The peanut originated 450,000 years ago, not 10,000 years ago according to research published in this month’s issue of Nature Genetics. This research is expected to put an end to a year-long scientific debate over the timeline of the cultivated peanut.

Researchers from The University of Western Australia, the International Crops Research Institute for the Semi-Arid Tropics and Fujian Agriculture and Forestry University sequenced the peanut’s complex genome in 2019 and published the results in Nature Genetics.

At the same time, a team of researchers from the International Peanut Genome Initiative also made the breakthrough in sequencing the peanut genome, publishing their results in the same issue.

Professor Rajeev Varshney, Research Program Director, ICRISAT and Adjunct Professor, The UWA Institute of Agriculture said soon after the research was published, a scientific debate arose due to a difference in findings and opinion regarding the timeline of when the peanut first originated.

“The cultivated peanut originated from the hybridization of two wild ancestral species giving it a very complex tetraploid genome. In other words, it contains complete sets of chromosomes from both ancestral species,” Professor Varshney said.

“Our results suggested the hybridization event occurred around 450,000 years ago. In contrast, the other group suggested the origin to be less than 10,000 years.”

Professor Varshney and colleagues compared the approaches made by the two groups and analyzed in detail the cause of the underestimation in the other group’s timeline. They found that the other group had overlooked the major role of insertions and deletions, or InDels, in the DNA sequence.

“InDels represent the major difference between wild and cultivated peanuts in our study, so if you do not consider the InDels, this will underestimate the divergence timeline,” Professor Varshney said.

The timeline of 450,000 years was also supported by the timing of repeat DNA family expansion.

“Our study suggested there is exchange of DNA information between the diploid and the tetraploid peanuts, due to either cultivation or growth in wild in close proximity to each other, and that this could be a very recent or ongoing exchange,” Professor Varshney said.

Professor Varshney said he hoped these critical analyses will rest the scientific debate over the origin timeline of the cultivated peanut.

“High oil and protein content and drought resilience make the peanut important for global food security,” Professor Varshney said.

“The research community can now better capitalize on the value of peanut as a model for polyploid genome evolution and its contributions to improved yield, quality and resistance.”