

INTRODUCTION: Lithium is a Critical Raw Material (CRM) essential for green energy storage technology and a core element to achieving the climate goals of the Paris Agreement. Nevertheless, CRM also encounter high risks and yield environmental and social impacts. Lithium extraction by mining can affect the composition of soils and water, consequently affecting food consumed by the surrounding communities. In Portugal, there are active and prospective lithium mining concessions.

OBJECTIVES: This study evaluates the potential impact of lithium pegmatite exploitation on the concentrations of Ca, Co, Cu, Fe, K, Li, Mg, Mn, Na, P, Se, and Zn in two commonly consumed foods among the Portuguese population: cabbage and potato. The study was conducted around two Portuguese mine concessions in the Guarda region: the C-57 mine (A) and the C8 mine (B).

METHODOLOGY: The sampling plan involved collecting samples from twenty-four subsistence farms near the mines (A and B) and another twenty-four far away (AC and BC). From each farm, leaves of three cabbages and potatoes were collected, resulting in forty-eight pooled cabbage samples and thirty-seven pooled potato samples. The analytical procedures followed the ISO/IEC 17025:2017 standard, and ICP-MS was used to determine the concentration of Co, Cu, Li, Mn, Se, and Zn and ICP-OES for Ca, Fe, K, Mg, Na, and P. Results were expressed as the average of three replicates in µg/kg fresh weight for cabbages and peeled potatoes samples.

RESULTS AND CONCLUSIONS: The cabbage results revealed significant differences in Li content between farms A/AC in the C-57 mine. Li and Se concentrations significantly differed between farms from A/AC (C-57 mine) in potatoes. At sites B/BC (C8 mine), significant differences were observed only for Se in potatoes. This study provides new insights into the potential impacts of lithium pegmatite exploitation, establishing a baseline for further research.

PO75. RESPONSES OF ANTIOXIDANT ENZYMES IN MUSSELS (*MYTILUS GALLOPROVINCIALIS*) EXPOSED TO PERFLUOROOCTANOIC ACID (PFOA) - IMPLICATIONS FOR HUMAN HEALTH

Sandra Copeto^{1,2}; Sara Ganço²; Inês Ferreira²; Carla Motta¹; Marco Silva²; Mário Diniz^{2,4}

¹ Food and Nutrition Department of the National Institute of Health Dr Ricardo Jorge

² UCIBIO, Department of Chemistry, NOVA School of Science and Technology of the Universidade NOVA de Lisboa

³ LAQV-REQUIMTE, Department of Chemistry, NOVA School of Science and Technology of the Universidade NOVA de Lisboa

⁴ Associate Laboratory i4HB, Institute for Health and Bioeconomy, NOVA School of Science and Technology of the Universidade NOVA de Lisboa

INTRODUCTION: Identifying risks of exposure to emerging contaminants is a matter of public health, as it can be a preventive instrument for foodborne diseases. Organic fluorinated compounds are a growing category of environmental contaminants on a global scale, and one of the most prevalent is perfluorooctanoic acid (PFOA). Bivalves are commonly used as biological models to study xenobiotic exposure due to their ability to accumulate contaminants. Ingesting bivalves can contribute to bioaccumulation of these contaminants. In toxicology studies, biomarkers such as antioxidant enzymes (phase I and II) play a vital role in understanding contaminants' effects. Studies identifying effects on these models can provide a tool to comprehend possible adverse effects.

OBJECTIVES: The study aimed to assess the effects of PFOA exposure on oxidative stress biomarkers in *M. galloprovincialis*. Fifty-two individuals were subjected to different PFOA concentrations (0, 1, 10, and 100 µg/L) over 28 days.

METHODOLOGY: Colorimetric enzyme assays Glutathione S-transferase (GST), Superoxide dismutase (SOD), Catalase (CAT), Lipid peroxidation (LPO), and total antioxidant capacity (TAC) were used to assess antioxidant responses. Ubiquitin (UBI) and caspase-3 (CASP), involved in damaged protein degradation and

apoptosis, respectively, were determined by Enzyme-Linked Immunosorbent Assay (ELISA). Vitellogenin (VTG), a biomarker of endocrine disruption, was measured using a colorimetric assay.

RESULTS: Positive correlations between GST and CAT (0.569) were observed, implying a coordinated response to oxidative stress. A strong positive correlation was observed between TAC and VTG (0.750), GST and VTG (0.632), and CASP and LPO (0.607), suggesting interdependence. Additionally, there is a weak negative linear relationship between UBI and SOD (-0.189), indicating an inverse relationship. The same occurs with CASP and VTG (-0.330).

CONCLUSIONS: The present study showed that exposure to concentrations until 100 µg/L of PFOA in *M. galloprovincialis* triggered the cellular response of phase II enzymes that work to combat oxidative stress.

PO77. USO DE SUPLEMENTOS DE CREATINA POR PRATICANTES DE EXERCÍCIO FÍSICO EM GINÁSIOS DA CIDADE DE BRAGANÇA

Patrícia Magalhães¹; Samuel Encarnação^{2,4}; António Miguel Monteiro^{1,4}; Ana Maria Pereira⁵

¹ Instituto Politécnico de Bragança

² Department of Physical Activity and Sports Sciences of the Universidad Autónoma de Madrid (UAM)

³ Department of Sports Sciences of the Instituto Politécnico de Bragança

⁴ Research Centre for Active Living and Wellbeing (LiveWell) of the Instituto Politécnico de Bragança

⁵ Centro de Investigação de Montanha (CIMO) do Instituto Politécnico de Bragança

INTRODUÇÃO: Com o número crescente de pessoas a frequentar ginásios, aumentam também os mitos e a desinformação acerca da suplementação alimentar, nomeadamente o uso de suplementos de creatina, o que pode implicar sérios problemas de saúde.

OBJETIVOS: Avaliar hábitos de consumo de suplementos de creatina em pessoas que frequentam ginásios.

METODOLOGIA: Estudo transversal e observacional de carácter quantitativo. Foi aplicado um questionário a 158 frequentadores de ginásios da cidade de Bragança. A análise estatística foi conduzida para descrição amostral e análise comparativa entre os grupos por sexo. Foi aplicado o teste de qui-quadrado de duas proporções simples (X²). Todas as análises estatísticas foram realizadas em linguagem de programação Python™.

RESULTADOS: Constatou-se que 37,34% dos homens e 22,78% das mulheres consomem creatina, principalmente os que apresentam idades compreendidas entre os 18 a 25 anos. Todos os participantes consomem a creatina sob a forma de pó, maioritariamente numa quantidade diária entre 3 a 5 gramas (57,62% dos homens e 58,33% das mulheres) verificando-se ainda que 25,42% dos homens e 13,89% das mulheres consomem uma quantidade superior ao recomendado no rótulo. 45,76% dos homens, consomem creatina depois do treino enquanto que 58,33% das mulheres consomem antes do treino. A maioria dos participantes começou a tomar suplementação de creatina por iniciativa própria (67,80% homens e 66,67% mulheres). Relativamente às razões do seu uso destaca-se o aumento da força (72,88% dos homens e 72,22% das mulheres) 55,93% dos homens e 69,44% das mulheres para o aumento de energia e 54,24% dos homens e 61,11% das mulheres para o aumento da massa muscular.

CONCLUSÕES: Considera-se pertinente aumentar a literacia dos frequentadores de ginásios sobre a suplementação de creatina para que possam usar o suplemento de forma mais consciente e segura, com o aconselhamento e monitorização por um profissional de saúde.