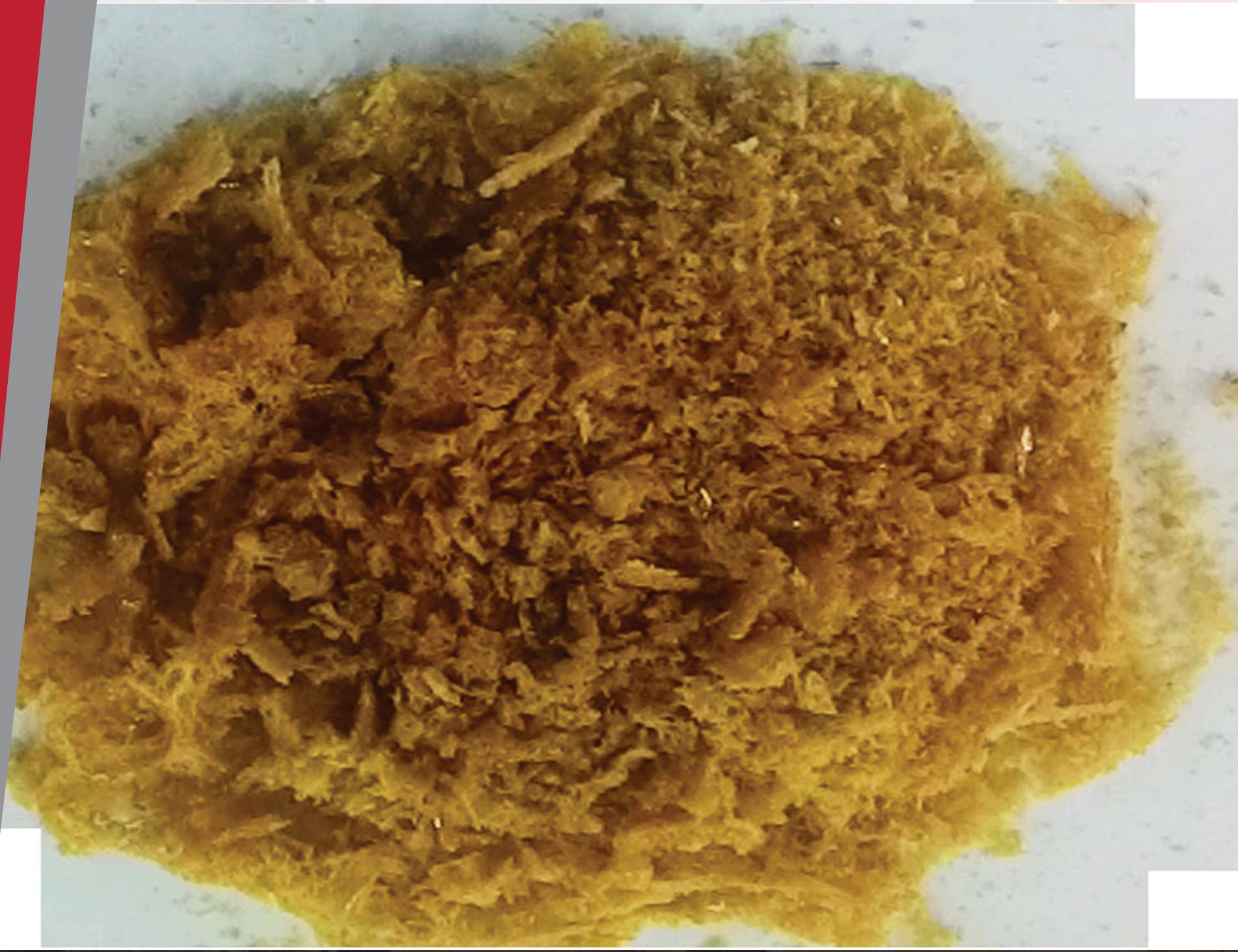


## OligoPKC -Good prebiotic-



OligoPKC extract from palm kernel cake

### About the Product

- Palm kernel cake (PKC) is a main byproduct from the palm oil industry. Malaysia produces 2.2 million tonnes of PKC annually.
- 1% of OligoPKC in diet of chickens significantly increased population of *Lactobacillus* and *bifidobacteria* and reduced population of *Enterobacteriaceae* and *E-coli* in the intestine of broiler chickens. It also increase the immunoglobulin level of serum.
- OligoPKC in diet of chickens (1%) also significantly reduced population of *Salmonella* in the intestine of broilers and at the same time improved the immune responses of chickens.

