

Dear reader:

“Change is the only constant thing”, and Volume 32 of La Granja, Revista de Ciencias de la Vida, is an example of this change. This is our first special issue which addresses the problems of  $CO_2$ . At the same time, the Salesian Polytechnic University has changed its authorities after 11 years under the successful direction of Dr. Javier Herrán sdb., and now Dr. Juan Cárdenas Tapia sdb is the new Rector. This change not only guarantees continuity in the scientific quality of the University’s publications, but also maintains the solidarity vision of the Salesian charisma.

On the other hand, it is known that many things will be different due to the global pandemic. In the face of the current uncertainty, spaces arise for reflection and creativity that can create new lifestyles and new opportunities. We have also been able to uncover limitations and the need to reaffirm the importance of research from universities as a transformative entity of society.

This special edition of La Granja, entitled “Carbon Frontiers: Valorization and Strategies for  $CO_2$  Mitigation”, aims to show the efforts made by various scientists from different agencies and research centers around the world in the fight to reduce  $CO_2$  emissions, which is the most important greenhouse gas of anthropogenic origin produced mainly by the direct and indirect use of fossil fuels. In this sense, this special volume aims to highlight the different scientific contributions aimed at reducing and mitigating the consequences of greenhouse gas emission from various perspectives. From a broad point of view, this special edition envisages interdisciplinary and complementary points of view in addressing this problem, with multiple and diverse approaches aimed at contributing to the achievement of the Sustainable Development Goals (SDGs) of the United Nations Organizations (ONU)

This special edition is the first of its kind in the journal and has been an interesting challenge to visualize the various authors in other latitudes, as well as the journal itself, whose objective is to present novel research papers in multidisciplinary fields associated with the life sciences, with an emphasis on the efforts related to the mitigation of climate change. From Pakistan, Drs. Mehmood

Ali and Saqib Jamshed Rind, both from the University of Engineering and Technology (Karachi-Pakistan), show how the use of bio-diesel blend derived from *Jatropha curcas* and Neem (*Azadirachta indica*), can contribute to an increase in combustion efficiency, decreasing CO emissions compared to mineral-based diesel, despite having slightly lower power-related results.

On the other hand, Dr. Leticia Citlaly López-Teloxa along with Dr. Alejandro Monterroso, from the Autonomous University of Chapingo, Mexico, show the impact of soil respiration and its contribution on  $CO_2$  emissions into the atmosphere, as well as its evolution with regard to the change in land use. These researchers highlight the need to account for and show the negative impact on the delicate balance of soil respiration and its effect on the emission of large amounts of  $CO_2$  into the atmosphere.

Likewise, Dr. Bence Mátyás from Dama Research Center in Hong Kong, along with colleagues from Hungary, India and Ecuador discuss the effect of the use of bio-fertilizers on the soil respiration process and its impact on  $CO_2$  emissions. The results found by the team show that the use of bio-fertilizers is able to reduce carbon dioxide emissions compared to those produced in soils fertilized with commercial fertilizers.

Dr. Lucía Yáñez-Iñiguez from University of Cuenca (Ecuador) and Dr. Esteban Zalamea-León and Dr. Antonio Barragán-Escandón, all from the same university, discuss the energy potential of urban forest waste as a potential route for electricity generation. The data estimated by the group indicate that this waste has the potential to generate approximately 476 MWh/year of electricity. This analysis is a small example of Ecuador’s potential to leverage waste from an activity to be used as fuel for electricity generation, having an effect on the reduction of greenhouse gases resulting from the use of fossil fuels.

Finally, in this special issue, an analysis of the potential of the green roofs directed by Nelson López Machado and his team is presented, in an international research between Catholic University of Chile, Catholic University of Temuco, Universidad Central Lisandro Alvarado of Venezuela and the Polytechnic Salesian University of Ecuador.

The miscellaneous section presents a study of the impact of landfills conducted by Areli Machorro-Román and the research team from Universidad Popular Autónoma del Puebla, Autonomous University del Carmen and the National Polytechnic Institute. Likewise, Ketty Meza and the research team from Technical University of Manabí, Ecuador, present a study of plant pathologies on pitahaya.

Addressing novel techniques for the analysis of dermatophytosis in guinea pigs, Renzo Venturo and Siever Morales-Cautí, present their study from Scientific University of the South, Peru. Finally, Santiago Guerrero from Universidad Tecnológica Equinoccial del Ecuador, shows

a vision from the academy of the COVID-19 pandemic faced globally.

The editorial board of the journal and the directives of Salesian Polytechnic University would like to thank all the authors who have participated in making this special edition possible, and by having contributed to the development of knowledge that allows the advancement and evolution towards sustainable societies in the near future. During this time of the global coronavirus pandemic, the editors reaffirm the need to reflect on this event and to seize this opportunity to further investigate in areas still little explored, to improve people's living conditions in global trends such as those included in this issue.

Sincerely,

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