Exploring the long-term interaction of the opium poppy and past human societies: first results from the archaeological database and contribution of morphometric and genetic analyses

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The opium poppy (*Papaver somniferum*) is a multi-purposes plant used for food (oil, dry seeds), in pharmaceutical or narcotic products and as an ornamental plant. Nevertheless, its history is still largely unknown, notably because of its imprecise phylogeny, the difficulty of the recovering of seed on archaeological sites, or the absence of identified morphological traits of domestication. A co-funded research project (ANR JcJc Poppy, FCT Dope) aims to unravel the origin of the plant, the complexity of its domestication process, their dispersal trajectories and its past uses using archaeological and genetic information (https://opiumpoppy.hypotheses.org/).

To date, first reliable chronological landmarks were established thanks to radiocarbon dating performed with the compact AMS EchoMicadas directly on archaeological opium poppy remains. The opium poppy is present in central Italy from the middle of the 6th millennium in the heart of the region supposed to shelter its wild ancestor. Nevertheless, the majority of the earliest sites that have yielded seeds are located in temperate Europe as early as 5300 BCE, raising questions about the modalities (vectors, status) of the plant's diffusion between the first two major agro-pastoral systems of Western Europe (Salavert et al., 2020).

Was the plant unintentionally disseminated with the status of crop weed, or was it already cultivated, and if so, for what purpose(s)? Initially, the aim will be to exploit an ongoing database listing the attestations of opium poppy between 6000 and 50 BCE in Europe, the Near East and North Africa. The critical analysis of the chronological attribution of the remains, and of the archaeological contexts will allow to propose preliminary research path to answer those questions.

These results will then be discussed in the light of morphometric-geometric analyses of archaeological seeds (Jesus et al., 2021) and genetic analyses of current and sub-actual opium poppy varieties in order to explore the long-term interaction of the opium poppy and past human societies through a crossdisciplinary strategy.
