

# New animal protein concentrated powder with omega 3 and 6 for human direct consumption

MATREL S.A.C. Peruvian company compromised with the investigation and development of the technological and nutritional studies, presents **PROTEINOL** - protein concentrated powder with oily acids omega 3 and 6 – to be used as partial substitute of other animal protein sources, of equal or minor nutritional value and of major costs.

## INTRODUCTION

The proteins, due to their shortage and the importance that they have like food, have turned nowadays into the principal area of attention of the majority of food technologists around the world. Food products, rich in these macromolecules, like meat, milk and eggs, are scanty in the majority of the countries in routes of development, and besides, for being the costliest of producing, are the most difficult to acquire.

The lack of animal proteins of low cost that could be used for human direct nourishment in the countries in routes of development, have allowed MATREL S.A.C. to develop an innovative technology to elaborate protein concentrates with omega oily acids obtained from hydrobiologic resources for human consumption, product that has been named **PROTEINOL**.

## TECHNOLOGY OF EASY APPLICATION

PROTEINOL is elaborated exclusively from the muscle of a series of marine species, under an aseptic process, in a line of a new technology that allows to obtain a product for a long superior to other sources of animal protein. The conditions of production allow to preserve the functional properties of the proteins being outlined its suitable hydration and gelification. The final product is a white cream powder of very thin texture. Unlike the milk powder or the egg, which concentration of proteins is of scarcely 26 % and 12.5 % respectively, the PROTEINOL overcomes 80 %.

The general graph of process using giant squid (*Dosidicus gigas*) is showed in FIGURE 1

## GENERAL DE FLOW PRODUCTION

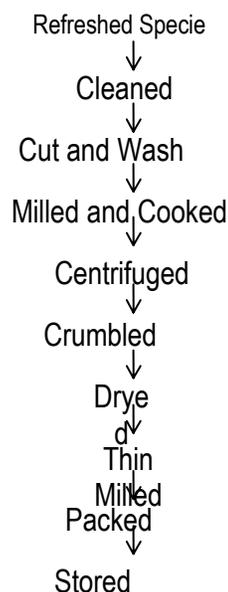


FIGURE 1 : General Flow for PROTEINOL's production

## FORMS OF CONSUMPTION

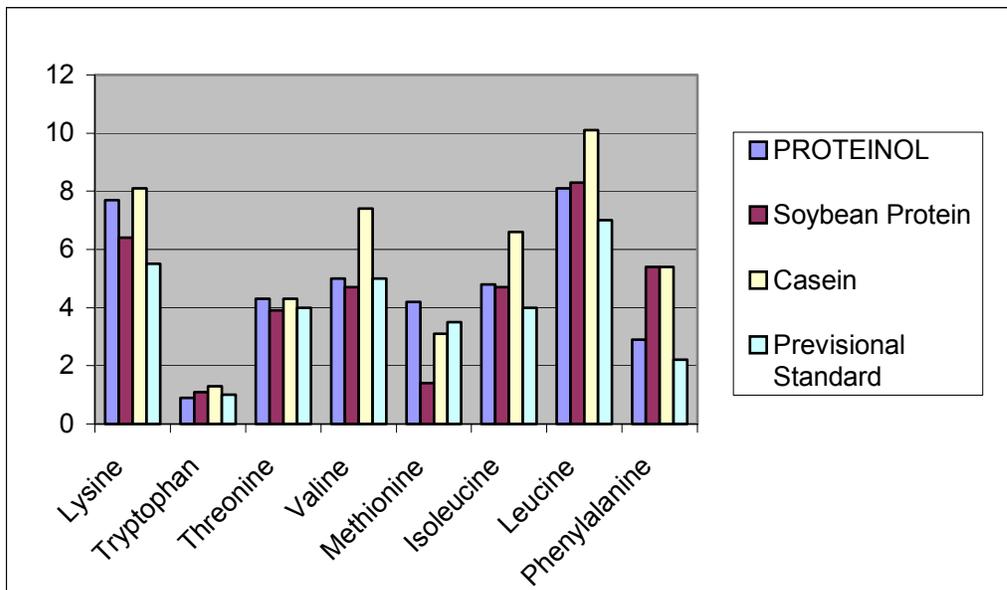
PROTEINOL can be consumed directly or be tried as ingredient in food preparation. PROTEINOL's advantage, besides its high concentration of proteins, is that it shows an excellent content of essential amino acids for the human nutrition, determined by the level and type of amino acids that constitute the above mentioned proteins. PROTEINOL's nutritional value is compared with other high quality animal proteins like those from milk, egg and meat.

