



A NEW FUNCTIONAL VEGETABLE OIL NATURALLY ENRICHED IN LYCOPENE

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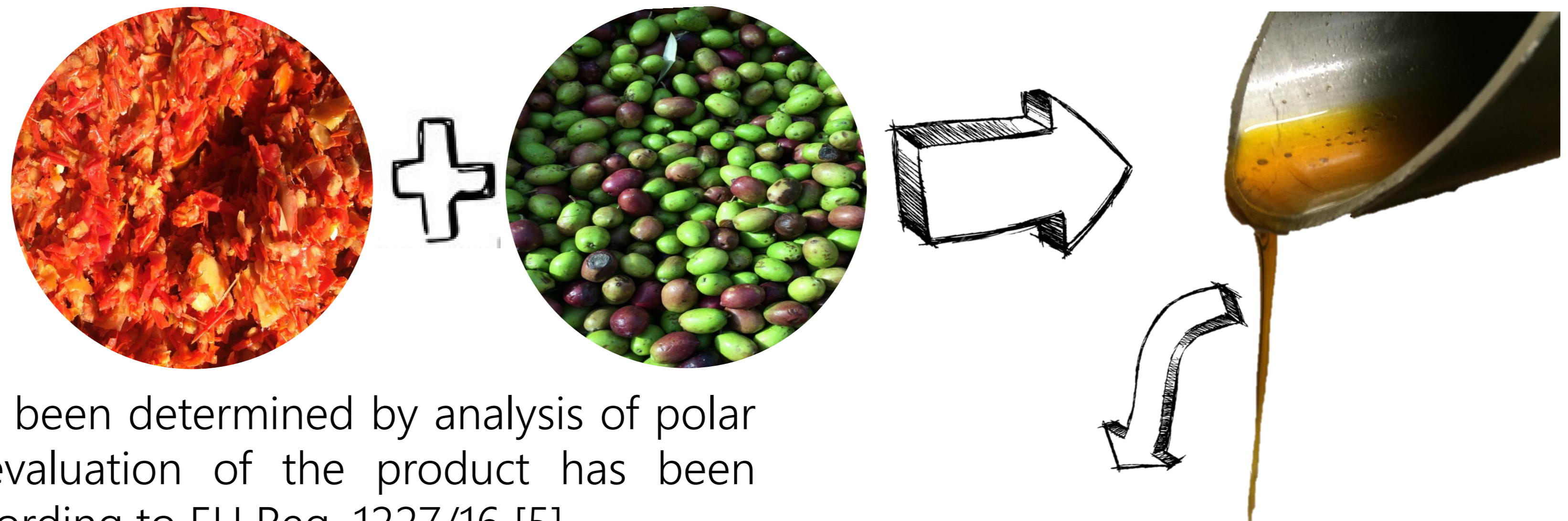
INTRODUCTION

Virgin **olive oil** and **tomatoes** represent two key-elements of Mediterranean diet according to their nutritional and healthy properties. In particular, these products owe their beneficial effect in the presence of many compounds such as phenols, for olive oil, and carotenoids (β -carotene and lycopene), for tomatoes [1,2]. It has been demonstrated that the **bioavailability of lycopene is 3 to 5 times increased when tomatoes are consumed with virgin olive oil** [3]; thus, the co-processing of olives and tomatoes, by mild physical methods only, could be useful for the production of a sustainable functional oil. The oil appears really interesting from a compositional point of view and can constitute an innovative proposal for the market. The setting up of this new product could be included in a virtuous interaction between supply chain and industrial sector, already known as industrial symbiosis [4], that reflects recent European strategies on decoupling economic growth from environmental impacts.



