

Life Seacan Networking Event

Sustainable waste and wastewater management from agricultural and food industries

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Santiago de Compostela

Participants and contacts

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General summary

During the meeting, several products and services were explained to face the problems of wastewater management in agro-food industries and how to make more sustainable the sector.

The meeting approached alternatives to treat the wastewater: compact aerobic treatment solutions (Life Seacan) and anaerobic treatment solutions (Life Multi-AD and Life Siamec). The recovery of resources was approached: energy (Life Milti-AD and Life Siamec), water (Life Siamec), fertilizers (Life Smart Fertirrigation). And the meeting finished with a more sustainable solution for agriculture: use of bioplastics with special composition instead of conventional plastics (Life Multibiosol).

The importance of commercializing the technologies, products and services was discussed. The current interest of the Life program is to increase the impact of the projects by the industrialization of the solutions.

Following, a short summary of each project participating in the meeting is given. More information can be found in the presentations shared.

Life SEACAN

CETAQUA is a foundation based on public-private collaboration which objective is to ensure the sustainability and efficiency in the whole water cycle.

The project aims reducing the impact of effluents from the fish canning industry on the marine ecosystem. Two wastewater treatment technologies are implemented at pilot-scale in a real fish cannery. They are aerobic biofilm-based technologies: aerobic granular sludge (AGS) and moving bed biofilm reactor (MBBR). Current results are promised and the optimization of the technologies is being performed.

Comments:

The fats produced in the fish canning industry could be used for composting.

AGS technology to treat the liquid fraction of manure (Life Smart Fertirrigation – Life Seacan)

Life Multi-AD

The group AEMA is formed by AEMA, Aguas Rioja and Laboratorios Alfaro. They work in the treatment and potabilization of water.

The project will develop a multiphase anaerobic digester completely automated with high performance for the treatment of industrial effluents from SMEs. A software and a control system will be designed and built in parallel.

Comments:

The reactor is very versatile since each camera is independent and allows working with different conditions (e.g. solid concentration).

The scaling up is a challenge which will be approached specifically in this project.

Life Siamec

The Project gives a solution for the treatment of urban and industrial wastewater based on an anaerobic treatment at ambient temperature and a nitrogen removal treatment with anoxic and aerobic chambers. The methane coming from the effluent of the anaerobic digester is partially used for nitrogen removal purposes, which allows minimizing the GHG emissions. Also, the technology can be applied with or without membranes in the aerobic chamber.

Comments:

The use of membranes allows the production of a high quality water (meeting the discharge limits, no pathogens) that can be used for agricultural purposes.

The relation between the anoxic and aerobic chambers is about 50%/50% (instead of 30%/70%) because other routes, besides the conventional denitrification, are considered (e.g. methane as electron donor).

To consider the funding Grupos Operativos Supraautonómicos for a potential implementation in Cartagena.

Life SMART FERTIRRIGATION

IMASDE AGROALIMENTARIA is a private research centre specialized in food industry. They have animal labs, experimental farms and microbiology lab.

The project gives a smart solution to recover part of the nutrients present in the manure. A liquid-solid separation is applied to the manure, then a flocculant and membrane treatment, obtaining a liquid with high content of nutrients which is used as fertilizer during field irrigation.

Comments:

Spain is the 3rd producer of pigs in the world (after China and USA).

The particularity of the project is to apply the fertilizer as it is required during the life of the crops.

The question about the pathogens arises, but in principle there is no problem since the crops are used for animal feeding production, which implies high temperatures during the production of it.

Could it be interesting to apply a treatment to the liquid fraction when there is an exceed of nutrients/COD?

Life MULTIBIOSOL

Aitiip is a technology centre which started as Spin off from the University of Zaragoza. Their installations have 12.000 m² and their activities include the formulation of materials (as bio-based products).

The project consists of producing bioplastic bags and films which are applied in agriculture. Specifically, the bags are used to cover the fruit and the films to place on the ground. The bioplastics have an appropriate composition to give needed compounds to the ground when they are decomposed, or to provide desired organoleptic properties to the fruit.

Comments:

They will commercialise these bioplastics. The cost is 3 times higher than plastics from petrochemical origin, but the policy is promoting the use of bioplastics and giving incentives to the farmers.

The raw material used is sugar cane and the biopolymer PLA.