## NUTRITIONAL COMPARISONS

The hydrobiological resources and their derivatives are used often as source of animal protein, nevertheless erroneously they are compared with vegetal proteins, like soy bean for example.

PROTEINOL as a source of animal protein, has been compared with other protein sources of the same origin emphasizing its nutritional kindness across the content of amino acids and the digestibility of the same ones. The results of the above mentioned comparison are showed in FIGURE 2

FIGURE 2



In the human nourishment, the need to consume proteins is not only owed to that their amino acids components are needed to construct the proper proteins of every person; many of the amino acids have besides other missions in the organism as for example:

Formation of important substances as:

The vitamins niacine (tryptophan), tiamine (tryptophan) and folic acid (glutamic acid).

The hormones adrenaline and thyroxine (thyrosine and its predecessor phenylalanine).

The melanine pigment (thyrosine).

Complex Fats (methionine, serine).

Glutathione, which intervenes in processes of neutralization of toxins (glutamic acid, cisteine and glicine).

Carnosine, of the muscles (lisine).

Creatine, muscular source of energy (arginine, glicine, methyonine).

Bases of the nucleic acids (glicine, aspartic acid), purines (histidine).

Co-factors NAD-NADP, essential in the energetic metabolism (thryptophan).

GABA, of cerebral action ( glutamic acid).

Serotonine (thryptophan), neurotransmisor that probably intervenes in the cerebral control of the appetite, diminishing the desire to consume carbohydrates.

On the other hand, biological studies realized in PROTEINOL have showed high contents of oily acids of the type omega. Habitually it is not necessary to consume especially any type of fat; the organism can obtain them across another nutrients like carbohydrates. Nevertheless, the oily acids omega cannot be synthesized for what they have to be consumed with the food. The omega are a part of the group of poli unsaturated and gather in crowds in two families Omega-3 and Omega-6.

Inside the oily essential acids in PROTEINOL's fat, there are present the oily unsaturated acids omega 3, being the most representative the EPA (eicosapentaenoic acid), the DHA (docosahexaenoic acid). The family of omega 3 have an important role in the development and physiology of the human being, due to the fact that they form a part of the structure of the neurons, brain, retina and peripheral nerves. Omega 3 are supplemented during the foetal stage for the mother across the placenta and, on having been born, for the human milk. The family of omega 6, is essential covering each of the cells of the organism and it takes part in hormonal and immunological activities. They are indispensable to support the skin in healthy condition, helping it keep its soft and flexible beside protecting it from infections, regulating its temperature and water loss.

A person in good conditions of health has big accumulations of omega 3 in the brain tissue, in sight tissue and in semen. Nevertheless the principal advantages of these oily acids take root in that they help to a good development and growth of the brain tissue, attacking the cancer, development of the sight and functions of the cellular tissue, help to regulate the blood pressure, the viscosity of the blood, cardiovascular diseases, trombosis, inflammations and arthritis.

PROTEINOL's utilization of false flying fish (*Prionotus stephanophrys*) and of giant squid (*Dosidicus gigas*) in the formulation of babyfood, have allowed to demonstrate its nutritional and sensory kindness, and the reduction in the costs of the above mentioned food.

## CONCLUSIONS

For all written before, PROTEINOL can be included in diverse products Food Assistance Programs demand in some countries in routes of development, as source of animal protein. The incorporation of the PROTEINOL will allow to support or to improve the nutritional quality of the final products without altering its smell, flavor or appearance, supporting the nourishing customs of the population in situation of total poverty and extreme poverty and incorporating in their diet the marine resource.

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