Phoretix 1D Case Study

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Background Information

Dr Sheeja George is a researcher in Agronomy and Plant pathology while Dr Chauhan is microbial/molecular ecologist.

In this collaborative study, we are studying the role of microbial communities, mainly bacteria and fungi in sustainable agricultural practices. The study also aims to establish how microbial communities can be used as indicators of success in sustainable agriculture settings and plant disease management. To achieve these objectives, bacterial and fungal communities in different types of crop rotations, fertilizer treatments and irrigation regimes were compared.

The challenges we face in our 1D image analysis

The main problem was discrepancy and distortion in gels. Even when gel images were acquired, analysis was difficult either due to hard to use software, software that only used proprietary image formats or software that had limited analytical capacity.

How Phoretix helps us to meet the challenges

By combining ARISA-PCR with this software, we have a versatile tool that can analyze all types of images, allowing the comparison of images from different experiments; it is very quick and easy to use. More importantly it allows me to easily export the data matrix for further statistical analysis. This means our images are no longer just visual, but, we can extract data that can be used in statistical tests.

How has Phoretix helped your research?

Ambiguity of band detection has been removed; the software has allowed a quick turn around and given us the ability to perform powerful statistical tests using our bands.

This is an extremely user friendly software package, the fact that it accepts nearly all formats of images, means that I can use data from any platform. The tools available in the software are encouraging us to design experiments without fear of downstream data analysis. The software has the capacity to analyze not only gel images but we can use it to analyze microtiter plates. Essentially if we can get an image we can make sense of it.

What advice would you give to other scientists?

In our case using ARISA (on an Agilent Bioanalyzer platform) and TotalLab/Phoretix has enabled us to perform robust experiments. My advice for any interested user is simple; download the fully functional trial version, try it and you will be impressed. A search of the impressive list of scholarly articles that cites the software will definitely inform you of its ability.

About the Environmental Sciences Institute, Florida Agricultural and Mechanical University

The Environmental Sciences Institute (ESI) was established in 1995 and became a School in 2011. It is one of several new innovative programs at Florida A&M University. The school is a multidisciplinary unit that offers a wide range of services to students, governmental agencies, private sector companies, communities and other organizations.

The School's mission is to provide instruction, conduct research, engage in professional and community service on the local, national, and international levels, and facilitate technology transfer which will result in protection of the environment and the development of remedies for existing environmental problems; the education of communities on environmental science and policy issues; and the scientific and intellectual preparation of students who are uniquely prepared to address present and future interdisciplinary environmental science and policy issues.

University of Florida, Institute of Food and Agriculture

The University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) is a federal-state-county partnership dedicated to developing knowledge in agriculture, human and natural resources, and the life sciences, and enhancing and sustaining the quality of human life by making that information accessible. While extending into every community of the state, UF/IFAS has developed an international reputation for its accomplishments in teaching, research and extension. Because of this mission and the diversity of Florida's climate and agricultural commodities, IFAS has facilities located throughout Florida.

The University of Florida (UF) is a major, public, comprehensive, land-grant, research university. The state's oldest and most comprehensive university, UF is among the nation's most academically diverse public universities.