Innovative Ingredients for Pet Health

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OmniPET NUTRITION
Canada's private label pet food specialist

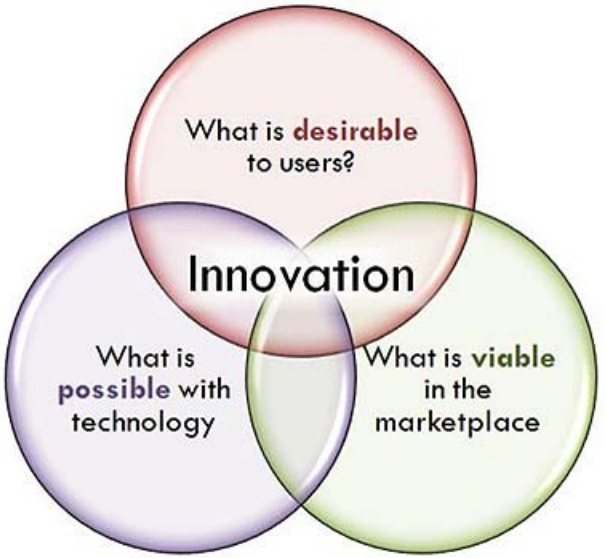
"We are passionate about enhancing the lives and well-being of the pets we feed."

Topics

- Botanicals
- Prebiotics & probiotics
- Joint health
- Weight management
- Oils

Why do Innovative Ingredients Matter?

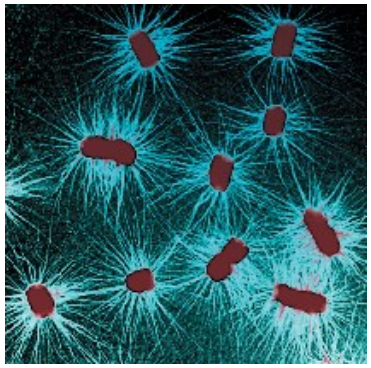
- Unique market positioning
- Pet food follows human food trends
- Health promotion
- Therapeutic benefits



Botanicals

Cranberry

- Urinary tract infection: fimbriae on *E. coli* bacteria stick to bladder wall
- Proanthocyanidins prevent attachment
- May help to prevent urinary tract infections by up to 30% by reducing adherence of bacteria



Cranberry

- 8-10 oz/d cranberry juice
- Human dosage: 1-6 capsules per day each containing 300-400 mg of cranberry juice extract

Chamomile

- Proposed to calm anxiety and to prevent indigestion and bloating
- Allergy risk
- Not recommended during pregnancy
- Human dosage: 400-1600 mg/d as capsules/tablets

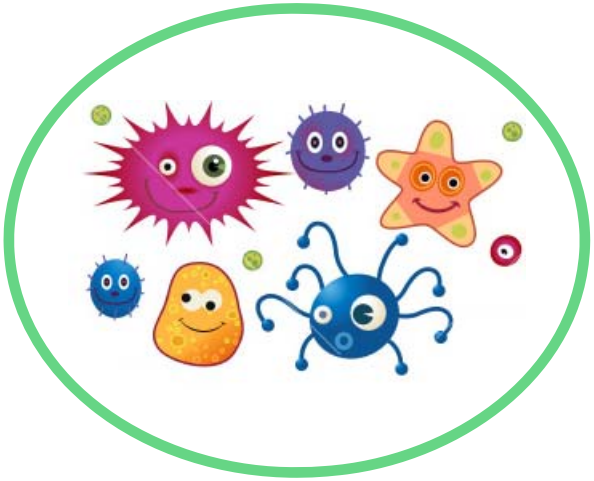
Turmeric

- Major constituent is curcumin, a polyphenol responsible for bright yellow color
- Anti-inflammatory, antioxidant and anti-proliferative properties
- Human studies have used 750 mg – 1.5 g/d of turmeric
- Dietary intake in Indian population is 2-2.5 g/d turmeric, 60-200 mg curcumin

Yucca Schidigera

- Reduce fecal odour
- Saponins act by reducing sulfur compounds and ammonia production
- No effect on palatability, mineral utilization, digestibility or fecal consistency
- May have anti-inflammatory and anti-oxidative activity
- Maximum 125 ppm

Prebiotics & Probiotics



Prebiotics

- A non-digestible carbohydrate that modulates the activity of intestinal microorganisms
- Probiotics + Prebiotics = Synbiotics

Prebiotics

- Chicory
- Inulin
- Oligofructose (OF)
- Short-chain fructo-oligosaccharides (scFOS)
- Yeast cell wall (mannanoligosaccharides, MOS)
- α-galacto-oligosaccharides (GOS)
- Isomalto-oligosaccharides (IMO)
- Lactosucrose
- Lactulose
- Maltodextrin-like oligosaccharides (MD)
- Transgalacto-oligosaccharides (TGOS)
- Xylo-oligosaccharides (XOS)
- HMW pullulan
- γ-cyclodextrin

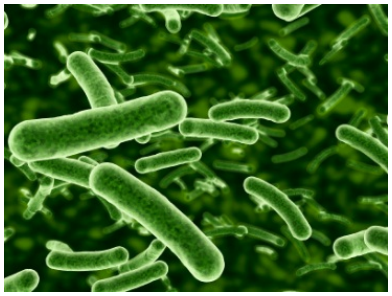
Prebiotics

- Potential health benefits relating to:
  - Food intake
  - Fecal output
  - Stool consistency
  - Macronutrient digestibility
  - Fermentative end-products
  - Immune indices
  - Intestinal microbial populations
- Typical dosage: 1-3%

