



A case of fungal spores zoochory found upon examination of Dominican amber inclusion of an undescribed stilt-legged mite fossil (Camerobiidae)*

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FIGURE 1. The ascus attached to the terminal part of leg I of the stilt-legged mite inclusion in Dominican amber.

Palaeoacarological studies are concerned mainly with the unexplored fossil record of mites. Hence, they can reveal many engaging discoveries, influencing acarology *per se* as a free-standing branch of science and unveiling hypotheses facing more general biological and evolutionary points of inquiry. Although “interdisciplinary science” seems to be an increasingly overhyped catchphrase rather than a matter of reality, the term remains utterly appropriate in the case of fossil mite investigations. Amber inclusions, the primary source of the fossil record of acarines, are three-dimensional imprints containing remains embedded within the polymerised and fossilised tree resin. They provide rich information on the biodiversity and structure of extinct ecosystems and allow the tracing of evolutionary and zoogeographic pathways of some taxonomic groups. Furthermore, in amber, there have been frequently preserved “frozen” acts that depict intraspecific and interspecific interactions (e.g., copulation, predation, parasitism, and phoresy).

Following analysis of the inclusion of an undescribed fossil mite species of the genus *Decaphyllobius* (Trombidiformes: Raphignathoidea: Camerobiidae) from the Miocene, approximately 15–20 million years old Dominican amber from the island of Hispaniola (Dominican Republic), known for its abundance of organic inclusions from the extinct ecosystem, a fungal sac (ascus) attached to the animal’s terminal part of the leg I (apotele or tarsus), was found containing visible ascospores (spores of fungi of the phylum Ascomycota) in its interior (Figure 1). This discovery, which is the first example of the presumable zoochory of fungal spores by a fossilised mite, also highlights the limited knowledge and scarce literature on the admissible role of Acari in the dispersal of fungi, including the recent representatives. The inconspicuous inclusion (the body length of the mite is no more than 200 µm, thus one of the smallest records of the adult size among this family) is an example of how the detailed microscopic examination of a hand-polished piece of amber, less than 1 mm thick, can be a starting point for cross-disciplinary studies. They span through taxonomy, analyses of traces of interspecies interactions found in the fossil material, testing hypotheses on changes in morphological structures over millions of years, zoogeography, and a sociological reflection on the role played by private natural history collections run by aficionados in the age of institutionalisation.

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