METHOD OF MAKING HYPOALLERGENIC PET FOOD

CROSS-REFERENCE TO RELATED APPLICATION

This application is a divisional application of U.S. application Ser. No. 09/209,554 filed on Dec. 11, 1998 entitled Hypoallergenic Pet Food now U.S. Pat. No. 6,403,142.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to pet food for domestic pets such as canines including dogs and felines including cats with food allergies and the like.

2. Description of the Related Art

Food allergies, or food hypersensitivities, commonly afflict household pets such as dogs and cats. These allergies can cause the pet to exhibit symptoms such as excessive itching and scratching, diarrhea or other symptoms which are aggravating both to owner and pet. A housebroken dog with diarrhea who is indoors has a major problem. If the owner is around, the dog pesters the owner to get outside. If the owner is not around the owner may later think the dog is exhibiting undesirable behavior and needs to be punished.

Domestic pets such as dogs and cats give their owners pleasure and often come to be regarded as family members. Accordingly, pet owners also experience distress when their pets develop allergies to their foods. Such food allergies, which are also known as food hypersensitivities, often manifest themselves by itching, swelling, vomiting, diarrhea (and sometimes even broncho-constriction and anaphylaxis), and can be difficult to diagnose. It has been estimated that at least 15% of all dogs in the United States suffer from allergies of some type, and that 10% of those arise from food hypersensitivities.

Diagnosis is a particular problem for veterinarians, because diagnosis of food hypersensitivity is often difficult and consumes an inordinate amount of veterinarians' time. Despite development of sophisticated immunoassay techniques such as radioallergosorbent tests, radioimmunoassay, and enzyme-linked immunoassay, the most reliable way of diagnosing food allergies is still to replace the pet's usual food with another one to which the pet should not be allergic. Traditionally this has been done by feeding the pet a food it has not eaten before, and to which the pet therefore should not have an allergy.

Simply changing from one protein source to another, however, for several reasons provides at best a partial solution to a food hypersensitivity problem. First, the variety of ingredients in commercially available pet foods can make it difficult to find one that includes only food protein the pet has not eaten before. Second, intact proteins are intrinsically antigenic, and owing to cross-reactivities pets could exhibit allergies even to unfamiliar food proteins. Third, inflammatory bowel disorders and other pathological conditions such as gastroenteritis can render the intestinal mucosa permeable to proteins larger than can usually cross the mucosa, and thus these conditions expose gut-associated lymphatic tissue to food proteins large enough to be antigenic. As a consequence, pets suffering from such pathologies often quickly become allergic to the new protein source.

Such reactions to unfamiliar foods can mislead clinicians into concluding incorrectly that the pet's problems do not arise from food hypersensitivity, and thereby delay effective treatment of the problem. In the case of a pet, failure to

diagnose the problem can be life threatening because the owner may lose patience with repeated "accidents" by the afflicted pet and decide it is time for a new pet. Thus changing from one antigenic protein source to another often fails to solve either diagnostic or long-term maintenance problems arising from food hypersensitivity.

An alternative approach to changing the identity of the food protein is to reduce its antigenicity through heat denaturation. Heat denaturation often fails, however, because most antigens are heat-resistant. Furthermore, heat denaturation in some cases exposes epitopes hidden in the native form of the proteins, and therefore can increase rather than decrease the antigenicity of the heat-denatured protein.

Dialysis and ultrafiltration have also been used to physically remove antigenic proteins such as beta-lactalbumin from cow's milk for human consumption. Both are expensive procedures, however, that would be cost-prohibitive for pet foods. Hydrolysis of proteins has also been employed to mitigate antigenicity in human nutrition and in farm animal husbandry for calves and pigs. Partially hydrolyzed soy proteins have been used as the basis of a milk substitute, and a modified soy flour for human consumption has been prepared by the action of barley proteases upon conventional soy flour. Similarly, it has been disclosed to prepare a protein hydrolyzate for human consumption by pancreatic hydrolysis of proteins, followed by heat treatment and ultrafiltration. Diets consisting of oligopeptides with four or five amino acid residues have been prepared for treatment of human Crohn's disease patients.

Such protein treatments, however, as noted above have not been attempted in pet foods for domestic dogs and cats. The best solution to diagnosis and treatment of food allergies in pets is to have a food source that is intrinsically hypoallergenic. This invention achieves that.

SUMMARY OF THE INVENTION

Successful treatment of food hypersensitivity ideally involves a food that is intrinsically hypoallergenic, nutritionally-balanced and that when prepared by hydrolysis of food proteins has a molecular weight range that in the target species does not engender diarrhea or other problems and that reduces the likelihood of an allergic response.

The present invention addresses these needs through providing a pet food comprising a proteinaceous component that has undergone sufficient hydrolysis to render it hypoallergenic.

It is thus an object of the present invention to provide a nutritionally-balanced pet food that is hypoallergenic.

It is another object of the present invention to provide a food for diagnosing whether a pet suffers from food hypersensitivity.

It is yet another object of the present invention to provide a food for the long-term maintenance of a pet.

It is further an object of the invention to provide a process for preparing such a hypoallergenic pet food.

It is yet another object of the present invention to provide a commercially practicable process for preparing such a hypoallergenic pet food.

The present invention meets the above objects by providing a pet food comprising as a proteinaceous component proteins hydrolyzed sufficiently as to have minimal effect on the immune system, and thus to be hypoallergenic.

It further meets the above objects by providing a process for preparing such a hypoallergenic pet food by mixing hydrolyzed soy proteins with an edible lipid such as coconut