

Genomics Research

RAPD-PCR, Random Amplification of Polymorphic DNA by Polymerase Chain Reaction, is a way to amplify portions of DNA of unknown sequence. This genotyping technique has the capability to characterize and distinguish members of the same family and has been successfully used in identification of bacterial strains and plant food sources, such as rice.

This research targets the ragweed plants, members of the sunflower family, Asteraceae. Ragweed pollen induces the seasonal allergic reactions of those who suffer from hay fever. As the ragweed genome sequence is unknown, we are probing its genomic nature with PCR. Several different primers are used to create unique RAPD-PCR profiles of the giant and common ragweed plants and their sunflower relatives. PCR profile comparison should permit unique identifications for the ragweed species. Sequencing the DNA of the RAPD-PCR products unique to the ragweed plants may enable functional identification through nucleotide database searching.

The image of a RAPD-PCR gel was made from DNA taken from the Sawtooth Sunflower leaf. The bright rectangular bands of DNA on the green background were stained with the SybrSafe fluorescent dye. The unique pattern of the bands in each of the lanes 3 through 8 were generated with a different DNA primer. Lane 9 is a positive control and lanes 10 and 11 are size markers to estimate the number of bases in the experimental DNA bands.