MOS

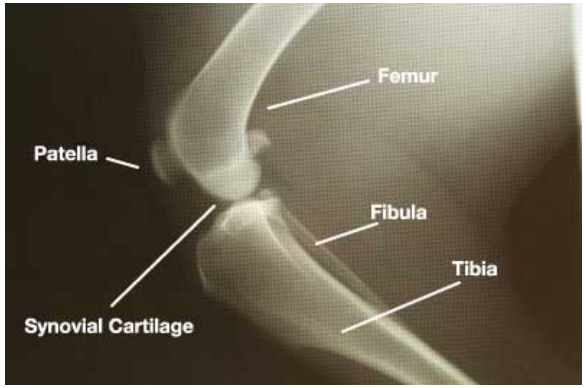
- Mannan oligosaccharide
- Natural component of yeast cell walls
- Interferes with pathogen colonization in intestines by preventing binding
- May improve immune function, protect against mutagenesis
- More research in dogs than cats
- Dosage 0.5-1% of diet

Probiotics



- Must be provided regularly
- Must be viable when they reach the large intestine
- *Lactobacillus acidophilus* and *Enterococcus faecium* most commonly evaluated
- Processing application & stability
- Shelf life

Joint Health



Undenatured Type II Collagen

- Derived from chicken sternum cartilage
- 40 mg was more than twice as effective as 1500 mg glucosamine + 1200 mg chondroitin in people with osteorthritis
- Reduced pain and lameness and increased force measurements in dogs
- Classified under AAFCO as chicken by-product
- Applied post-extrusion
- Recommended dose for dogs 40 mg/d

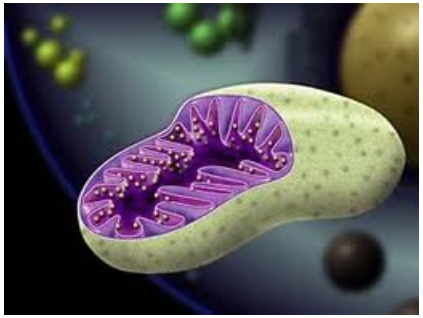
Green-Lipped Mussels

- Species of mussel from New Zealand
- Unique omega-3 fatty acid, eicosatetraenoic acid (ETA) that inhibits inflammation
- Chondroitin sulfate, EPA, DHA, glutamine, methionine, vitamins E & C, zinc, copper, manganese
- 450-1000 mg/d

Weight Management

L-Carnitine

- A vitamin-like amino acid that plays a role in many cellular processes
- Also called vitamin B(t)
- Mitochondrial transport and β-oxidation of long-chain fatty acids to produce ATP



L-carnitine

- Stored in muscle; meats have highest concentrations
- May help with weight loss and maintenance of lean body tissue in dogs and cats
- May protect against hepatic lipidosis in cats
- Dosage in studies showing benefit: 50-500 mg/kg of diet
- Maximum allowed: 750 ppm in dog foods, 1000 ppm in cat foods

Pulses

- Edible seeds of legumes
- Peas, beans, lentils, chickpeas, faba beans
- Have twice the amount of protein of most cereal grains
- Protease inhibitors denatured by heat treatment
- Protein, starch, fiber fractions

Peas

- Good source of most essential amino acids, particularly lysine
- Methionine & cysteine are first limiting amino acids
- Well accepted in palatability trials
- May slightly reduce digestibility at high inclusions (66%)
- Low glycemic index

Research Methods:
Pea vs. Rice Diets

- Cross-over study
- Randomly assigned pea or rice diet for 12 weeks
- Testing performed before and after each diet period

Pea vs. Rice Diet

Measurement	Assessment
Diet consumption (g/day)	↔
Weight loss	↔
Serum glucose (Oral glucose tolerance test)	↔
Serum insulin (Oral glucose tolerance test)	↑ Increased on rice diet
Visceral body fat	↔
Total body fat	↔

Metabolically healthier on pea diet in spite of obesity

Oils

Olive Oil

- High monounsaturated fatty acid content (oleic acid, n-9)
- Phenolics may provide anti-microbial and anti-inflammatory properties
- Increased fat and protein digestibility
- May reduce food intake in cats

Sunflower Oil

- Rich source of linoleic acid
- Susceptible to oxidation
- High oleic sunflower oil has >80% oleic acid (<20% linoleic acid); improved stability but not as desirable nutritionally
- Dog palatability good, not as well accepted by cats

Coconut Oil

"Coconut oil has superpowers"

"Protects against cancer"

"Cures Alzheimer's"

"Miraculous"

"Dissolves kidney stones"

Coconut Oil

- 92% saturated fatty acids
- ~50% medium chain triglycerides (MCT)
- MCT has modest effect on weight loss
- “Cold-pressed virgin” coconut oil
- Processing issues because solid at room temperature

Summary

- Novel ingredients continue to drive innovation in pet food
- Need to ensure active levels of ingredients are included
- Effectiveness of ingredients requires more research in companion animals

Thank You

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