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A preliminary study on five exhumed bodies and their burial graves from the Cemetery of Prado do Repouso (Porto, Portugal)

Angela Silva-Bessa^{1,2,3*}, Shari L. Forbes⁴, Ricardo Jorge Dinis-Oliveira^{2,3,5}, Áurea Madureira-Carvalho^{3,6}, Maria Teresa Ferreira¹

¹University of Coimbra, Centre for Functional Ecology, Laboratory of Forensic Anthropology, Department of Life Sciences, Coimbra, Portugal.

²UCIBIO-REQUIMTE, Laboratory of Toxicology, Department of Biological Sciences, Faculty of Pharmacy, University of Porto, Porto, Portugal.

³TOXRUN – Toxicology Research Unit, University Institute of Health Sciences, CESPU, CRL, 4585-116, Gandra, Portugal.

⁴Department of Chemistry, Biochemistry and Physics, University of Québec at Trois-Rivières, Quebec, Canada.

⁵Department of Public Health and Forensic Sciences, and Medical Education, Faculty of Medicine, University of Porto, Porto, Portugal.

⁶LAQV-REQUIMTE, Laboratory of Pharmacognosy, Department of Chemistry, Faculty of Pharmacy, University of Porto, Porto, Portugal.

*✉ angela.bessa@cespu.pt

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Resumo

Introduction: The Cemetery of Prado do Repouso (Porto, Portugal) was first opened to the public in 1839 after the prohibition of burials inside churches [1]. As decreed by Portuguese law [2], it is prohibited to open any type of burial place without a warrant within three years after the inhumation. Still, this time frame has been proving insufficient for skeletonization to take place in Portuguese cemeteries. If a body is not fully decomposed, the inhumation will continue for successive periods of two years until complete decomposition is achieved [2]. **Objectives:** The aim of this preliminary study is to characterise five exhumed bodies and their burial graves with the perspective of understanding the rate of decomposition. **Material and Methods:** Five female cadavers were exhumed at the Cemetery of Prado do Repouso with the purpose of cremation or relocation to an ossuary as requested by the families of the deceased. Age-at-death ranged from 64 to 78 years-old, while postmortem interval fluctuated between 7 and 11 years. Three individuals were fully skeletonised; one individual was partially mummified and partially skeletonised; and

one individual was simultaneously mummified, putrid, and skeletonised. Soil was sampled from the surface of the grave, on top of the superior coffin board, and under the lower coffin board in three body regions: head, pelvis, and feet. Soil samples were characterised according to their pH, electrical conductivity, colour, humidity content, bulk density, and organic matter content. **Results:** With the exception of the moisture content that ranged between 5.60% and 24.74% (mean = 13.48%; SD = 5.71), the obtained values did not show high discrepancies between and within the burials of skeletonised and preserved individuals. pH values slightly varied from 4.26 to 6.28 (mean = 5.70; SD = 0.52) while organic matter content oscillated between 3.23% and 5.52% (mean = 4.44%; SD = 0.58). **Conclusions:** Given that soil, as an extrinsic factor, show no substantial differences between graves, it is expected that intrinsic factors may have contributed to the different stages of decomposition. Hair and nails were sampled from all five individuals during the exhumations, and elemental analysis by ICP-MS and toxicological analysis by GC-MS will be conducted.

References:

[1] Decreto de 21 de setembro de 1835. Secretaria d'Estado dos Negócios do Reino: Diário do Governo.

[2] Decreto-Lei nº 411/98 de 30 de dezembro de 1998. Ministério da Saúde: Diário da República, p. 7251-7257.