Building an effective Tool to Support the Quality Control of Olive Oil: The OLEUM Databank

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It may be commonly agreed that an effective quality control of foods by chemical and physical analysis in many cases relies on the availability of relevant and exhaustive reference data. Olive oil (OO) quality and authenticity control is a top issue not only for the International Olive Council (IOC) members, of which EU is the major producer, but also for other consuming countries, emerging producers and, more in general, for assuring the global consumer safety and confidence. Therefore, it is highly desirable to setup a shared platform, where data acquired from authentic OO samples by applying harmonized analytical protocols is gathered. In particular, within the EU H2020 OLEUM project, a scalable Databank will be developed to bring together data collected by means of different analytical techniques, both instrumental and sensory, applied to specific and traced samples, along with all relevant metadata. The availability of all these data will permit a more effective collaboration and proficiency of the authorized quality control laboratories in Europe and a better global harmonization. The OLEUM Databank will allow to facilitate the cross-experiment comparison, to share anchor results, calibration curves or even spectra or chromatograms. An important requirement for a widely employable reference database is to ensure that the analytical reference data can be accessed no matter on which vendor device it was acquired. A technical goal of the OLEUM Databank is not to specify and create another interchangeable data format, but rather to let people store their raw, as well as processed data sets, in the original vendor format and, if possible, in an open standard format. These data sets can be accessed either by the vendor software or via conversion to an appropriate open format, with the aim to provide a converter capable to read various binary vendor formats. Furthermore, the collected data will be stored in a non-relational database, allowing to add new results and insights in a flexible and incremental way. This work was developed in the context of the project OLEUM *"Advanced solutions for assuring authenticity and quality of olive oil at global scale"* funded by the European Commission within the Horizon 2020 Programme (2014–2020, grant agreement no. 635690).