Identification of resistance sources to root-knot nematode *Meloidogyne paranaensis* in wild accessions of *Coffea arabica* from Ethiopia

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Introduction

The nematode *M. paranaensis* causes significant damage to coffee cultivation in several countries.

Objective

Evaluate the levels of resistance to *M. paranaensis* in wild accessions from Ethiopia from IDR-Paraná's germplasm bank.

Materials/Methods

Greenhouse at IDR-Paraná in Londrina, Paraná, Brazil. Completely randomized design, 32 wild accessions from Ethiopia, eight replicates. Evaluations 120 days after inoculation (1000 eggs/j2). Reproduction factor (RF) and reduction in the reproduction fator (RRF) calculated.

Results/Discussion

The RRF showed 20 accessions classified as Highly Resistant (HR) with RF values lower than the resistant control 'IPR 106'. One genotype was classified as Resistant (R), and eight as Moderate Resistant (MR), indicating these accessions may have intermediate resistance. Three accessions were classified as Susceptible (S) or HS, showing RF values similar to or higher than the susceptible control 'Mundo Novo'. Only four accessions classified as HR had RF values lower than 1.0 (Table 1).

Table 1. *Meloidogyne paranaensis* Reproduction Factor (RF),Reduction in the Reproduction Fator (RRF) and resistance level.

Accessions from Ethiopia	RF		RRF	LEVEL
E481/CAF653	154,25	a	-46,62	HS
Mundo Novo IAC 376-4*	112,91	a	0,00	HS
E467/CAF491	56,23	cdef	46,55	S
E351/CAF439	52,76	ab	49,85	S
E021/CAF011	35,68	bc	66,08	LR
E088/CAF505	33,55	bc	68,11	LR
E454/CAF107	31,97	bcd	69,61	LR
E071/CAF258	25,73	bc	75,55	MR
E151/CAF575	16,60	bcde	84,22	MR
E494/CAF173	11,97	cdefgh	88,62	MR
E340/CAF179	11,86	cdefghi	88,72	MR
E456/CAF062	10,87	cdefg	89,67	MR
E039/CAF435	9,63	defghij	90,85	R
IPR 106**	3,80	defghij	96,38	HR
E490/CAF516	3,61	defghij	96,56	HR
E139/CAF239	2,93	efghij	97,21	HR
E114/CAF447	2,55	fghij	97,57	HR
E325/CAF522	2,52	fghij	97,60	HR
E115/CAF633	2,35	fghij	97,76	HR
IPR 100**	2,31	fghij	97,81	HR
E061/CAF126	2,16	fghij	97,94	HR
E505/CAF140	2,16	ghij	97,94	HR
E450/CAF235	2,07	fghij	98,03	HR
E458/CAF097	2,01	fghij	98,09	HR
E552/CAF323	1,89	fghij	98,20	HR
E085/CAF396	1,88	fghij	98,21	HR
E621/CAF139	1,83	fghij	98,26	HR
E571/CAF072	1,57	fghij	98,51	HR
E478/CAF606	1,49	fghij	98,59	HR
E190/CAF013	1,26	ghij	98,80	HR
E208/CAF752	1,09	ghij	98,97	HR
E196/CAF117	0,94	ghij	99,10	HR
E055/CAF005	0,93	hij	99,11	HR
E199/CAF092	0,65	ij	99,38	HR
E189/CAF119	0,50	j	99,51	HR
Média geral	17,33			
CV (%)	44,71			

(1) Means followed by the same letter same column do not differ statistically among themselves by Tukey test ($p < 0.05$). *Susceptible control; **Resistant control. HS = Highly Susceptible; S = Susceptible; LR = Lightly Resistant; MR = Moderate Resistant; R = Resistant; HR = Highly Resistant

Conclusion/Perspectives

Other studies have identified several good agronomic characteristics in wild accessions from Ethiopia. The resistant accessions are new options to be used by breeding programs to develop new nematodes resistant cultivars associated with other important characteristics.

References:

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