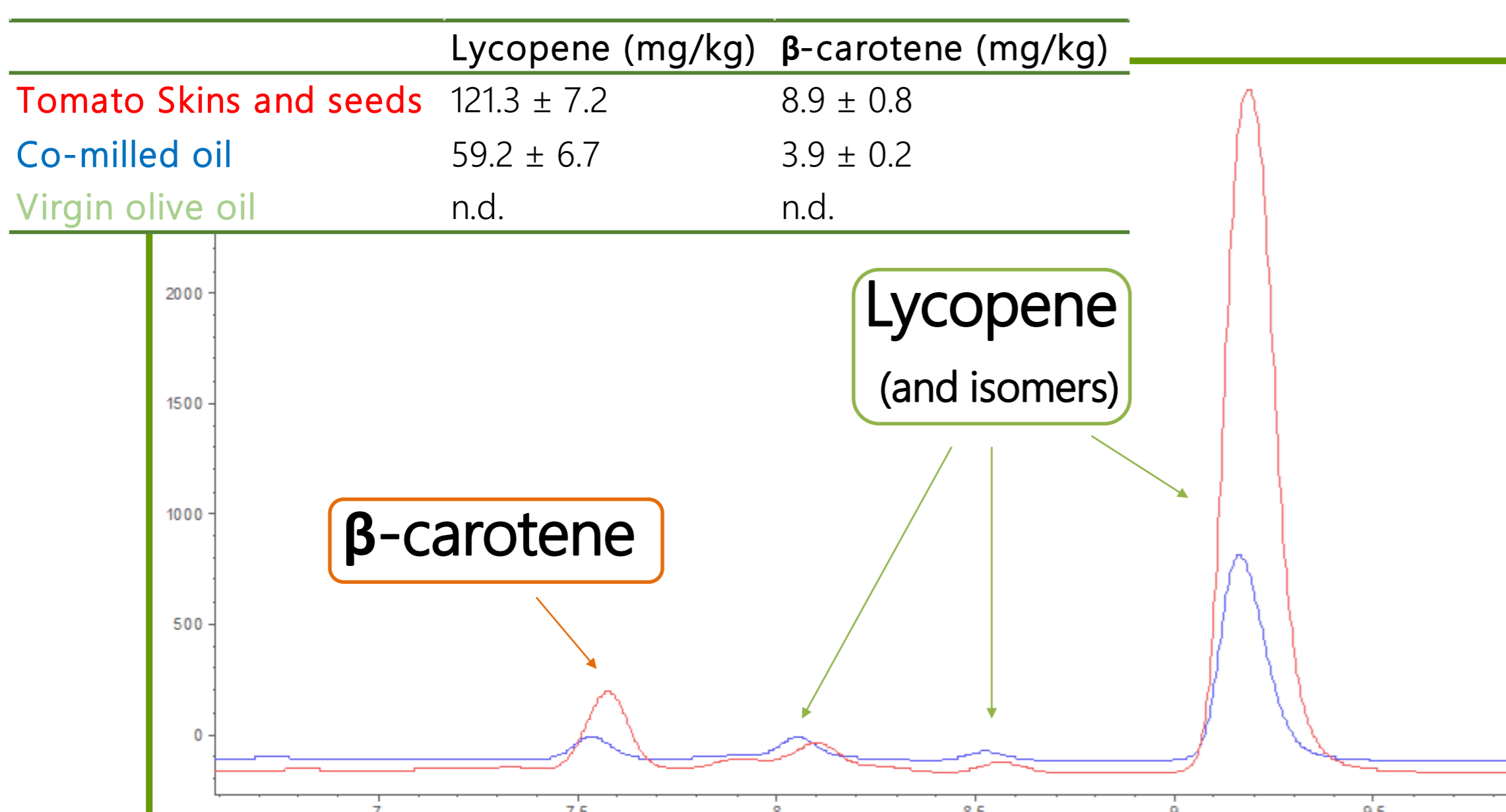
MATERIALS AND METHODS

A co-milled olive oil has been produced crushing together olives and tomato seeds and skins without using any added solvent. Subsequently, the oil has been characterized and evaluated in terms of hydrolytic and oxidative status. The amount of antioxidant compounds has been determined by analysis of polar phenols and carotenoids. The sensory evaluation of the product has been conducted by a panel of trained judges, according to EU Reg. 1227/16 [5].



RESULTS

The data related to the hydrolytic and oxidative status were within the limits defined for virgin olive oil. The amount of antioxidants detected in tomato **seeds and skin** and in the **co-milled olive oil** suggests that the transfer of carotenoids from tomato to the olive oil can be exploited for a natural enrichment of the oil.



CONCLUSIONS

This new product, naturally enriched in antioxidants, represents a good alternative to the use of synthetic molecules to be added to refined olive oils. The co-milled oil might be marketed as a "condiment produced using olives and tomato by-products" or "olive oil dressing enriched in lycopene".

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