SUPERCRITICAL CO_2 EXTRACTION OF CAROTENOIDS AND CAPSAICINOIDS FROM PERUVIAN PEPPERS AND ITS QUANTIFICATION BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

I. Bontemps[(1)], E. Coronel[(1)], S. Velásquez[(1)], S. Quispe-Condori[(2)]*, A. Saito-Roncal[(2)] and N. Gamarra[(1)]

(1) Facultad de Ingeniería en Industrias Alimentarias, Universidad Nacional del Centro Av. Mariscal Castilla N° 3909, El Tambo, Huancayo, PERU

(2) Escuela de Ingeniería de Alimentos, Universidad Peruana Unión Altura Km. 19.5 Carretera Central, Ñaña-Lima, PERU

The objective of the present work was to extract and quantify carotenoids and capsaicinoids from different species of Peruvian peppers. The fruits were collected in Oxapampa, Pasco, Peru. The fruits were dried until 8 -13 % (dry basis) and grinded at particle sizes of 0.45 - 1 mm. The CO_2 supercritical extraction was performed at 200 and 400 bar, 35 and 55 °C and 1.5 and 3.0 hours. The best operational conditions, in order to obtain the high global yield, were 400 bar, 55 °C and 3.0 h, except for *C. chinense* (200 bar, 55 °C and 3.0 hours). The species with high content of carotenoids were the paprika and "Charapita" (1771.76 and 2520.73 mg/100 g d.b., respectively). The main carotenoid in both species was beta-carotene. The species with the highest values of total capsaicinoids (nordihidrocapsaicina +capsaicina + dihidrocapasaicina) were "Charapita" and "pinchito" (29665,16 y 32953,41 mg/100 g d.b. respectively) extracted at 200 bar / 55 °C / 3 h y 400 bar / 35 °C /1,5 h, respectively. The same species showed the highest values of pungency. The supercritical CO_2 extraction of oleoresin from peppers at different operational conditions determines the color red and yellow of the extracts and the amount of capsaicinoids.

Keywords: supercritical extraction, peppers, carotenoids, capsaicinoids, HPLC.

*Corresponding author: socrates@upeu.edu.pe