Unlocking the Secrets of Pet Food Additives



SHEET NUMBER 1

Pet food formulations are fortified with a spectrum of exogenous substances, collectively termed additives, to support the inherent nutritional composition and enhance the physicochemical properties of the product. These additives can be broadly classified into three functional categories: nutritional, technological, and sensory.

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Nutritional additives

These external additives directly address shortcomings in the food's natural nutrient profile by providing essential vitamins, minerals, or amino acids for optimal pet health (1).

Technological additives

This category comprises of a diverse range of substances that enhance the safety, stability, and desirable physical attributes of the food. Examples include preservatives to prevent spoilage caused by microbial growth or oxidation, emulsifiers to maintain a homogenous texture, and anticaking agents to ensure proper flow during processing. (1)

Sensory additives

These additives cater to the palatability of the food by introducing enticing flavors and aromas, potentially increasing pet acceptance and overall consumption.

Preservatives in pet food

To guarantee the nutritional value and prevent the growth of harmful bacteria throughout a pet food's designated shelf life, rigorous preservation strategies become essential. This ensures pets receive the intended nourishment while minimizing the risk of foodborne illness.. The chosen method depends on the intrinsic properties and processing techniques employed for each food type.(1)

Dry Pet Food: The manufacturing process for dry pet food utilizes a combination of thermal processing and low moisture content (desiccation) to achieve microbial inactivation and reduce subsequent microbial growth. This desiccated state minimizes water activity (Aw), an essential factor for microbial growth.

Moist Pet Food: Canned and pouched pet food products undergo a thermal processing step (retorting) that eliminates spoilage microorganisms. Additionally, the hermetic packaging (airtight containers) excludes oxygen, further inhibiting microbial growth and oxidative degradation.

Chilled Pet Food: Processed chilled pet food utilizes a controlled heat treatment followed by refrigerated storage. The combined effect of thermal processing and low-temperature storage effectively downgrades microbial activity and spoilage.

Semi-Moist Pet Food: This category typically possesses a low pH environment, which disrupts microbial growth. Additionally, humectants are incorporated into the formulation. These ingredients bind water molecules, reducing the amount of "free" water available for microbial growth, thereby inhibiting their growth.(1)

Antioxidants in pet food

Oxidation is a significant threat to the quality and nutritional integrity of pet food . To minimize this risk, a class of additives known as antioxidants are incorporated into pet food formulations. These antioxidants prevent fats and oils from spoiling, ensuring the food remains wholesome and palatable. Dry and semi-moist pet food are more likely to spoil because they are exposed to air during storage. This exposure to air can cause the fats and oils in the food to react with oxygen, leading to a process called oxidation. Oxidation makes the food rancid and destroys important nutrients. To prevent this, antioxidants are added to dry and semi-moist pet food. Antioxidants protect the fats and oils from reacting with oxygen, thus maintaining the palatability and nutritional value of the food(1)

Types of Antioxidants: Pet food manufacturers can utilize various antioxidant sources, including:

- **Natural Antioxidants:** These areplant-derived extracts, rich in antioxidant compounds, such as tocopherols (vitamin E) and ascorbates (vitamin C).
- **Synthetic Antioxidants:** These are man-made antioxidants that have been rigorously evaluated for safety and efficacy in pet food applications. Many of these synthetic antioxidants have a long history of safe use in human food products.(1)

Colouring Agents

Pigments derived from natural sources (e.g., carotenoids, anthocyanins) or minerals (e.g., iron oxide) may be incorporated into pet food to enhance visual appeal. These additives adhere to regulatory guidelines for safety and do not compromise nutritional value.

Emulsifiers and Stabilizers:

Emulsifiers, such as lecithin or gums (e.g., guar gum, seaweed extracts), are employed in moist pet foods (canned, pouched) to maintain a homogenous consistency. They facilitate the formation and stabilization of emulsions, preventing oil separation and ensuring a smooth texture. Additionally, these additives contribute to the formation of gravies and gels, enhancing the overall palatability of the food.

Flavors:

While the inherent appeal of pet food often stems from the quality of raw ingredients like meat, fish, or cereals, specific flavoring agents can be used to further enhance palatability and product variety. These flavorings can be:

- **Natural Flavors:** Derived from sources like fish, poultry, or meat extracts.
- **Nature-Identical Flavors:** Synthetically produced to mimic natural flavors.

Gut Flora Stabilizers (Probiotics):

Live microorganisms classified as zootechnical additives (commonly known as probiotics) can be incorporated into pet food, which positively influences the gut microbiota composition. These beneficial bacteria promote a healthy digestive tract by:

- Displacing pathogenic bacteria
- Enhancing nutrient absorption
- Supporting immune function
- Probiotic supplementation may offer a potential alternative to antibiotic use in pets, promoting gut health and potentially reducing reliance on antibiotics.

Reference

FEDIAF | Home. (n.d.).