Opiates Found in Ancient Vessel

By

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Heroin use has become epidemic especially in the United States, but the substance from which heroin is derived has been in use for millennia. That substance is opium.

Scientists have long suspected that our ancestors used opium for both medicinal and recreational purposes because of vessels known as ‘base-ring juglets’ found at dig sites that resemble the seed head form of the opium poppy when inverted, but they’ve not had any evidence of their suspicions until last week. Their research was published in the Royal Society of Chemistry's journal *Analyst* on October 3rd and funded by the National Environmental Research Council (NERC).

Interestingly, researchers were able to study one of these juglets housed in the British Museum in London dating from the Late Bronze Age in Cypriot, the modern-day Cyprus. The juglet that had been sealed for centuries, allowing the contents inside to stay well-preserved, so it was a too rare of an opportunity to overlook.

The initial analysis revealed the juglet residue was mostly composed of a plant oil, but it hinted at the presence of a group of organic compounds derived from the opium poppy known as alkaloids, the most resistance to degradation. Unfortunately, a new analytical method was needed to conclusively demonstrate the presence of opiates in the oil-based residue of the vessel.

In response, Rachel Smith developed the new analytical method as part of her PhD at the University's Department of Chemistry, using instruments from the Centre of Excellence in Mass Spectrometry at the University of York. Because of this they were able to establish a rigorous method for detecting opiates in this kind of oil-based residue.

This is the first time that reliable chemical evidence has been produced to link the opium poppy with a base-ring juglet, despite many researcher’s attempts over the years.

The team’s next analytical challenge is to see if they can succeed with less well-preserved and more degraded residues.

Still, despite this information, the researchers are debating exactly what the juglet was used for. Could it have been one ingredient amongst others in an oil-based mixture, or could the juglet have been re-used for oil after the opium or something else entirely? Was it used for perfume containing opium? Or ceremonial anointing oil? Because the juglet is significant in revealing important details about trade and the culture of the period, it is important to try and progress the discussion about what it might have been used for. They’re working on that as well.

Of course, this was just one vessel, but the presence of alkaloids and the shape of the vessel strongly suggests the use of opium by our ancestors for whatever reason they deemed useful at the time. And according to the study, “The phenomenon has not been reported before and should be considered in future analyses of this analyte in all application areas.”

It’s been a find that’s set a precedent for futures research in the science world.

RESEARCH

1. Rachel K. Smith, Rebecca J. Stacey, Ed Bergström, Jane Thomas-Oates. Detection of opium alkaloids in a Cypriot base-ring juglet. *The Analyst*, 2018; DOI: [10.1039/C8AN01040D](http://dx.doi.org/10.1039/C8AN01040D)