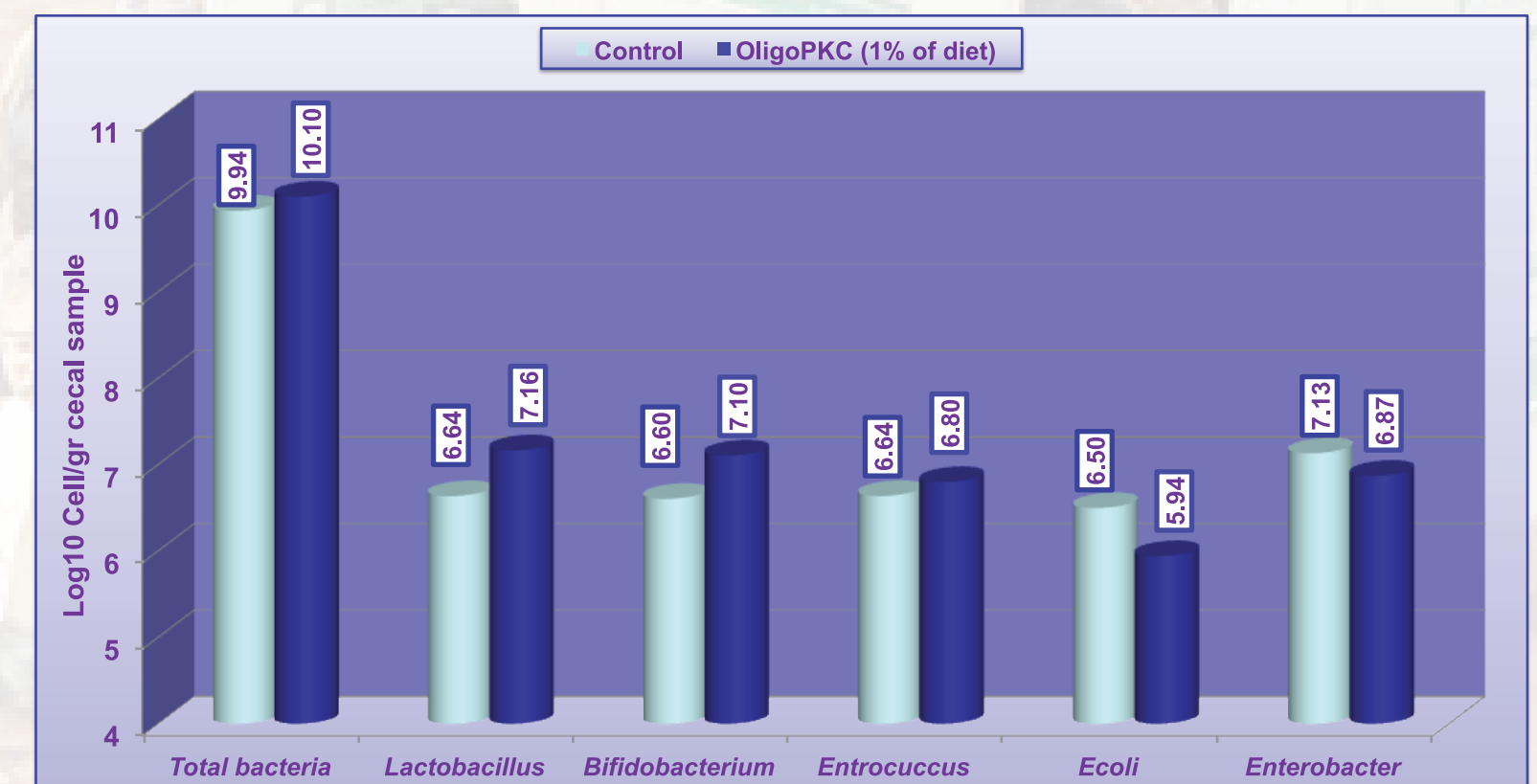
### How It Works?

