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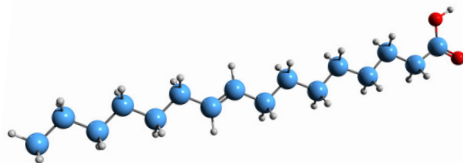
Using NMR to determine fatty acid levels and mono-, di- and tri-glyceride content in oil

Kaffe Bueno is a biotech startup company that unlocks the value of coffee by-products, benefiting personal care, nutraceuticals, and functional foods. Their collaboration with SciLifeLab's NMR Centre in Umeå, focused on developing a method to quantify fatty acid-types in oils using Nuclear Magnetic Resonance (NMR). It resulted in promising results for the company and a new technique now offered as a service from SciLifeLab infrastructure.



The SciLifeLab experts did a lot of work to accommodate my tight timeline. We had discussions about the data and its analysis, and they also helped me understand NMR. I'm grateful for their hard work", says Paloma Rozene Vallespin, R&D Process Engineer, Kaffe Bueno.

The project's main objective was to develop a method using NMR to measure mono-, di-, and tri-glyceride content in coffee oil as well as the fatty acid content. This method would provide information about stability, purity, triglyceride evolution and yield calculations. SciLifeLab's NMR Centre assisted in developing the procedure, preparing samples for NMR, and analyzing the raw data.



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Swedish NMR Centre Umeå.

SciLifeLab infrastructure related to the case

The characterization of triglycerides is a valuable service, not only for oils in coffee, but for any type of oil. NMR was preferred over mass spectrometry because it preserves the integrity of the molecules, enabling a possibility to trace where a specific fatty acid originates from. Understanding how enzymes work on degrading fatty acids in different formulas and adapting services to customer needs was also part of the collaboration.



We didn't have anything set up for this so we had to start from the beginning. We wanted to get something that was reproducible and robust, and finally, we developed a method to measure the fatty acids in a sample of oil by NMR", explains João Figueira, SciLifeLab NMR Centre, Umeå.

Swedish NMR Centre

The Swedish NMR Centre is a research infrastructure that provides access to state-of-the-art NMR instrumentation, methodology and expertise specifically within:

- Structural biology
- Metabolomics
- Chemical biology
- Small molecule DNP-NMR

Access and application

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