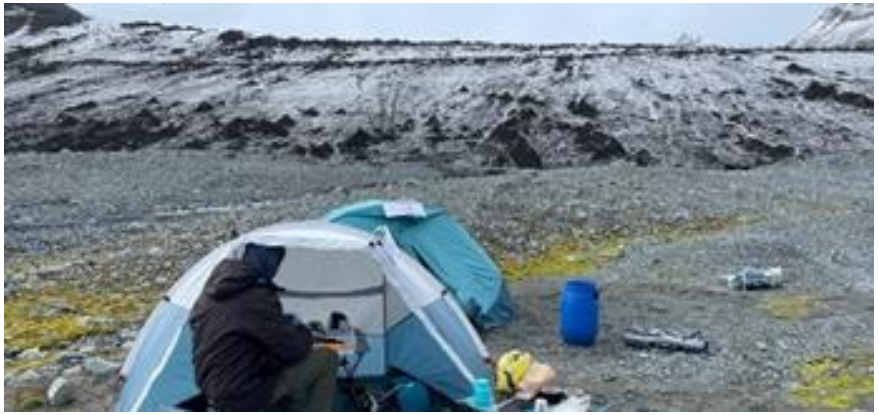
Technology Offer CSIC/CF/022

Portable Laboratory for *in situ* identification of microorganisms



System for the analysis of metagenomes and metatranscriptomes that integrates all analysis steps into a single platform, fast, user-friendly and on-site

Intellectual Property

SqueezeMeta analysis software registered

Stage of development

Prototype already tested in different environments and extreme cold conditions

Intended Collaboration

Licensing and/or co-development

Contact

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Market need

This technology represents a significant advance by providing complete information on the composition and function of a microbial community in a remarkably short timeframe. Before this development, generating such detailed data during fieldwork was not feasible. The ability to process sequencing data in real time allows for immediate results, facilitating a more dynamic and accurate design of samples and experiments, enabling quick decision-making.

CSIC solution

The combination of technologies allows for comprehensive metagenome analysis directly at the sampling site. This includes the isolation, extraction, sequencing, and bioinformatic analysis of DNA, as well as the application of statistical methods.

It has applications such as detecting antibiotic resistance and rapid monitoring of biotechnological systems involving microbiomes. In the agri-food industry, it is used in fermenters, bioreactors, wastewater treatment plants, bioleaching systems, water control, and pathogen detection. The device has been tested under extreme conditions, such as in Antarctica and the volcanic rocks of Las Palmas.

Competitive advantages

- **Portability**: Works directly in the field thanks to its compact size.
- **Autonomy**: Does not require electrical sources, network connection, or large computational resources.
- **Immediacy**: Results within 24 hours from sample collection.
- **Power**: Comprehensive analysis of genes, species, functions, and individual genomes.
- **Economy**: Complete analysis for a few hundred euros.