



LV CONVEGNO DI STUDI

METAMORFOSI VERDE **AGRICOLTURA, CIBO, ECOLOGIA**

Complesso monumentale di San Pietro
Dipartimento di Scienze agrarie, alimentari e ambientali
PERUGIA 13-15 settembre 2018

The “taste” of innovation: consumers preferences for extra-virgin olive oil extracted through ultrasound application

Cicia Giovanni[°], Valentina Carfora[°], Domenico Carlucci^{°°}, Daniela Caso[°], Carla Cavallo[°], Maria Lisa Clodoveo^{°°}, Teresa Del Giudice[°], Luigi Roselli^{°°}, Riccardo Vecchio[°], Bernardo de Gennaro^{°°}, [°]University of Naples Federico II, ^{°°} Department of Agricultural and Environmental Science, University of Bari Aldo Moro

Abstract

Objectives - Extra Virgin Olive Oil (EVOO) is one of the most popular Traditional Food Products (TFPs) (Vanhonacker et al., 2010) of Mediterranean countries.

Despite the widely recognized advantages of innovation for the competitiveness of firms operating in global food markets, the EVOO industrial process has changed very little over the last few decades (Clodoveo et al., 2014). This seems mostly due to the fact that introduction of innovation in TFPs is more problematical compared to other conventional foods (Almli et al., 2011; Guerrero et al., 2009).

Innovations that provide consumers with tangible and relevant benefits seem to be well accepted also in TFPs provided that these innovations do not damage the traditional character of the product (Almli et al., 2011; Hersleth et al., 2011). In general, when innovations are applied to TFPs, their degree of acceptance is strongly dependent on the type of product and the type of innovation (Guerrero et al., 2009). Because the majority of innovations fail to gain any success on the market (Dijksterhuis, 2016), it is crucial to consider the point of view of consumers during the early stages of innovation, in order to prevent failures and subsequent waste of resources (van Kleef et al., 2005).

In this study, we investigated consumers' reaction to an innovative EVOO extracted through ultrasound application. This innovation seems to be very promising as it provides relevant advantages in terms of technical efficiency of the process (e.g. higher yield extraction), product healthiness (higher content of polyphenols with antioxidant effects), and product sensory profile (lower bitter and pungent taste than conventional products) (Clodoveo et al., 2017). However, despite these advantages, consumers could not accept this innovation in a TFP such as EVOO.

Methodology - A field experiment was performed from May to July 2017 in two Italian cities, Bari and Naples. A total of 200 participants were recruited according to two eligibility criteria:

being responsible of household food purchasing and being regular buyer of EVOO. Participants were asked to evaluate and taste a prototype of EVOO extracted through ultrasound as well as other similar products under different conditions specifically planned in order to detect separately the effects of labelling, information and sensory properties (Combris et al., 2009). Non-hypothetical experimental auctions were used to elicit individuals' willingness-to-pay (WTP) and to avoid problems related to hypothetical bias (List & Gallet, 2001).

Results - Results suggests that the level of information plays a key role in affecting consumers' preferences for the selected products. In blind conditions, consumers did not perceive significant differences about intrinsic attributes of the selected products. Conversely, showing labels and providing more information about the selected products induces expectations that affect consumers evaluation of tasting experience. In particular, in the case of tasting with full information, consumers' evaluation of innovative EVOO extracted through ultrasound application increases notably. Practical implication of these results is that the innovation related to the application of ultrasounds for EVOO extraction could be likely well appreciated by consumers.

Keywords: extra-virgin olive oil, willingness to pay, ultrasound, experimental auctions, Italy

References

- Almli, V. L., Næs, T., Enderli, G., Sulmont-Rossé, C., Issanchou, S., & Hersleth, M. (2011). Consumers' acceptance of innovations in traditional cheese. A comparative study in France and Norway. *Appetite*, 57(1), 110-120.
- Clodoveo, M. L., Dipalmo, T., Schiano, C., La Notte, D., & Pati, S. (2014). What's now, what's new and what's next in virgin olive oil elaboration systems? A perspective on current knowledge and future trends. *Journal of Agricultural Engineering*, 45(2), 49-59.
- Clodoveo, M. L., Moramarco, V., Paduano, A., Sacchi, R., Di Palma, T., Crupi, P., ... & Amirante, R. (2017). Engineering design and prototype development of a full scale ultrasound system for virgin olive oil by means of numerical and experimental analysis. *Ultrasonics sonochemistry*, 37, 169-181.
- Combris, P., Bazoche, P., Giraud-Héraud, E., & Issanchou, S. (2009). Food choices: What do we learn from combining sensory and economic experiments? *Food Quality and Preference*, 20(8), 550-557.
- Dijksterhuis, G. (2016). New product failure: Five potential sources discussed. *Trends in Food Science & Technology*, 50, 243-248.
- Guerrero, L., Guàrdia, M. D., Xicola, J., Verbeke, W., Vanhonacker, F., Zakowska-Biemans, S., ... & Scalvedi, M. L. (2009). Consumer-driven definition of traditional food products and innovation in traditional foods. A qualitative cross-cultural study. *Appetite*, 52(2), 345-354.
- Hersleth, M., Lengard, V., Verbeke, W., Guerrero, L., & Næs, T. (2011). Consumers' acceptance of innovations in dry-cured ham: Impact of reduced salt content, prolonged aging time and new origin. *Food Quality and Preference*, 22(1), 31-41.
- List, J. A., & Gallet, C. A. (2001). What experimental protocol influence disparities between actual and hypothetical stated values? *Environmental and resource economics*, 20(3), 241-254.

- Van Kleef, E., Van Trijp, H. C., & Luning, P. (2005). Consumer research in the early stages of new product development: a critical review of methods and techniques. *Food quality and preference*, 16(3), 181-201.
- Vanhonacker, F., Verbeke, W., Guerrero, L., Claret, A., Contel, M., Scavedi, L., . . . Raude, J. (2010). How European consumers define the concept of traditional food: Evidence from a survey in six countries. *Agribusiness*, 26(4), 453-476.