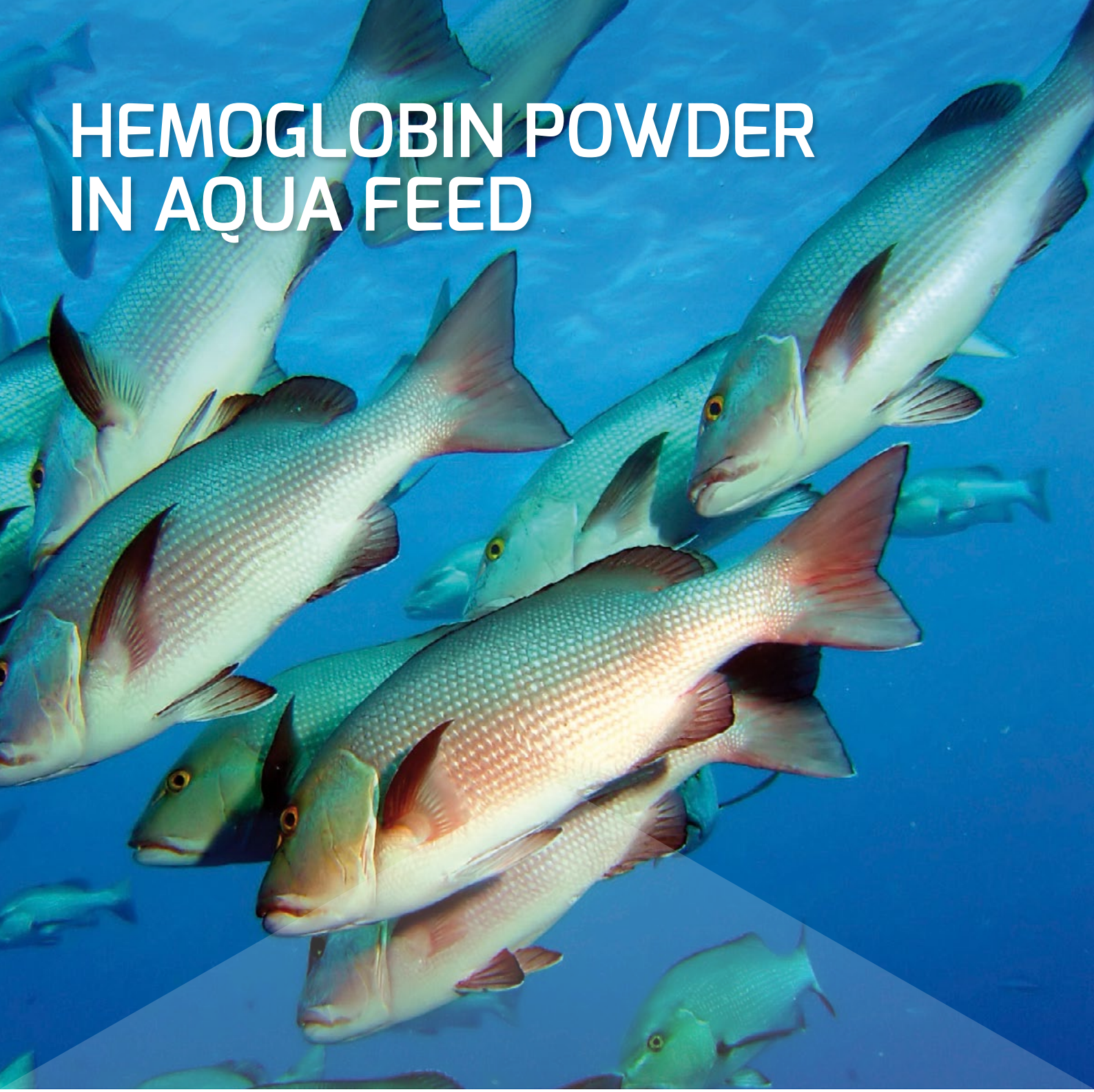
HEMOGLOBIN POWDER IN AQUA FEED



A HIGH PROTEIN ALTERNATIVE FOR FISH MEAL

As a result of the scarceness of fish meal and higher demand, resulting in increasing prices, there is a growing interest to replace fish meal with other protein sources. Vegetable protein sources are widely available but the replacement of fish meal by those vegetable proteins is limited in some aquatic species. The main nutritional problems associated with higher utilization of vegetable protein sources are unbalanced amino acid profile, lower digestibility of amino acids, high fiber content, presence of anti-nutritional factors and low availability of Phosphorus. This is especially true for more carnivorous fish species or for aquatic species with a rudimentary digestive system such as larval fish, juveniles and shrimp. In these diets, hemoglobin offers an excellent source of concentrated protein.

Natural Ingredients. Smart Solutions.

sonac

DARLING INGREDIENTS

PREFORMANCE

Digestibility and growth

The low phosphorus content of hemoglobin powder (HGP) facilitates the utilisation of more adequate Phosphorus sources resulting in a better P digestibility and lower P content in feces, of gilthead seabream (Table 1).

