



## Why pick on feather meal in petfoods?

**Anton C. Beynen: "Limited use of hydrolysed feather meal may be economically attractive"**

**P**et owners generally equate feathers with indigestible, unpalatable offal and marketers qualify feather meal as a label-unfriendly, pet food ingredient. Feather meal, hydrolysed, has been legally defined and is the ingredient name that must be stated on the label if present in the food. When using ingredient category names, the descriptor is meat and animal derivatives. Some suppliers recommend their hydrolysed feather meal for use in pet foods. In certain pet shops, dog food labels with feather meal in the ingredient list can be found. About three years ago, the canine diet called Anallergenic was introduced in the market of therapeutic foods. The diet contains a feather-derived ingredient, which has evoked online cries of indignation.

### Hypoallergenic diet

Anallergenic contains oligopeptides and free amino acids produced by hydrolysis of feather protein through a non-disclosed process. Veterinarians may prescribe the diet for dogs with suspected food allergy and, if necessary, convince owners that it provides good nutrition. Diet efficacy carries back to an unpublished clinical trial in dogs with true food allergy. Enzymatic hydrolysis of proteins into sufficiently tiny fragments eliminates immune recognition by allergic dogs. Such protein hydrolysates are expensive and principally used in veterinary, elimination and hypoallergenic diets. Anallergenic's manufacturer asserts that working up feather protein allows a highly advanced level of hydrolysis.

### Amino acids and digestibility

The value of feather meal as protein source is determined by protein content, amino acid profile and digestibility. Feather protein consists of keratin which requires pretreatment for accessibility by digestive enzymes. Common hydrolysed feather meal is produced by pressurised cooking of feathers, followed by drying and grinding. *In-vitro* pepsin digestibility is 75% or higher, depending on production conditions. Hydrolysed feather meal contains 80-85% crude protein. Digestibility has been determined by the difference method. In both dogs and cats, 83% of ingested feather protein was not recovered in the faeces. However, the proportion digested in the small intestine is unknown. Apparent, overall digestibility of the protein in feather meal is similar to that in poultry meal, but the latter has a higher content of lysine. Anallergenic has a crude protein content of 18%, fully originating from the feather-protein preparation. Noteworthy, the calculated dietary histidine content is much lower than the recommended allowance for dogs.

### Palatability and faeces quality

Many owners observe their pets regarding food palatability and stool characteristics. The observations are considered indicators of food quality. Dry food containing 14% hydrolysed feather meal was well accepted by dogs. Dogs fed dry foods containing 14 or 20% feather meal produced more faeces with somewhat higher moisture content and greater

percentage off-shape. This might be caused by inefficient ileal digestion of feather meal. With 9% feather meal, aberrant stools were clearly reduced. Meat mixed with hydrolysed feather meal (30% in dry matter) was consumed readily by cats, but it increased faeces quantity and water content, and also defecation frequency.

### Reappraisal of feather meal

Moderate inclusion levels of hydrolysed feather meal, possibly up to 5%, may be safe, feasible and economically attractive. For substantiated food formulation, ileal digestibility of the amino acids in feather meal should be known. The protein in Anallergenic is claimed to be sustainable because it comes from feather meal as a waste product. However, sustainability is questionable because of intensive processing and animal origin. Shrinking inventories and increasing prices of ingredients may justify the use of hydrolysed feather meal in petfoods. Dog and cat owners should become informed about the notion of nutritional value of ingredients. Anallergenic might prove to be a swing toward hydrolysed feather meal finding its way into petfood. **AAF**

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