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Niche models: two decades from their birth

☒ Several changes in civilizations were achieved based on the historical development of tools. Starting from the creation of rudimentary instruments to the technological advances of modern civilizations, which have allowed counterbalance natural impacts and explore new environments even far off our planet. The biological sciences have not been left out of this progress; an example of this is the development of computational tools that allow the use of species' Ecological Niche Models (ENM). The ENM are algorithms that follow sequences of logical instructions that link geo-referenced information from the species, and data from digitized environmental variables, they reconstruct the niche of species in a multidimensional environmental ecological space, and then projects the ecological niche back to the geographical area, in which favorable environmental conditions for the species are recognized. Currently they have achieved diverse applications towards analysis and conservation of biodiversity.

Wireless Sensor Network Using IPv6 to Monitor Remote Crops

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The implementation of a wireless sensor network (WSN) using internet protocol version 6 (IPv6), allows remote monitoring in real time of short-cycle crop environmental factors at the La Pradera farm of the Universidad Técnica del Norte. Counting

on wireless sensor networks is beneficial due to its accessible costs, economic maintenance, and low energy usage; this last characteristic is the one that allows us to have a stable network, because the nodes can be fed with green energy, in this case solar panels, thus allowing monitoring of larger areas and distances in real time. Counting on real time monitoring of environmental factors allows the crop administrator to: have reliable information to make decisions, possibly to program controlled irrigation; the benefit increases more if platforms such as cloud-based Platforms as a Service (PAAS) are taken advantage of, which allow visualization of the data from any intelligent device with internet access using a web navigator.

Macro and microphotography to document BIODIVERSITY

☒ Macro and microphotography are photographic techniques to document objects that cannot be observed with simple sight. Pioneers of these techniques are: Santiago Ramón y Cajal, Arthur E. Smith, Wilson Bentley and Frank Percy Smith. Microphotography involves reproduction ratios between 1:1 and 25:1; microphotography applies where ratios are higher than 25:1. With basic equipment and simple techniques, high quality photographs can be obtained. The level of detail of an image is related to the depth of the field. The cleanliness of the material, the use of backgrounds, the placement of scales, and the correct selection of lenses contribute to the quality of the photograph. Working in RAW should be a norm when possible. Distinct graphic processors help with the editing and finally correct decisions about the characteristics of the publication medium (be it physical or digital) will highlight the photograph.

Modern techniques to naturally preserve food products

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In the recent years, technologies associated with food

processing and food safety standards (ISO/TS 22002-1:2009) has declined but has not eliminated the chance of food-related diseases. Presently, numerous research projects are focusing on finding new alternatives to ensure the food safety of the consumer y accordingly to reduce the loss of food products, however, preservation through natural microflora and (or) of its antibacterial products may provide the potential to extend the shelf life and food safety. Here we briefly describe the new approach in exploiting the microbiota natural of native lactic acid bacteria as new tool in natural food products preservation.