



cause of damages in soluble proteins that decrease its functional value.

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Functional value of three varieties of *Malus domestica* Borkh from Beira Alta, Portugal orchards

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The preservation and expansion of agricultural production require the recognition of specific properties of a product which contribute to increase their market value, since the conditions of soil and climate are important to achieve the properties which characterize and individualized it. Currently the region of Beira Alta, Portugal have a Protected Geographical Status (PGS) called Apple of Beira Alta which includes Golden Delicious and Starking varieties, traditionally grown in this region, and a Protected Designation of Origin (PDO) for Bravo Esmolfe, one regional variety extremely aromatic. So, the aim of this study was to evaluate the functional value of these varieties of *Malus domestica* Borkh, harvested in these orchards, in terms of reducing sugars, soluble protein, ascorbate and phenol contents as well as antioxidant power (DPPH, FRAP) over 83 days at 4 °C. The results show that Bravo Esmolfe have the lowest content of reducing sugars, while Starking exhibited the highest protein content. The cold preservation caused a significant increase of sugar level and decreased protein content of Starking, but Golden Delicious no reveals significant changes along time. The Starking response suggests loss of water and protein degradation during storage. The ascorbate level in Starking and Bravo Esmolfe was superior to that which was determined in Golden Delicious, a parameter that evolved positively along time in the three varieties, whereas Starking phenol content was higher than Golden Delicious, without significant changes during cold storage, and Bravo Esmolfe concentrates this content along conservation. Antioxidant power (DPPH, FRAP) was highest in Starking and Bravo Esmolfe, but in the first showed decrease during the storage. The positive correlation detected in Starking between antioxidant power (DPPH) and protein content, during cold storage, points to the loss of antioxidant power as the