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Research abstract

Effect of Temperature and pH on the Antioxidant Activity of Protein Hydrolysates as Obtained of *Amaranthus hypochondriacus* L. Grain

López Sánchez J.¹, Paredes F.M.H.¹, Palma I.¹, Soriano Santos J.¹

¹ Iztapalapa, Universidad Autónoma Metropolitana, Biología, Av. San Rafael Atlixco #186, D.F., Delegación Iztapalapa, C.P. 09340, México.

Abstract: The study on the stability of peptides during processing and the effects on their bioactivity are crucial issues, therefore the main objective of this essay was evaluate the effect of temperature and pH on the chelating activity of Cu^{2+} and Fe^{2+} on hydrolysates of globulin. Chelating activity on Cu^{2+} was lower than that exhibited by Fe^{2+} . Effects of different temperatures (40 to 120°) on chelating Cu^{2+} activity of globulin hydrolysates there were no significant differences ($p < 0.05$). All globulin hydrolysates at acidic pH showed a decrease on the Cu^{2+} chelating activity but at alkaline pH this activity was kept constant. Regarding Fe^{2+} chelation activity decreases when temperature was increased at 80° C; the EC_{50} observed was $479 \pm 0.1 \mu\text{g/mL}$, while at 120 °C the EC_{50} was $800 \pm 0.5 \mu\text{g/mL}$. Concerning the effect of pH was observed at alkaline pH chelating activity was stable the EC_{50} observed was $11 \pm 0.9 \mu\text{g/mL}$. Globulin hydrolysates were stable at different temperatures assayed as well as at different pH (6-12). Thus the globulin hydrolysates are commercially attractive as 'health enhancing ingredient' in the functional foods design. However, assessments for toxicity are necessary before its use.

Keywords: protein, hydrolysates, stability, chelation

Corresponding author: Jennifer López Sánchez

jenny_81@hotmail.com