

Determination of the species from skeletal remains through histomorphometric evaluation and discriminant analysis [Determinación de la Especie a Partir de Restos Óseos Mediante Evaluación Histomorfométrica y Análisis Discriminante]

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In situations where the skeletal remains found are too fragmented, it is necessary to assess the human origin of such remains; for this purpose, various parameters are used, both anatomical and histological. The objective of the present study is to evaluate the various histomorphometric parameters to differentiate human from non-human bones, to further construct discriminatory functions that allow interspecies classification. Tibia bones sections from human, bovine, pig, hen, cat, and dog species were used, processed through conventional histological techniques and observed under the microscope with a 40x magnification, analyzing the Haversian Canal Density parameters by mm², Diameter of the Haversian Canal and the Diameter of the Haversian System which were compared through one way ANOVA with Scheffé post test, $p < 0.05$. Subsequently, the discriminatory functions were constructed for each species and the percentage of well-diagnosed cases was determined. Meaningful differences were found in the parameters analyzed; the discriminatory functions allowed to correctly classify 88.5% of the cases. Our results suggest that it is possible to differentiate human skeletal remains from non-human through the observation of their histological characteristics and histomorphometric parameters, but interspecies differentiation requires a more complex analysis.

Bone

Determination of species

Forensic analysis

Haversian canal

Osteon compact bone