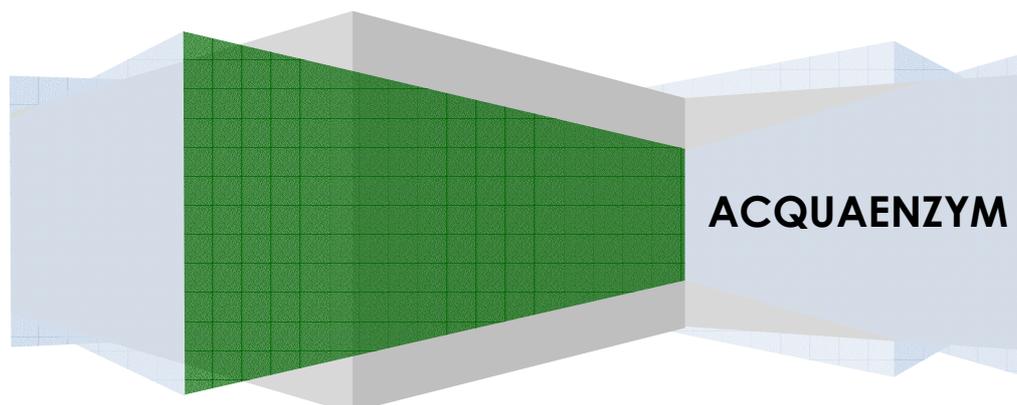


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Linea di Prodotti ECOENZIMI®

Trattamenti Enzimatici per l'Agricoltura, la Zootecnia, la Sanificazione



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Pollutants are released into the environment substances that can cause damage to the biosphere and man. Are byproducts of human activity, dumped into the air, water and soil. Besides the direct pollution due to the placing of foreign substances in nature there is also the indirect one due to the transformation of these compounds in other more harmful due to particular environmental conditions.

Inland waters are polluted with industrial waste and agricultural areas. The pollutants present in industrial effluents are chemical compounds present in solution or as emulsions, foams, minerals (especially chromium, zinc, cadmium, copper, nickel, lead, ammonia salts and also chlorides, fluorides, sulphides, cyanides, sulfites and hydrosulphite ), acids and strong bases, dyes, oil, tar, vegetable oils and fats, etc.. Furthermore, even solid materials of different sizes, composition of organic or mineral (such as residues from wood processing and paper, waste and scrap of food, sand) and radioisotopes. In municipal wastewater prevail instead putrescible organic substances more or less contaminated by microbial pathogens and parasitic forms and foams derived from detergents and soaps. Discharges contain mostly agricultural nutrients and biocides, which reaches the reservoirs or groundwater through leaching of soil, fertilizers and pesticides. Marine pollution is due to the placing of both the inland waters polluted, and discharges without proper treatment, from industries and urban settlements, coastal and disposal of waste by ships. The sea is polluted even at a considerable distance from the coast el'inquinante main oil due to numerous wrecks or accidents involving oil tankers or during extraction from platforms at sea or discharge the washing water tanks. Another form of pollution is heat. Water is used for cooling in many industrial processes, especially in power stations and nuclear weapons. The water is still, but not for long, a liquid inexpensive, easily available, has a high specific heat, ie a high capacity to absorb and transfer heat without its temperature vary greatly. The water so used to cool the turbines, resulting in a decrease in the amount of oxygen dissolved in it and then permanent damage to aquatic life. The same variation in temperature can lead to fatal changes in the life cycle or to the depopulation of the water. This phenomenon may lower the intrinsic efficiency of water purification systems.

For aquatic life is essential the presence of a sufficient amount of dissolved oxygen. If waters are released many organic substances, they are demolished by aerobic bacteria that turn them into simpler substances, such processes involving the use of dissolved oxygen. If pollutants are present in higher concentrations, the oxygen will be consumed by aerobic microbial activity is the one that dissolved uptake from the environment. Later there will be an anaerobic bacterial population capable of breaking down organic materials and turn them into harmful substances, deadly for animals and plants of the water.

There are parameters that measure the quality of water, fresh surface in relation to the amount of dissolved oxygen, BOD5 one of them is the defining biochemical oxygen demand in water during a decomposition in a period of 5 days and is a measure of organic content. Toxic compounds from industrial and other wastes are fatal to aquatic organisms.

For example, sulfides and ammonia cyanide asphyxia to determine the level of the bloodstream and cells in general. The lakes are more resistant to pollution of rivers, but if it passes a certain degree the consequences are severe and long lasting, even after the cessation of discharges of pollutants. Nitrogen is present in the manure of organic compounds of living organisms in the same microorganisms (after their death) and in the nitrogen fertilizer.

Once in the environment, so the combined nitrogen is converted into ammonia, nitrites and nitrates. The presence of these substances in water is an index of non-potable and pollution, since it indicates the presence of decomposing organic compounds.

The flora and aquatic fauna using these substances, and thus reducing pollution. When pollutants are increasing and especially if these waters are not purified, clean-up natural systems are not sufficient. Phosphorus, in the form of phosphates and polyphosphates, is derived from the industry, fertilizers and phosphates from household and industrial detergents. By law has been decreased the amount of phosphates allowed in laundry detergents, detergents without phosphates are produced today, but there is a danger that other compounds are added even more dangerous.

