

The genome of the wild olive tree explains the high concentrations of oleic acid in the olive

An international team, with the participation of the University of Cordoba (UCO), has sequenced the genome of the wild olive, also known as acebuche, and has found the genetic singularities that explain the high concentrations of oleic acid in the olive, which could serve the vegetable improvement with productive interest.

According to the University of Cordoba, it is more than likely that the olive tree -which can reach millennial ages- was one of the first to be domesticated in the Neolithic revolution, a time where the difference between the domestic olive tree and the wild one, also known as acebuche, became clear.

The UCO recalled that three years ago the sequencing of the olive genome was announced from a 1,200-year-old tree owned by Emilio Botín, chairman then of Banco Santander. A work that, in their opinion, would have an enormous biotechnological value for the development of varieties resistant to different climates or diseases.

This week, the prestigious magazine "Proceedings of the National Academy of Sciences" (PNAS), published by the National Academy of Sciences, publishes the complete genome of the wild subspecies, obtained by an international team of researchers coordinated by the Turkish researcher Turgay Unver in the "International Olive (*Olea europaea*) Genome Consortium" (IOGC) and in which Gabriel Dorado Pérez, Professor of Biochemistry and Molecular Biology of the University of Córdoba, participated as a member of the managing committee, together with the researcher Pilar Hernández of the Institute of Sustainable Agriculture of the Higher Council of Scientific Research.

This work, which, as in the case of other genomes, constitutes a fundamental database for future biotechnological developments, has also served to find genetic explanation for one of the most relevant peculiarities of domestic and wild olive trees.

What Gabriel Dorado and his colleagues have found is the genetic basis responsible for the high concentrations of oleic acid in the fruit of the olive tree, compared to other plant species.

According to the authors of the work of PNAS, this concentration is due to a duplication of the genes that encode the enzymes involved in the biochemical mechanism that allows to obtain this type of

acid, as well as events of repression and induction of certain genes. These events occurred 28 and 59 million years ago.

Apart from describing in detail how these molecular events have favored olive oil being the one with the highest concentration of oleic acid and, therefore, of higher yield compared to other oils of vegetal origin, researchers have identified a total of 50,684 genes. For the UCO, this is a meticulous and complex work that will allow a vegetal genetic improvement with fundamental information for the development of varieties capable of producing more oil in diverse environmental conditions.

Lien article : <http://en.mercacei.com/noticia/1609/news/the-genome-of-the-wild-olive-tree-explains-the-high-concentrations-of-oleic-acid-in-the-olive.html>