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Uptake and accumulation of perchlorate in spinach: Effect of agronomic practices

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Perchlorate can inhibit the production of thyroid hormones in humans, and cause hypothyroidism, thyroid cancer and abnormal development of the nervous system (Rubin et al., 2017; Steinmaus et al., 2015). Perchlorate has emerged as a contaminant of global concern due to its widespread occurrence in different types of environmental compartments around the world (Calderón et al., 2017). In Chile the cultivation and consumption of different types of vegetables (spinach) is significant, due to their fast growth and low cost. Although some studies have reported the occurrence of perchlorate in drinking water and other matrices but very little is known about its presence in vegetables, especially in Chile. The present study evaluates whether there are differences in the incorporation of perchlorate in spinach (oleracea spinacea) grown in field in presence of two types of agronomic practices (manual and fertirrigation) using caliche (KNO_3).

The study show that manual fertilization has less effect on the accumulation of ClO_4- than fertirrigation. An increase in the application of fertilizer (double) increases the accumulation of perchlorate. These kinds of detections put forth the need to make new and deeper studies to evaluate the incorporation and accumulation of ClO_4- in various types of vegetables that are cultivated throughout Chile.

Biography

Dr. Raúl Calderón has completed his PhD at the age of 26 years from Universidad de Santiago de Chile and postdoctoral studies from Centro de Investigación y Desarrollo de Recursos y Ambientes Costeros. He is researcher at Universidad Bernardo O Higgins. He has published more than 12 papers in reputed journals and has been serving as an editorial board member of repute.

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