Revista Facultad de Ingeniería -redin-, Universidad de Antioquia, No.92, pp. 7-8, Jul-Sep 2019

EDITORIAL

Anaerobic digestion has been conceived worldwide as a way of sustainable treatment being widely developed around the world, which has allowed the treatment of wastewater not only from the conventional process vision, but also from the removal of recalcitrant pollutants, and the exploitation and use of energy. In Colombia, anaerobic digestion has been fundamental for the development of the country, since it has been the foundation for basic sanitation in rural zones and it has established the guidelines for the treatment of domestic and industrial wastewater. It is also currently used in the management and appropriate disposal of sludge.

Remarkably, Medellin has been an example of growth and progress in Colombia in different aspects and in the topics related to wastewater treatment, it has had an important development in the last years, considering the construction of Aguas Claras Wastewater Treatment Plant, one of the most modern plants in Latin America, and the biggest secondary treatment plant in Colombia; for these reasons, the XIII Latin American Workshop and Symposium on Anaerobic Digestion (DAAL XIII) was an open room for discussion about advances of anaerobic digestion in Latin America and it had the participation of foreign experts, who allowed obtaining a wide vision on the treatment of waters and use of energy in a global context. This event was a meeting point for the scientific and technical community working on Anaerobic Digestion, including researchers and experts from Latin America and other countries.

The objective of the DAAL XIII was to disseminate and discuss about both traditional topics and innovations concerning anaerobic digestion, such as:

- Post-Treatment of anaerobic effluents
- Biodegradation of recalcitrant compounds
- Automation and control of anaerobic digestion process
- Digestion of solid residues and energy recovery
- Use and exploitation of biosolids
- Full-scale experience
- Microbial ecology and molecular biology
- Domestic wastewater treatment

The DAAL XIII was a point of discussion in which problems analyzed included the treatment at rural level, domestic wastewater treatment plants and even alternatives of the latest technology for industrial wastewater treatment; the key point of the meeting was focused on looking at the energy recovery and use of waste; without a doubt, this topic will be the starting point for another Latin American symposium on anaerobic digestion.

In another way, energy recovery and the use of waste begins to be a key point for the circular economy and the management of resources. It is important to see the final products of anaerobic degradation as recovery waste that can be incorporated back into the production processes and not as products to be disposed. Although anaerobic processes should focus on improving the use of energy and waste, based on full-scale technologies, Latin America has a very low percentage of domestic wastewater treatment, in which case it is necessary to implement low-cost treatment alternatives as they are the biogas plants for rural communities or combination of anaerobic processes with aerobic systems that manage to improve the efficiency in the removal of pollutants.

Another situation, the problem of phosphorus, is becoming more and more evident every day, taking into account that agricultural activity requires the use of phosphorus for its production processes and, on the other hand, extraction reserves are increasingly scarce, while in another scenario, in the treatment of wastewater, it is a question of eliminating this compound in order to avoid subsequent eutrophication problems in water resources, therefore the recovery of phosphorus is the most important current issue, which will allow in the future to take advantage and incorporate this phosphorus back to the cycle. Finally, the microbiological tools for the monitoring of anaerobic reactors are still a subject of significant controversy because there is still a need to eliminate paradigms regarding the complexity and use of these processes, however, it is clear that, to solve complex problems of anaerobic processes, both the engineering and the microbiological approach are necessary to optimize the processes and understand the microbiological development of the species that are the primary agents of the degradation.

It is evident that in Latin America the issue of domestic wastewater treatment has not yet been solved and in many rural areas there is no an alternative treatment, in addition, issues such as the removal of recalcitrant compounds or the use of energy are just beginning a

DOI: 10.17533/udea.redin.20190733

research process; for these reasons, more future research is needed, focused on the real problems of Latin America and the particular conditions of the communities present.

Diana Catalina Rodríguez
Coordinating editor in this issue (Editorial Board Member)
Revista Facultad de Ingeniería -redin-
Professor-Universidad de Antioquia
https://orcid.org/0000-0001-9685-3080