Phosphate and nitrogen compounds are an excellent nutrient for algae, which grow by consuming the oxygen dissolved in water. The reduction of dissolved oxygen causes the death of aquatic flora and fauna, including the same algae. Thus we have the phenomenon of eutrophication with consequent reduction of fishing, the beauty and bathing in the sea, causing considerable economic damage. The use of enzyme mixture (enzyme chabas, brown algae, microorganisms, aerobic and anaerobic) in the treatment of fresh water, lakes, Vasconi, wells and reservoirs can dramatically reduce the microbial pathogen, the chemical pollutants and batteries for the Environment water.

Even the seaweed transported from high tide and deposited on beaches, in the heat of the day under the sun undergo fermentation, which creates gas and odors that can annoy bathers, tourists and in some cases the substances produced by their fermentation may be irritating. Their treatment can be done with the enzyme mixture, evenly distributed over the heaps of seaweed on the beach supporting a rapid degradation and transformation.

Pollution by heavy metals (copper, lead, mercury, cadmium, nickel, chromium) causes cell death, because many enzymes are deactivated by heavy metals. Cells and then living beings can live through the action of enzymes. The presence of ions of heavy metals, even in small concentrations, causes cell death. The waters that contain them are hazardous to our health and aquatic species.

Recent and serious pollution were determined by mercury, used in the manufacture of paints, batteries, pesticides, pharmaceuticals, various chemical compounds, including chromium is toxic, is used by industry for chrome so polluting the water with chromium salts.

Even the introduction of solids in the water can be considered dangerous, they make it opaque and prevents light from reaching the deeper layers, damaging aquatic organisms. Some bacteria are used as indicators of pollution and defined indices. For example the bacterium *Escherichia coli* measure for faecal contamination excellence. Other coliforms are more than even the genus *Escherichia* genera *Klebsiella*, *Enterobacter* and *Citrobacter*.

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The total amount of oxidizable organic matter present in water is measured by the amount of oxygen required for it to be a complete microbial oxidation, and this parameter, referred to as BOD (biochemical oxygen demand), is used as a first approximation, as an index practical organic pollution of water.

In extremely polluted, treated with the enzyme mixture, there have been lowering the BOD values of 58.27%, in addition to the reduction of heavy metals and toxic, as highlighted in Table 1 of Chapter 2.5 of this text. Among the industries that give rise to easily biodegradable waste, but often in quantities too large to be directly discharged into public waters, there is the food, such as dairy, slaughterhouses, the canning of fruits and vegetables, sugar, breweries, etc..

A more complex problem is represented by waste water of textile industry, both because they contain adhesives, detergents, dyes, etc.. Similar problems facing the pulp and paper industries, while those chemicals present the most difficult problems for the heterogeneity and frequent toxicity of many waste products.

Other serious problems of water pollution, offer the various mining and metallurgical industries and for large amounts of water used for both types of pollutants that are dissolved in them. Besides the problem of water determined by the presence of chemicals that can be combated with the use of appropriate enzyme mixtures, similar results can be obtained with the treatment of water contaminated by microorganisms that grow borne diseases of fish. There are many diseases that can afflict fish, both freshwater and sea.

The causes are many: environmental factors, breeding techniques ineligious, etc..

The study of fish diseases requires a broad knowledge of environmental conditions to the aquatic environment, the physiology of survival, of many agents that cause infections and their reactions with the host: all these factors must be considered for the species reared under the context of farming and economic performance. Normally, only one factor is not sufficient, but is the synergy of several factors that causes the disease, for example, diseases caused by pathogenic microorganisms cause disease only when combined with other factors. The causes of the diseases are manifold: bacteria, viruses, parasites, protozoa, worms, fungi, etc..

In this section we will only deal with the diseases caused by leaks, because they are easily countered by the use of enzyme mixture. Mushrooms or fungi are heterotrophic organisms that use organic material for their survival. Mushrooms are distinguished in saprophytic, that is using the dead organic matter and parasites, which use organic material living. The action of pathogenic fungi is essentially mechanical. The fungal filaments infiltrate between tissues, dissociation, and compressing. The body's response is usually mild (hip inflammation) is sometimes more pronounced and may cause granulomas. Some fungal strains are considered primary pathogens, other break-secondary, still others produce toxins. Among the major fungal diseases are: branchiomycosis, Saprolegnia, and ictiofoniasi aflatoxicosis, it is a disease caused by ingestion of food containing toxins produced by fungi. In aquariums, ponds, lakes and reservoirs are possible treatments with the mixture of enzyme against: fungi, bacteria, chemicals (nitrates, ammonia and nitrate) in order to sanitize and batteries for the aquatic environment.

Among the internationally traded fish, shrimp and the most value, with total exports amounting to over 11 billion dollars a year. An important source of employment and foreign exchange for developing countries, which are the world's largest producers, with 99% of production.

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At the same time, the shrimp farms have been the subject of much criticism, because they can pollute coastal waters, destroying mangrove ecosystems and spreading diseases and invasive alien species.

In these herds, as in other freshwater and marine, are employed degrees quantities of antibiotics and other medicines. This practice has serious consequences on the health of consumers and the environment.

This problem has also affected the FAO, in a program of consultations lasted five years, involving several partner organizations, including the Network of Aquaculture Centers in Asia and the Pacific, WWF, the World Bank and Program of the United Nations Environment Program (UNEP).

Identification of new principles that represent the first attempt to provide an international framework for improving the sustainability of the fisheries sector and aquaculture more environmentally friendly.

