Proceedings of the Joint Meeting AGI-SIBV-SIGA
Assisi, Italy – 19/22 September, 2011
ISBN **978-88-904570-2-9**

Poster Communication Abstract – 8.27

METABOLITES AND PEROXIDASE ACTIVITIES IN *BRASSICA RAPA* L. CV. *SYLVESTRIS* DURING POSTHARVEST STORAGE

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Brassica rapa L. cv. Sylvestris, postharvest storage, peroxidases, ascorbic acid, tocopherols

Leafy vegetables at harvest are subjected to considerable stress due to the sudden disruption in energy, nutrient and hormone supplies, They suffers an oxidative stress that activate senescence processes involving physiological biochemical and molecular events that affect also their nutritional, nutraceutic and organoleptic properties. In this work we studied the postharvest changes occurring in the edible part *Brassica rapa* L. subp. sylvestris (friariello napoletano) buy studying the patterns of metabolites as carbohydrates (glucose, fructose, sucrose), protein, chlorophyll, tocopherols, ascorbic acid and glucosinolates as well as of peroxidase isoenzymes. The analyses were done in floret, stem and leaf blade in plants kept stored in different conditions. The experiments were done by collecting the top turnips at commercial maturity. At the harvest the broccoli were saved in plastic boxes at 20°C, 10°C, 4°C and at 4°C in modified atmosphere (O2 5%; CO2 2%; N2 93%) up to 20 days from the harvest. At sampling, the edible part were separated in florets, stem and leaf blade, freezed and powered in liquid nitrogen, and, subsequently, used for the analyses.

During storage a significant decrease of carbohydrates (glucose, fructose, sucrose), protein, chlorophyll, tocopherols, ascorbate and glucosinolates occurred even if at different extent in all organs considered. Ascorbate concentration higher in leaf blades than the florets at the harvest, rapidly decreased in all organs during storage. Protein degradation was also accompanied by an increase in free amino acids. The peroxidase activities were due to acid, neutral or basic isoforms differently distributed in the plant tissues. The neutral and basic isoforms were dominant in leaf blade and florets, whereas acid isoforms were dominant in the stem. The activities increased significantly in florets and leaf blades during storage, mainly basic and neutral isoforms. In the stem, instead the activity decreased mainly for the decrease of the acid isoforms.

The storage at 4 °C, as expected, slow down the changes even if ascorbate concentration stayed higher in the samples kept in modified atmosphere storage.

The overall detailed results were analysed and discussed.

This work has been supported by “Seconda Università degli Studi di Napoli”, “Ministero dell’Università” e “Ministero della Ricerca Scientifica e tecnologica” of Italy (PRIN 2008S9T3KK_003), “Regione Campania, PSR 2007-2013 Misura 214 azione f2 progetto Agrigenet”.