

USE OF PREVIOUSLY IDENTIFIED RAPD MOLECULAR MARKERS AS A TOOL TO VERIFY PRESENCE OF RESISTANCE GENES IN COMMON BEAN

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The identification of a specific molecular marker linked to a resistance gene in populations which have one resistant parent in common, may be useful as allelism evidence. Also, the identification of a number of RAPD markers permits gene pyramiding for disease resistance or the identification of potential lines with different resistance genes that is not possible to be identified due to difficulties in screening methodology.

The objective of this study was to use previously identified molecular markers as a tool to identify unknown pyramided genes that is present in the genealogy of lines that comprises the Bean Regional Elite Trials coordinated by Embrapa Rice and Beans (Table 1). A list of genotypes and their genealogies was developed (data not showed). Based on the genealogy of each line a number of molecular markers for the known resistance genes was found in the literature (Table 2). Among the obtained results, it was observed that most lines showed molecular markers linked to resistance genes for bean diseases such as anthracnose, angular leaf spot, rust and bean golden mosaic virus. The presence of several resistance genes in these lines make them of great importance as new potential commercial cultivars (Table 2). In the genealogy of lines LM 93204319, LM 93204328, LM 93203246 and PR 93201472 it was not observed the presence of any known resistance gene. This fact implies that these four lines could be subjected to great vulnerability if they are released as commercial cultivars. On the other hand, lines FEB 163 and TB 94-01 presented seven different molecular markers linked to resistant genes, showing that they contain a high diversity of resistance sources.

Table 1. Seed color and crosses of the 21 elite lines of the Bean Regional Trials coordinated by Embrapa Rice and Beans

Nr ¹ .	Line	Color ²	Trial ³	Cross
1	LR 9115398	BL	BRT 1995-96	84 VAN 18/OURO NEGRO
2	LR 9115453	BR	BRT 1995-96	LM 21303/AN 512517
3	A 774	BR	BRT 1995-96	BAT 85///A 375/G 17702//A 445/XAN 112
4	PR 9115957	BR	BRT 1995-96	CB 511687-1/GOIÃO PRECOCE
5	FEB 163	RX	BRT 1995-96	A 252/XAN 105//A 373/A 213///A 445/XAN 112//BAT 447/A 213
6	RAO 33	RD	BRT 1995-96	BAT 1225/BAT 1136
7	LM 93204217	BL	BRT 1997-98	LM 30630//OURO/AN 512586
8	TB 94-01	BL	BRT 1997-98	CNF 5491/FT TARUMA
9	AN 9021334	BL	BRT 1997-98	84 VAN 18/HONDURAS 35
10	AN 9021336	BL	BRT 1997-98	84 VAN 18/HONDURAS 35
11	LM 93204303	CA	BRT 1997-98	A 285/AN 512545
12	LM 93204319	CA	BRT 1997-98	A 285/RH 20-414
13	LM 93204328	CA	BRT 1997-98	A 285/RH20-414
14	LM 93204453	CA	BRT 1997-98	MA 720943/CB 733860//AN 512545/RH 20-414
15	AN 9021470	BR	BRT 1997-98	TY 3499-3/AN 512579
16	LM 9220225	BR	BRT 1997-98	LM 21303/CB 733860
17	L 96029	BR	BRT 1997-98	A 140/BAT 332
18	LM 93203246	RS	BRT 1997-98	LM 30013/ROSINHA G-2 RMC
19	LM 93203304	RS	BRT 1997-98	HI 822510/CB 733743//LM 30013/ROSINHA G-2 RMC
20	LR 93201684	RX	BRT 1997-98	CF 880150/RAB 60
21	PR 93201472	MT	BRT 1997-98	POMPADOUR/IRAI

¹Nr. = Number; ²BL = Black; BR = Brown; RX = Purple; RD = Red; CA = Carioca; RS = Pink; MT = Canario; ³BRT = Bean Regional Trial.

