

Lead contamination in lettuce collected from different urban areas in Caldas da Rainha, Portugal a preliminary study)

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Abstract

Due to the increasing awareness of the link between diet and health, the demand for healthy foods such as leafy vegetables has increased over the recent decades [1] and among them, lettuce (*Lactuca sativa*) have been broadly produced and consumed worldwide. Moreover being Portugal a Mediterranean country, lettuce is included in the Mediterranean diet. However, leafy vegetables contamination by lead (Pb) is increasing, especially among vegetables grown in urban areas [2]. Concerning lettuce, its efficient uptake of metals by the root and subsequent translocation within the roots and the shoot, results in their accumulation at relatively high internal levels. Due to this fact, lettuce is actually one of the biological species recommended by the OECD for soil toxicity testing [3]. In this manner, the plants grown in contaminated soils may turn into vehicles for transferring Pb into the human body, may causing anaemia, increase in blood pressure, reduced fertility, nervous system damage and multiple other problems [4,5].

With the rapid growth that has occurred in recent years, of urban gardens, it is urgent to control the quality of the harvested products. Monitoring the levels of Pb in such a largely consumed vegetable, lettuce, certainly contributes to prevent the risk of long-term exposure to this toxic metal.

curricular units of Toxicology since 2014; and since 2015, Pollution and Ecotoxicology. She published 9 papers in international journals, performed 15 communications (4 oral presentations and 11 poster presentations) and 8 seminars.

Speaker Publications:

1 Changes in rat urinary porphyrin profiles predict the magnitude of the neurotoxic effects induced by a mixture of lead, arsenic and manganese. Andrade V, Mateus ML, Batoréu MC, Aschner M, Marreilha dos Santos AP.

2. The inhibitory effect of manganese on acetylcholinesterase activity enhances oxidative stress and neuroinflammation in the rat brain. Santos D, Milatovic D, Andrade V, Batoréu MC, Aschner M, Marreilha dos Santos AP.

3. Urinary delta-ALA: a potential biomarker of exposure and neurotoxic effect in rats co-treated with a mixture of lead, arsenic and manganese. Andrade V, Mateus ML, Batoréu MC, Aschner M, dos Santos AP. *Neurotoxicology*. 2013 Sep;38:33-41. doi: 10.1016/j.neuro.2013.06.003. Epub 2013 Jun 11. PMID: 23764341

4. Neurotoxicity of Metal Mixtures. Andrade VM, Aschner M, Marreilha Dos Santos AP. *Adv Neurobiol*. 2017;18:227-265. doi: 10.1007/978-3-319-60189-2_12. PMID: 28889271

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Biography:

Vanda Maria Falcão Espada Lopes de Andrade graduated in Biology in 1992 and obtained a Master's degree in Animal Biodiversity Conservation in 1998, both from Faculdade de Ciências da Universidade de Lisboa. She has completed her PhD in Pharmacy/Toxicology from Faculdade de Farmácia da Universidade de Lisboa, Portugal in 2014. She is Assistant Professor in Escola Superior Agrária de Santarém, Instituto Politécnico de Santarém since 2013, where she coordinates the