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Genetic relationship with geographic origins and globe dispersion of soybean
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According to Vavilov's concept of gene centers, soybean originated from the eastern part of the Chinese center. Many scholars believe that that soybean was first domesticated by Chinese farmers around 1100 BC, and then was grown in Korea, Japan and many other countries. Using various soybean characteristics (such as physiology, morphology, sowing and growth types, growth habit, seed size and maturity date) as well as historical and linguistic evidence about soybean, Nagata made the first specific suggestion of paths of soybean dissemination. However, the proposal didn't mention the dispersion of the soybean to some continents such as Africa and South America, the proposal also needs to be examined using more informative genomic information. The USDA Soybean Germplasm Collection contains approximately 1,200 wild soybean and 19,000 cultivated soybean accessions which were introduced from China, Korea, Japan and 84 other countries. The accessions are valuable materials for studying the path of soybean accessions to the US and other countries. In this study, the entire Collection was genotyped with the SoySNP50K Beadchips containing >40,000 SNPs evenly distributed in the euchromatic and heterochromatic regions of the soybean genome. Analysis of the genotypic dataset revealed that genetic relationship among wild and landrace soybeans from China, Japan and Korea was significantly associated with soybean geographic origins, and the paths of soybean dissemination to Europe, Africa, South America and other Asian countries were proposed.