DNA Fingerprinting Identifies Bean in Patent Dispute

May 27 2008

A UC Davis plant scientist played a key role in settling a controversial intellectual property dispute that resulted in the recent rejection of a nine-year-old U.S. patent for a common yellow bean that originated in Mexico.

Professor Paul Gepts, an expert on the processes that have shaped the evolution of crop plants, along with colleagues from the University of Padova, Italy, used DNA fingerprinting in 2004 to show that the yellow Enola bean was identical to a bean variety grown in Mexico. The results of that DNA analysis were published in the May-June 2004 issue of the journal *Crop Science*.

DNA fingerprinting is a process that analyzes fragments of DNA -- molecules that carry the genetic information of living organisms -- to identify the unique genetic makeup of an individual plant or animal.

The story began in the 1990s when a Colorado man purchased some beans in a market in Mexico and brought the beans back to the United States. After growing the beans, which are similar to small kidney beans, for several seasons, the man claimed to have developed a new field bean variety with a distinct pale yellow seed color. He called the variety the "Enola" bean and filed a patent application.

In 1999, the United States Patent and Trademark Office granted 20-year patent protection for the Enola variety. But the legality of that patent was later challenged, amid international accusations that the case was a prime

example of biopiracy and abuse of intellectual property rights. Five years later, Gepts and colleagues applied DNA technology to genetically determine whether the bean was truly a new variety or simply a new generation of an existing variety.

"The analysis showed that the Enola bean was produced through direct selection of pre-existing yellow-bean varieties from Mexico, most likely a bean known as "Azufrado Peruano 87," said Gepts. "In short, the Enola was not a novel variety and therefore not eligible for patent protection."

The Enola bean patent was rejected by the patent office in 2003 and 2005, but those decisions were appealed to the Board of Patent Appeals and Interferences. The final rejection of all patent claims for the Enola bean came on April 30 of this year, although the patent owner can still appeal this decision to nullify the patent.

In addition to the DNA fingerprinting by Gepts and colleagues, opponents of the patent pointed out that the Enola bean did not have a unique yellow color that the applicant claimed and that the patent claims were based on research information that was already publicly available in scientific literature.

Source: UC Davis