The pH stat method was used to analyze hemoglobin Powder and Poultry Blood meal for in vitro digestibility, using the natural enzymes of Litopenaeus vannamei shrimp. The Degree of hydrolysis (DH%) was very high for HGP, comparable with a water soluble protein source like gelatin, and higher than fish meal and squid meal (Table 2).

Hemoglobin powder (spray dried) shows a higher digestibility than poultry blood meal and porcine blood meal. This is due to different processing methods. The results of this high digestibility results in good growth results when fish meal is replaced by hemoglobin powder. Shrimp showed good growth when HGP was included at 3% and 6% of the feed, in an intensive system (Graphic 1). The same was observed in a second test trial in China on a semi-industrial scale (Graphic 2).

Conclusions

Hemoglobin Powder has a high protein content and a good digestibility for fish and shrimp. The digestibility of an ingredient is the most important quality parameter for some aquatic species, which will result in a better feed conversion.

The replacement of fishmeal in the diet of Litopenaeus vannamei by HGP up to 6% results in similar growth and FCR and is an economic valuable option. The cost of fishmeal is expected to rise further during the coming years due to increased demand and stagnating fisheries. For optimal results, it is recommended to include 3-4% HGP in diets for Litopenaeus vannamei shrimp. Diets for trout, seabream and seabass may contain 5-15% of HGP.

Apparent digestibility of feeds for Gilthead seabream increased when hemoglobin powder was incluced at 10 and 30%

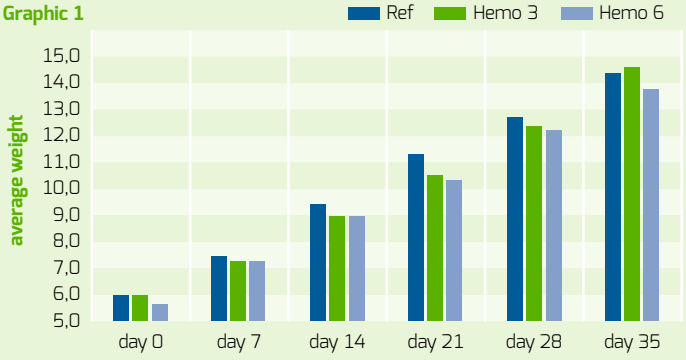
Table 1

	CTRL	HGP10	HGP30	PBM10	PBM30
Dry matter (%	84.9 ± 0.1 a	86.3 ± 0.4 b	84.7 ± 0.3 a	84.9 ± 0.4 a	84.2 ± 0.2 a
Protein (%)	95.3 ± 0.3 c	95.6 ± 0.4 c	95.9 ± 0.3 c	90.7 ± 1.1 b	84.6 ± 0.8 a
Energy (%)	93.9 ± 0.0 c	93.4 ± 0.3 c	93.0 ± 0.0 c	92.0 ± 0.1 b	90.8 ± 0.3 a
Phosphorus (%DM)	64.5 ± 0.9 a	70.8 ± 1.3 b	70.9 ± 0.4 b	68.5 ± 0.6 b	70.2 ± 0.0 b

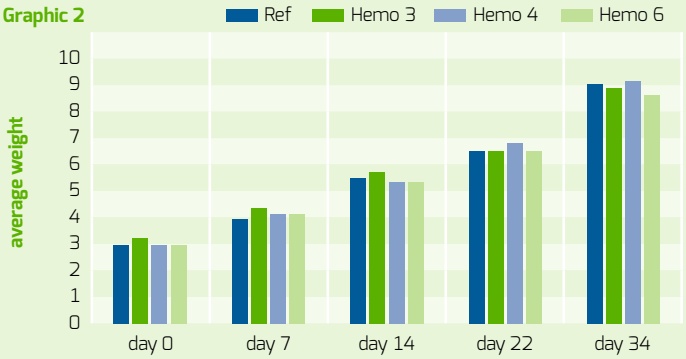
Table 2

Ingredient	CP(%)	Digestibility (DH%)
Poultry blood meal	89	1.71
Porcine blood meal	88	1.45
Hemoglobin powder	95	9.76
Fish meal (anchovy)	64-69	2.70-4.40
Squid muscle meal	78-85	2.15-2.49
Gelatin (binder Pro-Bind Plus)	94	9.77

Graphic 1



Graphic 2



Sonac is a leading manufacturer of reliable ingredients of animal origin. With an active R&D program, reliable processes and sustainable end products Sonac continuously adjusts to market needs. A good geographical spread of locations and a broad portfolio of fats, proteins, minerals and specialties make Sonac a trusted partner for many international producers in food, pet food, feed and fertilizers, worldwide. Sonac is part of Darling Ingredients.

ISO 9001
ISO 14001
HACCP
BUREAU VERITAS Certification

dar190130_SON_productleaflet_Hemoglobin - 0219

For more information about this specialty product please contact us:
PO Box 9 NL 5690 AA Son +31 (0)499 364 800 info@sonac.biz

sonac.biz

sonac

DARLING INGREDIENTS