



**WHERE THE GLOBAL  
PET FOOD INDUSTRY  
DOES BUSINESS**  
Kansas City Convention Center  
Kansas City, Missouri, USA



Center for Philanthropy Fundraising School and of two programs for entrepreneurs, including one with an international business focus. She has a degree in secondary education and French from the University of Wyoming.

## **Novel probiotic freeze-dried products as functional pet treats or pet food ingredients**

*J.J. Lin, Ph.D., chief scientist, Imagilin Technology LLC*

### **Session purpose:**

Demonstration of non-spore forming, high temperature and acid resistant probiotics, *Pediococcus acidilactici* NRRL B-50517, as the choice of probiotics for preparation of probiotic freeze-dried products. The health benefits of *Pediococcus* probiotics make these probiotic freeze-dried products as functional pet treats or as functional ingredients for pet foods.

### **You will learn:**

1. Upon completion, participant will be able to learn probiotic freeze-dried meats, fruits and vegetables can be achieved by using *Pediococcus acidilactici* NRRL B-50517.
2. Upon completion, participant will be able to recognize the unique physical and biological characteristics of *P. acidilactici* NRRL B-50517.
3. Upon completion, participant will be able to apply the health benefits of *P. acidilactici* NRRL B-50517 to probiotic freeze-dried products as functional pet treats or functional pet food ingredients.

### **Abstract detail:**

Probiotics can increase the nutritional value of foods by helping animals' digestion and immune systems. A non-spore forming probiotic, *Pediococcus acidilactici* NRRL B-50517, is resistant to high temperatures (up to 185 F) and stomach acids by allowing live probiotics to reach the gastrointestinal tracts. Dogs and cats under the stress caused by physical separation from their owners or undergoing prescription treatments were shown to have increased appetites and decreases the digestive disorders by applying *P. acidilactici* probiotics. After animal and human were administered *P. acidilactici* probiotics, the immune responses such as increase of macrophages multiplication, antibody production, and decrease of pro-inflammatory biomarkers such as IL-6 and IL-23 were demonstrated. The freeze-drying process allows food to retain most of its flavor, color, texture and nutritional value with minimal processing. Adding *Pediococcus acidilactici* NRRL B-50517 to freeze-dried food can be achieved. *P. acidilactici* NRRL B-50517 not only remains alive after storage at room temperature but also keeps the same characteristics of resistance to high temperature and acidic environment and shows similar tolerance to antibiotics treatment. Different sizes of probiotics freeze-dried products can be prepared such as the functional pet treats as well as functional ingredients for pet foods to eliminate the challenges of integration of live probiotics into conventional dried pet treats or pet foods.



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### **Biography:**

Lin is the chief scientist of Imagilin Technology and an adjunct professor of Hood College in Frederick, Maryland. At Imagilin, Lin leads the group to develop novel, patented plant-based probiotics, *Pediococcus acidilactici* NRRL B-50517. With more than 30 years of experience in microbial physiology, microbial genetics and molecular biology at academic research institutes as well as at commercial research and development division, Lin has published more than 50 papers and is frequently invited to present scientific results in many international conferences. From years of research and development, the research group leads Imagilin to have six issued and seven pending patents related to compositions and applications of *Pediococcus*-based probiotics, including the patent pending about the integration of Probiotics into pet food/treat through freeze-dried process. Lin earned a bachelor's degree in plant pathology from the National Taiwan University, a doctorate in molecular virology from the University Of California and postdoctoral work in microbiology and genetics at Cornell University.

### **Protein from wood: Nutritional, economical, safe and sustainable ingredient for performance dogs and cats**

*Ricardo Ekmay, Ph.D., animal nutrition director, Arbiom*

### **Session purpose:**

Ricardo Ekmay will present the data and analysis from material handling studies currently underway, notably on performance in extrusion conditions, as well as data on the nutritional performance of wood-derived SCP as a protein source in dogfood.

### **You will learn:**

1. Identify the potential nutritional and technical performance benefits of enhanced torula yeast from wood as an alternative protein source for dogs and cats.
2. Assess the latest findings from material handling (including extrusion) studies, and nutritional performance data from preliminary *in vivo* dog trial taking place in Q1 2019.
3. Understand the wood to food technology platform to produce protein-rich ingredient for dog and cat foods.

### **Abstract detail:**

The focus of this presentation is to demonstrate the potential nutritional and technical benefits of enhanced torula yeast (*Candida utilis*) produced from wood as a protein-rich, AAFCO-approved protein ingredient for dog and cat foods. The presentation will provide an introduction to a novel protein-rich ingredient produced from wood, including preliminary research and data from material handling studies and dog trials in 2019. Single-cell proteins (SCP) are growing as a class of alternative proteins for animal feed, and offer compelling benefits as a protein source for performance dog and cat foods. In particular, enhanced torula yeast produced from wood can deliver improved nutrition as a protein source, with additional benefits such as functional fibers, savory taste without the allergens or safety risks posed by