



**BMT/13/14**

**ORIGINAL:** English

**DATE:** November 10, 2011

**INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS**  
GENEVA

**WORKING GROUP ON BIOCHEMICAL AND MOLECULAR  
TECHNIQUES, AND DNA-PROFILING IN PARTICULAR**

**Thirteenth Session**  
**Brasilia, November 22 to 24, 2011**

**SSR MARKERS IN BRAZILIAN WHEAT**

*Document prepared by experts from Brazil*

1. Work with molecular markers in wheat are rare in Brazil. Two projects were conducted on variability analysis in wheat, genotyping by acrylamide gels and automatic sequencer.
2. A set of 36 Brazilian wheat cultivars were evaluated with 43 SSR markers, genotyped in acrylamide gels (Schuster et al., 2009). Twenty three markers (54%) were polymorphic, and presented two to five alleles per marker (average 3.2). All of 36 wheat cultivars were differentiated, and genetic distances varied from 0.10 to 0.88. The most frequent distances were from 0.4 to 0.6.
3. The use of acrylamide gels in large scale routine in molecular markers lab is not common. These gels demand a lot of work. But this kind of genotyping can easily be used to characterize wheat cultivars. In this case, reference cultivars need to be used in each gel, to identify specific alleles.
4. In another work (Silva, 2010), a set of 32 wheat cultivars were genotyped with 23 SSR markers in automatic sequencer (capillary gel). Twenty one markers were polymorphic, and presented from two to eight alleles by marker (average 4.3). In these set of cultivars, the genetic distances varied from 0.31 to 0.90, mean 0.61. The most frequent distances were from 0.5 to 0.7.

5. Genotyping molecular markers in automatic sequencer are faster than genotyping in gel, totally automated, and the results are more precise. Beside this, with the genotyping in automatic sequencer is possible to determine with great precision the length of each allele, in base pairs. The allele data can be stored in a data base, and works made in different time, and different labs, can be compared.

6. It is possible to conclude, by these results, that a great quantity of variability exist, at molecular level, between Brazilian wheat cultivars. And SSR markers can be used to characterize or differentiate wheat cultivars.

Ivan Schuster<sup>1,2</sup>, Elisa Serra Negra Vieira<sup>1,3</sup>, André Luiz da Silva<sup>2</sup>

<sup>1</sup>Coodetec , Caixa Postal 301, Cascavel, PR. CEP 35830-450. [ivan@coodetec.com.br](mailto:ivan@coodetec.com.br).

<sup>2</sup>Unipar, Umuarama, PR. <sup>3</sup>Endereço atual Embrapa Floresta, Colombo, PR.

## References

Schuster, I., Vieira, E.S.N., Silva, G.J., Franco, F.A., Marchioro, V.S. Genetic variability in Brazilian wheat cultivars assessed by microsatellite markers. *Genetics and Molecular Biology*, 32(3)557-563, 2009.

Silva, A. Caracterização molecular e variabilidade genética de cultivares brasileiras de trigo, obtidas por marcadores microssatélites. Unipar, Umuarama, 2010. 62p. Dissertação de Mestrado.

[End of document]