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Thin sections techniques in fossil remains of mammals impregnated with asphalt

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Paleohistological studies of vertebrates are based on the analysis and interpretation of bone microstructure of petrographic thin sections. These sections are mainly performed following standard techniques; however, the methodology can vary according to the particular characteristics of the sample (e.g. skeletal element, type of preservation) or the purpose of the work. As part of a paleohistological study on *Equus occidentalis* recovered from a Late Pleistocene asphalt seep (“tar pit”), Rancho La Brea (California, United States), in this contribution we describe the technique used to make thin sections of fossils impregnated with asphalt. The hydrocarbons act as a release agent, which causes the resins commonly used for glued or embedding not to adhere to the fossil remains. For chip preparation (= block) the sample were embedded in a large volume of low-viscosity epoxy resin, which generated a higher shrinkage and prevented the separation of the chip components (resin / fossil). The chip must be mounted on the glass slide using UV acrylic resin, which, unlike epoxy resins, does not require heat application, optimizes adhesion, and reduces the curing time, offering the possibility of cutting and polishing quickly after mounting. During polishing, it was necessary to reduce the cleaning time with ultrasound to avoid peeling and loss of portions of the sample. Based on the results obtained, we consider that this variant of the traditional methodology is optimal to work with fossils preserved in this particular context, as it allows making complete thin sections without altering the original osteohistological features.



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