Shelf-Life Prediction for Olive Oil

Prairie Tide Analytics offers testing to predict the shelf-life of olive oil (OO) from the date of testing.

Predictions are based on the current state of the OO, with the shelf-life projection dependent upon the ongoing storage conditions being optimal/recommended: dark environment (dark bottles/cans), minimal head space in storage container and controlled stable temperature (16ºC to 20ºC recommended).

Olive oil is a product that varies depending upon its age, growing location and growing conditions, with components that can impact the stability of the OO including polyphenols, tocopherols, free fatty acids, etc. varying from region to region and harvest to harvest. Consequently, the best method for predicting the shelf-life of individual OO batches is the analysis of the stability of each individual batch and calculating the shelf-life from the resulting data.

This method has the advantage of being able to be applied to any batch of OO at any stage of its shelf-life and being used to predict the date of expiry.

PTD performs the shelf-life calculation based on the method described by Guillaume and Ravetti. (2016), using oxidative stability (OSI), pyropheophytin content and 1,2-diacylglycerol content in conjunctions of the free fatty acid content as the stability indicating markers (Table 1).

Table 1.   Stability/Shelf-Life Projection

(Based on Guillaume and Ravetti. (2016), J. Chem., **2016,** *Article ID 6393962)*

Test	Method
Shelf-Life Prediction	Calculation
Oxidative Stability Index	Cd 12b-92
Pyropheophytin	AOCS Cc 13k-13/ ISO 29841
Diacylglyerols	^{1}H-NMR
Free Fatty Acid*	AOCS Ca 5a-40

The calculations take into account the projections from each test with the final shelf-life determined from the "worst-case" scenario. The maximum shelf-life predicted from these methods is 28.33 months, effectively just over 2 years.

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