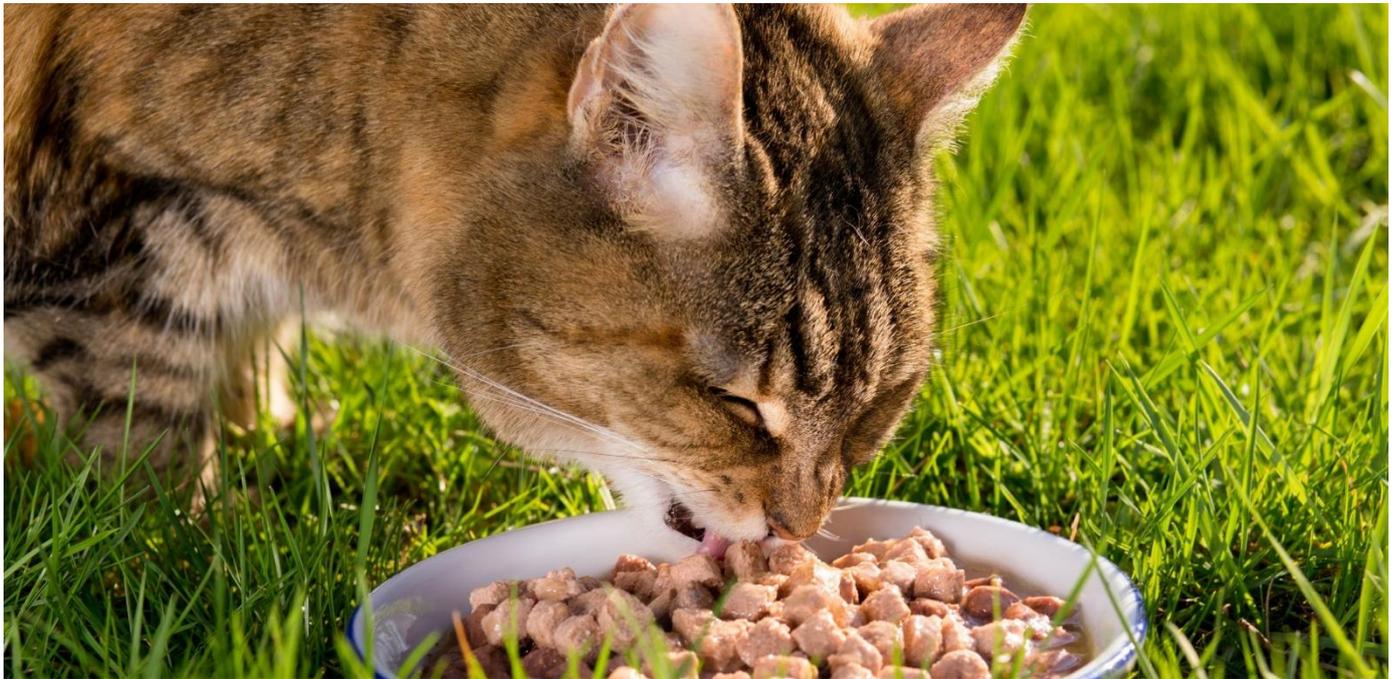


Plasma protein in pet food: binding, tasty and healthy

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Plasma protein is one of many animal proteins that are used in wet and dry pet food. Pet food diets that contain plasma protein are an attractive option to feed cats and dogs. Plasma proteins are a natural and a sustainable protein source for our carnivorous companion animals. It profits several advantages, such as good (water) binding and emulsifying properties, high palatability and health support.

Blood and its components are a very interesting animal by-product. Blood is a source of two ingredients used in pet food; hemoglobin and plasma. Hemoglobin provides potent coloring for chunks, pouches and kibbles; it can serve as a good alternative for caramel.

For the production of wet pet foods, i.e. cans and pouches, spray-dried plasma protein has excellent characteristics.

Good (water) binding

Spray-dried plasma is used to produce quality chunks by binding of smaller meat parts. Plasma has excellent emulsifying properties and has excellent water binding and gelling capacities.

The water binding capacity provides juiciness of the kibble that contributes to the palatability of the chunks.

The taste of the spray-dried plasma itself is also good, and boosts the palatability of the pet food.

The albumin fraction (about 55%) in the spray-dried plasma is responsible for the gelling and binding function of plasma.



Coloring

0, 0.1%, 0.5%, 1.0%, 1.5% and 2.0% Hemoglobin powder Porcine

0, 0.1%, 0.5%, 1.0%, 1.5% and 2.0% Hemoglobin powder Bovine

0, 0.1%, 0.5%, 1.0%, 1.5% and 2.0% Caramel

Furthermore, it provides highly digestible amino acids and highly absorbable iron.

Competing ingredients can also be used to form chunks, gels and emulsions, for example alginates, wheat starch, carrageenan, and guar-gum, or mixtures of them. Egg albumin is the one alternative animal based protein that provides this functionality. Comparing these ingredients (see table) shows that spray-dried plasma has several advantages.

	Plasma protein	Collagen protein	Wheat gluten	Carrageenan	Guar-gum	Alginate	Egg Albumin
Origin	Animal	Animal	Veg.	Veg.	Veg.	Veg.	Animal
GMO free	Yes	Yes	At choice	Yes	Yes	Yes	Yes
Solubility	+++	+ / ++	+	+(+)	++	+	+++
Gel formation	+++	-	++	++	++	+++	+++
Water binding	++	-	++	+++	+++	+	++
Emulsifying properties	+++	-	++	-	+	+	++
Palatability	+++	+	-	0	0	0	+

Veg. = Vegetable

Source: internal data Sonac

Palatability and health support

Where most spray-dried plasma is from porcine and bovine origin, ovine plasma powder is a unique product. Ovine plasma is manufactured using ovine blood from free range lambs and sheep living in Australia. It offers a healthy, super premium quality solution to formulate limited ingredient chunks, treats and snacks. Thanks to its ovine source, the allergies sometimes suffered by sensitive pets when

consuming products of bovine or porcine origin can be avoided. Coupled with the positive, natural perception of ovine ingredients, this plasma specie can be used to formulate pet food options with a much broader appeal.

Balancing gut health

The gelling/texturing capacity of plasma protein represents the largest use of plasma in pet food. Through another fraction in blood plasma, immunoglobulins, plasma proteins can balance the gut health of pets as well. The immunoglobulins, this are mainly antibodies, can bind bacteria and viruses, and have an immune-modulating effect in the gut. This is an interesting property while our pets can suffer from bloating, diarrhea, and constipation. To assure the immunological functionality of plasma proteins, a limited heat treatment is needed. This function will therefore be lost during sterilization of wet pet foods. But, the immunological functionality can be preserved in dry pet food applications through post-extrusion spraying on kibbles and treats or by dry pelleting.

Conclusion

In short, plasma proteins have multiple benefits in pet food. It is a natural protein source for our carnivorous companion animals, it's highly palatable, it has superior gelling and emulsifying capabilities, it improves the production efficiency for the producer, and it's a sustainable protein source. In dry pet food its health benefits can be used. ■