27~28
- 18 张锦华 , 郭祝宁 , 宁 财. 微生物饲料添加剂[ J ]. 江西畜牧兽医杂志 , 1999( 5 ) :35~36
- 19 田允波 , 葛长荣 , 张 曦. 益生素的和应用现状( 续 I ) [ J ]. 兽药与饲料添加剂 , 1999 , 3( 3 ) :36~39
- 20 Elina M T , Arthur C O. The effect of probiotic bacteria on the adhesion of pathogens to human intestinal mucus[ J ]. FEMS Immunology and Medical Microbiology , 1999 , 20( 2 ) :137~142
- 21 Christiane Forestier , Christophe De Champs. Probiotic activities of *Lactobacillus casei rhamnosus* in vitro adherence to intestinal cells and antimicrobial properties[ J ]. Res Microbiol , 2001 , 152( 2 ) :167~173
- 22 Maia O B , Duarte R , Silva A M et al. Evaluation of the components of a commercial probiotic in gnotobiotic mice experimentally challenged with *Salmonella enterica subsp. enterica ser* [ J ]. Typhimurium. Veterinary Microbiology , 2001 , 79( 2 ) :183~189
- 23 He Fang , Tuomola Elina , Arvilommi Heikki , et al. Modulation of humoral immune response through probiotic intake[ J ]. FEMS Immunology and Medical Microbiology . 2000 , 29( 1 ) :47~52
- 24 Harsharnjit S G , Kay J R. Probiotic supplementation to enhance natural immunity in the elderly : effects of a newly characterized immunostimulatory strain *Lactobacillus rhamnosus* [ J ]. HN001 ( DR20( tm ) ) on leucocyte phagocytosis[ J ]. Nutrition Research . 2001 , 21( 1-2 ) :183~189

## Advances in Green Feed Additives

Deng Li Rui Hanming

( Food Eng Dept , South China University of Technology , Guangzhou , 510640 )

**ABSTRACT** Green food additives have conquered the negative effect of non-nutritional feed additives. They are natural feed additives that are non-pollution , non-leftover and anti-diseased. Moreover , they can promote the growth of animal. So it is widely used in feed industry. The functional mechanism , effect and application of Chinese herb feed additive , enzyme preparation and microbial preparation were summarized in this paper.

**Key words** Chinese herb feed additive , enzyme preparation , microbial preparation , functional mechanism

### 行业动态

#### 意大利将在天津投资大型无菌包装生产线

意大利高利尔集团将投资 3 000 万美元 , 在天津保税区空港加工区建设具有世界先进水平的大型无菌包装基地。

意大利高利尔集团是欧洲包装领域的最大集团 , 主要产品为各种类型的软包装袋、包装机械及高级可折叠硬纸板盒 , 产品覆盖欧洲和北美地区 , 并与我国企业有着良好业务往来。该集团经过多方考察 , 决定在天津保税区空港加工区投资建设具有当今世界最先进水平的无菌包装袋生产基地。该项目的建成对提高天津市包装产业的整体水平具有积极促进作用。