- The cell wall components of PKC consists of 580 g/kg mannan (Mohd-Jaafar and Jarvis 1992).
- Mannan-oligosaccharides are the main oligosaccharides in OligoPKC which are good sources of prebiotic.
- 17% of OligoPKC (Mannan-oligosaccharides) can be extracted from row PKC using our current extraction method. Ongoing research in our laboratory suggests that approximately 40% of OligoPKC can be extracted.

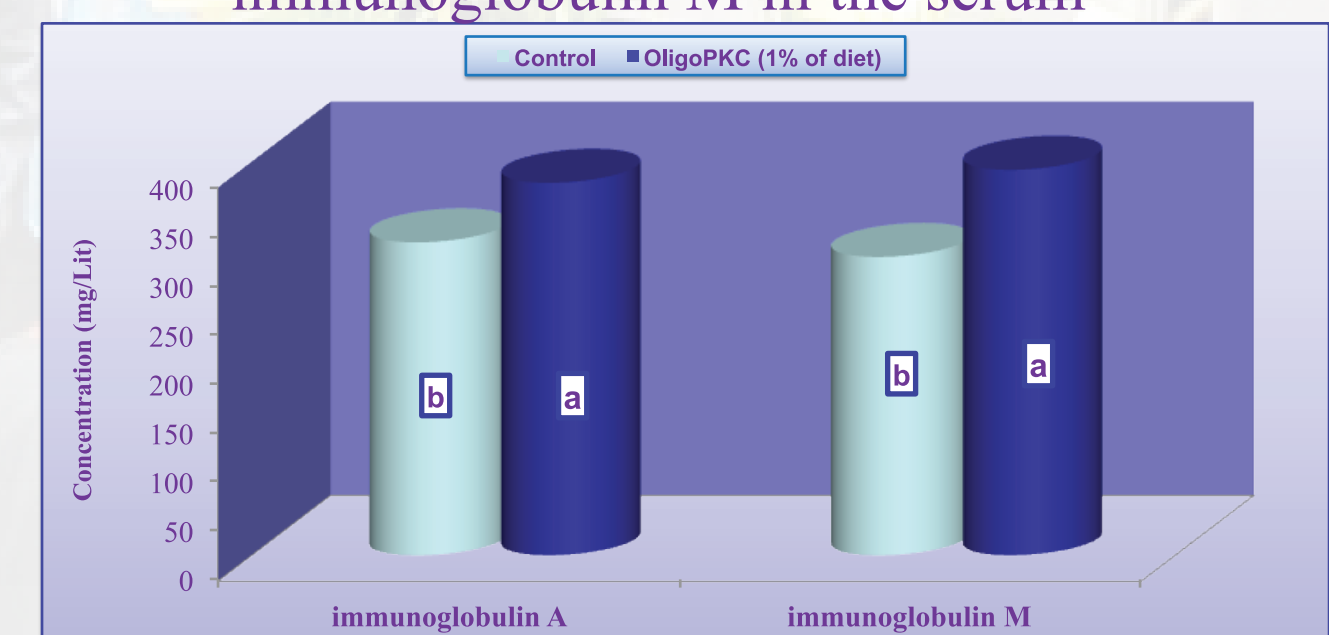
### Introduction

- Prebiotics are non-digestible food ingredients that stimulate the growth and/or activity of bacteria in the digestive system in ways claimed to be beneficial to health.
- In general, prebiotic components are non-digestible oligosaccharides or disaccharides.
- In the feed industry, prebiotic can be used as antibiotic replacement.

**OligoPKC (1%) supplementation** increased population of beneficial bacteria (*Lactobacillus*, *Lactococcus* and *bifidobacteria* ) and reduced population of pathogens (*Enterobacteriaceae* and *E-coli*) in the cecum of broilers



**OligoPKC (1%) increase level of immunoglobulin A and immunoglobulin M in the serum**



### Market Potential

- Annual production of PKC in Malaysia = 2.2 million tons.
- Which can produce 370,000 tons of OligoPKC.
- Price of PKC as ruminant feed (most common use of PKC now) = US \$ 0.10 to 0.20/kg
- Price of commercial prebiotic (Biomax, Alltech, USA) = US\$ 14/kg.



**Project Leader :** Dr. Liang Juan Boo  
**Co-Researchers :** Dr. Mohammad Faseleh Jahromi  
**Institute :** Tropical Agriculture  
**Email :** jbliang@upm.edu.my  
**Tel :** +603-8947 1390  
**Expertise :** Animal nutrition