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# **Comparison of Chemical Quality Standards for New Zealand Extra Virgin Olive Oil**

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**Jin Ran**

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# Abstract

Extra virgin olive oil (EVOO) is the highest quality and most expensive olive oil classification. There are three international quality standards (IOC, USDA and Standards Australia) for defining the chemistry and sensory quality of EVOO. The objectives of the present work were to analysis New Zealand EVOO according to specific standards applied in Australia which are different from IOC and USDA standards, predict the shelf life of New Zealand EVOO based on the new standard tests and evaluate how commercial EVOOs available in New Zealand fit with the Australia standard based on chemical analysis only. Two brands of avocado oil were taken into consideration in the commercial oils comparison, tested with the same chemical analyses as for the EVOOs. EVOO from Waiheke Island, New Zealand (NZ), was stored and evaluated for various quality standards over a six-month storage trial. EVOO from two cultivars, 'Frantoio' and 'Leccino', was analysed. The storage temperatures selected were 7, 20, 30 and 40 °C. The peroxide value, pyropheophytin% and 1,2-diacylglycerols% were analyzed using titration, HPLC and GC, respectively, based on the methods outlined in the olive oil standards. Zero and first order kinetics was applied to the data collected for peroxide value, pyropheophytin% and 1,2-diacylglycerols% in order to predict the EVOO shelf life. The commercial EVOOs available in NZ were compared by analyzing the % free fatty acid, peroxide value, total phenolics, pyropheophytin% and 1,2-diacylglycerols%. The commercial EVOOs from NZ had lower pyropheophytin% and higher 1,2-diacylglycerols% than imported olive oils. Commercial avocado oils tested showed high % free fatty acid and low total phenolics, low pyropheophytin% but low 1,2-diacylglycerols% compared to NZ olive oil.

A high content of phenolic compounds and of 1,2-diacylglycerols% were found in New Zealand EVOO which was the best oil compared to other countries' EVOO.

New Zealand EVOO can be stored for at least one year at room temperature (20 °C) and still remain within the Australian Standards.

**Key words:**

extra virgin olive oil (EVOO), New Zealand, standards, pyropheophytin, 1,2-diacylglycerols.

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