

Natural biological system for wastewater treatment

The treatment of the effluents of the milking parlor and the waiting yard and their final solution constitutes a heavy financial burden on the barn. These wastewaters contain high concentrations of pollutants and are therefore difficult to treat and require large investments and high operating costs to treat them. There are big difference between farms in the sewage amount due to large differences between winter and summer due to the cooling water as well as extreme climate differences between parts of the country. Despite the considerable investments, so far, no treatment method has been found that can provide an good solution to the problem of sewage. This study examined the use of a natural biological system of aquatic plants that integrates into the landscape of the farm, the principle of operation of the method is based on the unique feature of aquatic plants to absorb oxygen in the air and transfer it to their roots. In the oxygen-saturated environment of the roots, various microorganisms develop (about 10,000 different species, bacteria, enzymes and fungi, specific to the plant and the sewage environment in which it grows) with an incredible ability to break down and absorb toxins and pathogens. The purpose of the work was to examine whether the "natural biological system" succeeds in treating dairy farm effluents and achieves good results. The system was designed and built as a sustainable system and, in addition to its role in treating dairy farm effluents, also serves as a green landscape that integrates into the local landscape planning. This work showed that it is possible to treat about 15 cubic meters of wastewater per day in a relatively small facility that does not require a large area compared to green basin facilities known today. In addition, the cost of setting up and operating the system is reasonable in the field of existing systems and much cheaper than the construction of green basins. In terms of the laboratory results, the system results in values that meet the threshold requirements for sewage in both COD and TSS values. Also, the system is a natural, ecological system that also looks aesthetic and does not harm the environmental appearance.