



## Chemometrics strategies to assess mountain products identity

**Lorenzo Strani<sup>1</sup>, Caterina Durante<sup>1</sup>, Pierpaolo Becchi<sup>1</sup>, Sara Michelini<sup>2</sup>, Valentina Pizzamiglio<sup>2</sup>, Marina Cocchi<sup>1</sup>**

*Addresses: <sup>1</sup>University Modena and Reggio Emilia, Department of Chemical and Geological Sciences, Via Campi 103, Modena, 41125, Italy*

*<sup>2</sup>Consorzio del Formaggio Parmigiano Reggiano, Via Kennedy 18, Reggio Emilia, 41214, Italy*

*E-mail: [lostrani@unimore.it](mailto:lostrani@unimore.it)*

---

“Mountain Product” is a relatively new quality label defined in the European Community regulation [1] reserved for food products produced and processed in mountain areas, aiming to support the economy in disadvantaged areas. However, the “Mountain Product” denomination is still not enough spread and not well known by consumers, the present work is part of a larger research project whose objective is to develop an analytical methodology to conjugate identity, sustainability, and value, i.e., MOUNTAIN-ID (<https://www.mountainid.unimore.it>). Moreover, very few studies attempt to differentiate the same food product produced in a mountain area from the one obtained in the plane. Both dairy farmers and consortia want to protect the authenticity of their products from analogues and, at the same time, promote them. In this scenario, the present study aimed at assessing among different samples of Parmigiano Reggiano, a PDO (Protected Designation of Origin) product [2], the ones with the mountain denomination, namely the “Progetto Territorio Parmigiano Reggiano Prodotto di Montagna” (PdM). In order to obtain the identity traits, different analytical approaches are employed, including spectroscopic techniques used as fingerprinting (untargeted) strategies. With the aim to differentiate PdM with respect non-PdM (as well PDO Parmigiano Reggiano, but produced in plain areas) products, chemometrics models are developed testing different strategies, i.e. class modeling and discrimination, and fusing information from different spectroscopies.

---

### References

- [1] regulation (EU) No 1151/2012
- [2] <https://www.parmigianoreggiano.com/product-guide-seals-and-marks#5>