# Construction of a molecular database for soybean cultivar identification in Brazil

**M.B. Oliveira[1], E.S.N. Vieira[1,2] and I. Schuster[1,2]**

[1]Departamento de Biologia, Universidade Paranaense,
Umuarama, PR, Brasil
[2]Núcleo de Biotecnologia,
Cooperativa Central de Pesquisa Agrícola, COODETEC,
Cascavel, PR, Brasil

Corresponding author: I. Schuster
E-mail: ivan@coodetec.com.br

**ABSTRACT.** The narrow genetic base of soybean makes cultivar characterization based on morphological descriptors difficult; this characterization is mainly done for registration and protection. Correct characterization of cultivars could be achieved through molecular markers, since the frequencies of each allele in the population are known. Consequently, we developed a molecular characterization method and initiated the construction of a molecular database for soybean cultivar identification. Thirty-two soybean cultivars were analyzed with 48 fluorescent-labeled microsatellite markers. The reactions were carried out in singleplex, and genotyping in

quadriplex, using a capillary electrophoresis system in an automated sequencer. Probabilities of random identity and probabilities of random identity exclusion were calculated through estimated allele frequencies. A characterization profile was considered when the probability of random identity exclusion was equal or superior to 99.9999%. All steps of the experiment were doubled, using two independent sets of the same cultivar to evaluate the reproducibility of the method. A set of 13 microsatellite markers identified all 32 cultivars with 99.9999% certainty. The method was efficient and precise, with high reproducibility for cultivar characterization. These data are the beginning of a molecular database for soybean, and they can be used for cultivar characterization for registration and protection purposes and for cultivar identification in cases of intellectual property enforcement.