

Red hot chili pepper research spices up historical record

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Next time you're shaking Tabasco sauce on your eggs or dried chili pepper flakes on your pizza, you might pause to thank the indigenous Latin American cultures of more than 6,100 years ago that made it possible.

Three University of Calgary researchers, together with international colleagues, have traced the earliest known evidence for the domestication and spread of chili peppers by analysing starch microfossils recovered from grinding stones, sediments and charred ceramic cookware. In a forthcoming article in the journal *Science*, they report that common varieties of chili peppers (*Capsicum* species) were widely used in a region extending from the Bahamas to southern Peru.

"Until quite recently it's been assumed that the ancestors of the great highland civilizations, like the Inca and the Aztecs, were responsible for most of the cultural and agricultural advances of the region," says Dr. Scott Raymond, U of C archaeologist and one of the authors of the paper. "We now have evidence that the indigenous people from tropical, lowland areas deserve credit for the domestication of the chili pepper."

Dry, arid areas favour archaeological preservation, whereas tropical regions typically don't -- especially when it comes to foodstuffs. "A relatively recent discovery is that the cooking process doesn't completely destroy the evidence of starchy foods, and traces can still be recovered from the cooking vessels," says Sonia Zarrillo, another co-author of the paper and a U of C PhD student.

The authors report on seven sites throughout the Americas where they found starch grains from chili peppers, the oldest being from sites in Ecuador that date back 6,100 years. These Ecuadorian sites represent the earliest known village sites in the Americas, and were excavated by a team from the University of Calgary, led by Dr. Raymond.

In 2005, international researchers who had gathered at a University of Calgary archaeology conference began comparing notes about an unidentified starch they had recovered from sites around Latin America. Dr. Linda Perry, the lead author of the paper and a researcher with the Smithsonian National Museum of Natural History, subsequently identified the starch as Capsicum.

"It was surprising to find that the chili pepper, which is technically a fruit, left behind evidence of starch, which is more often associated with foods such as maize and root vegetables," says Dr. Ruth Dickau, a U of C post-doctoral researcher and one of the paper's authors. "So much of the research on the origins of agriculture in the region has focused on staple crops, but now here is one of the first condiments that we're able to trace -- it's quite interesting."

Researchers speculate that villagers may have begun growing peppers for household use even farther back than 6,100 years ago, but so far can't pinpoint when domesticated chili peppers first entered the diet.

Although it is generally agreed that the genus Capsicum originated in Bolivia, the centres of domestication of the different species and their dispersal patterns remain speculative, the authors write. With the European conquest, the chili pepper spread around the world and is now associated with the cuisine of many different cultures.

Early Latin American peoples would have found chili peppers, which are rich in vitamin C, to be an excellent complement to fish and starchier

foods like maize, beans, yams and corn. "It's also an excellent disguiser," Raymond notes. "If something's not tasting quite right, you can always throw a few chilis in the pot."

Source: University of Calgary

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