

SEARCHING RFLP MARKERS TO IDENTIFY GENES FOR ALUMINUM TOLERANCE IN MAIZE.¹

Giovana A. Torres², Maurício A. Lopes³, Sidney N. Parentoni³ & Edilson Paiva³

The aim of this study is to obtain RFLP markers (genomic and cDNA) that discriminate Al-tolerant and Al-susceptible maize inbred lines in order to map genes affecting this character and provide better understanding about the mechanisms of tolerance. The sources of DNA were two inbred lines L53 and L1327, previously identified as being tolerant and susceptible respectively. Also, their F₁ hybrid was used. These genetic materials have been developed by the maize breeding program of the National Maize and Sorghum Research Center - CNPMS/EMBRAPA. Ninety probes were selected at an average interval of 30 cM in such a way to cover all the maize genome. These probes were then tested for their ability to identify RFLPs between the parental inbred lines (L53 and L1327) when DNA was digested with Eco RI, Bam HI and Hind III. For our hybridization work, a nonradioactive labeling system, using digoxigenin-dUTP and alkaline phosphatase proved to be quite efficient and reliable, resulting in Southern blots with good resolution, allowing the membranes to be stripped and reprobed at least three times. Thirty five probes showed codominant effect identifying 55 RFLP loci that could distinguish the parental lines. These probes will be used to search for genomic regions (QTL's) involved in aluminum tolerance, using segregating progenies derived from the two lines.

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2 - Graduate student, Departamento de Biologia, Universidade Federal de Lavras, caixa postal 37, CEP 37200-000, Lavras - MG, Brasil.

3 - CNPMS/EMBRAPA, caixa postal 151, CEP 35701-970, Sete Lagoas - MG, Brasil