Lipoxygenase activity in grain legumes

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Abstract

The lipoxygenase (LOX, Linoleate 13S-lipoxygenase, E.C. 1.13.11.12) catalyzes the degradation of polyunsaturated fatty acids and it is believed to be a major cause of undesirable off-flavor development in legumes. LOX is known to be involved in plant growth and development, senescence, wounding, lipid mobilization during germination, and defence against pests and diseases. Much of the interest in LOX is due to its significant role in the post-harvest physiology of seeds with high levels of LOX and linoileic acid, such as grain legumes. The aim of this study was to analyse the lipoxygenase activity in green pea (Pisum sativumL.) and lentil (Lentil culinarisL.)using linoleic acid as substrate. Moreover, in order to establish the LOX reaction velocities and substrate affinity, the kinetic parameters, KMand Vmax, were determined with a non-linear regression model fitting tothe Michaelis-Menten equation procedure. The catalytic efficiency, which is reflected by the ratio of Vmaxvs. KMwas also calculated.

Biography:

Liburdi Katia has completed her PhD during the 2007 year from University of Sapienza (Rome, Italy). From March 2011, she is Assistant Professor and lecturer in food science and technology disciplines at the University of Tuscia. Dr. Katia Liburdi conducted research focused on the development of immobilised enzyme for food applications. The derived knowledge has published in more than 36 peer-reviewed journals, she is also a member of the Editorial Board of "Food Bioscence" (Scopus and WoS indexed with IF: 3.220), "Acta Alimentaria" (Scopus and WoS indexed with IF: 0.384) and Advances in Food Processing and Technology (Gavin Publisher).

Speaker Publications:

1. "Humification-mineralization pyrolytic indices and carbon fractions of soil under organic and conventional management in central Italy"; Journal of Soil and Tillage Research/ Vol 92 (1-2): 2007, 10-17
2. "Lysozyme in wine: an overview of current and future applications"; Journal of Comprehensive Reviews in Food Science and Food Safety/ Vol 13 (5): 2014, 1062-1073
3. "Bromelain from pineapple stem in alcoholic–acidic buffers for wine application"; Journal of Food Chemistry/ Vol 124 (4), 2011, 1349-1353.
4. "Chitosan/clay nanocomposite films as supports for enzyme immobilization: An innovative green approach for winemaking applications"; Journal of Food Hydrocolloids/ Vol 74, 2018, 124-131
5. "Immobilized lysozyme for the continuous lysis of lactic bacteria in wine: Bench-scale fluidized-bed reactor study"; Journal of Food Chemistry/ Vol 210, 2016, Pages 49-55.

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