

The determination of heavy metal and micronutrient elements in sunflower seeds grown in the Thrace region

U. Gecgel*
O. Ay

Namik Kemal University
Agricultural Faculty
Food Engineering Department
Tekirdag - Turkey

In this research, the amount of heavy metals and micronutrient elements were determined in sunflower seeds, which are widely produced in the Thrace Region. This study was performed on the sunflowers harvested from 28 different settlements within the boundaries of the Thrace Region (sampling locations) 2012 and 2013. In the research; the heavy metals of Lead (Pb), Nickel (Ni), Iron (Fe), Zinc (Zn), Antimony (Sb), Cadmium (Cd), Copper (Cu), Arsenic (As), and micronutrient elements of Manganese (Mn), Phosphorus (P), Calcium (Ca), Magnesium (Mg) and Potassium (K) were determined using ICP-OES. In conclusion, no amount of Sb and As were detected in the analyzed samples. The heavy metal results in 2012 and 2013; for Pb, Ni, Fe, Zn, Cd and Cu, 0.2-0.0, 0.05-0.0 mg/kg; 9.94-1.03, 10.11-1.90 mg/kg; 68.92-26.54, 70.71-26.65 mg/kg; 31.60-16.36, 24.55-17.36 mg/kg; 0.22- 0.03, 0.22-0.02 mg/kg and 13.13-6.20, 14.20-7.75 mg/kg between these values were found respectively. The micronutrient element of the samples for 2012 and 2013, Mn, P, Ca, Mg and K results; 22.36-6.32, 20.93-5.83 mg/kg; 5496.8-2216.7, 4388.0-2388.7 mg/kg; 3370.2-792.4, 1763.8-833.7 mg/kg; 2229.2-1059.0, 2018.3-994.2 mg/kg; 7669.8- 3890.5, 7766.0-4044.1 mg/kg, were determined respectively.

Keywords: Environmental pollution, heavy metal, micronutrient element, sunflower seed, Thrace Region

(*) CORRESPONDING AUTHOR:

Umit Gecgel
Namik Kemal University,
Agricultural Faculty,
Food Engineering Department,
59030 Tekirdag - Turkey
ugecgel@nku.edu.tr
Tel: +90 282 2931442
Fax: +90 282 2931480