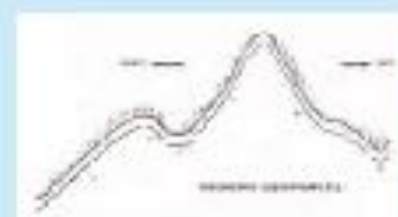


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RIASSUNTI

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B6 = STUDY OF THE QUALITY OF SAFFRON (*CROCUS SATIVUS* L.) PRODUCED IN THE ALPS

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Saffron is obtained from the stigmas of an annual hermaphrodite bulbous of *Iridaceae* family, *Crocus sativus* L.. The main growing Italian regions are Abruzzo, Sardegna and Sicilia. The introduction of saffron in alpine areas could help to broaden and diversify the activities of mountain multifunctional farms, with a positive impact on economy and land management. Saffron is considered one of the most expensive spices and its use in food industry, as an ingredient in food and beverage, in dyeing industry and as analgesic, sedative and decongestant started a long time ago (1). Recent studies have focused on saffron as an antioxidant and cytotoxic agent (2, 3).

According to ISO 3632/2003, saffron can be classified into three categories of quality (I, II, III) depending on the concentration of the three main metabolites responsible for its characteristic color, flavor and aroma: Crocin, Picrocrocin and Safranal.

This study represents the first investigation of the quality of saffron product in alpine areas evaluated by spectrophotometric analysis, and by solid-phase microextraction (SPME) followed by gas chromatographic analysis combined with mass spectrometry (GC/MS). The samples, produced in two consecutive years (2012-2013), come from some areas of Valle Camonica (BS), and high Val Trompia (BS) located at an altitude between 720 and 1200 m a.s.l.. In particular the bulbous used for this study were produced by local suppliers ("Al Muras", Pozzolengo (BS)). Results obtained were compared to samples of commercial saffron. After spectrophotometric analysis all samples can be classified in the highest "Category of quality". The analysis has showed a correlation between the concentration of Crocin and the increasing of altitude. This correlation is a peculiarity of the carotenoids; actually an increase of their concentration is related to the increasing of UV-radiation and altitude (4).

The SPME-GC/MS analysis evidences some differences about the aromatic profile of analyzed samples, mainly in Safranal concentration. Results show a correlation between the increase of the drying temperature of the stigmas and Safranal concentration. Safranal is a volatile compound originated by the hydrolysis of Picrocrocin during the drying process and storage of saffron (5).

Our study shows that the analysis carried out have given some valid information about the quality of the saffron produced in the alpine areas and it suggests this culture as a new source to promote the economy of multifunctional farms in mountain areas.

1) H. Caballero Ortega, R. Pareda-Miranda, L. Riveron-Negrete, J.M. Hernandez, M. Medecigo-Rios, A. Castillo-Villanueva, F.I. Abdullazev (2004) *Acta Hort.*, 650, 321-326

2) S. H. Mousavi, N. Z. Tayarani, H. Panasee (2010) *Cell. Mol. Neurobiology*, 30, 183-191

3) S. Samarghandian, M. H. Boskabady, S. Davoodi (2010) *Pharmacognosy Magazine*, 6, 309-314

4) F. Zarinkamar, S. Tajik, S. Soleimanpour (2011) *Advances in Environmental Biology*, 5, 831-838

5) P. Lozano, D. Delgado, D. Gomez, M. Rubio, J.L. Iborra (2000) *J. of Biochemical and Biophysical Methods*, 43, 367-378