

**REACTION OF POTATO CULTIVARS TO EARLY BLIGHT
CAUSED BY *ALTERNARIA SOLANI* (ELL. & MART.)
JONES AND GROUT**

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Abstract

Twelve potato cultivars were screened against early blight of potato after artificial inoculation in the field. Cv. Bintje showed maximum infection (94.5%) with minimum infection in Redbad (47.8%). Cv. Redbad was resistant; Multa, Baraka, Desiree, Spartaan, Estima, Prima, Atom alu and Vekaro moderately resistant; Manna, Bintje and Emergo moderately susceptible.

Introduction

Early blight of potato caused by *Alternaria solani* (Ell. & Mart.) Jones and Grout is widespread throughout the world. In Pakistan it is prevalent in all parts of the country with severe infection in the Quetta region (Malik & Khan, 1967). Reaction of potato cultivars after artificial inoculation in the field is presented.

Material and Methods

Twelve potato cultivars, obtained from the Potato Botanist, Sind Horticulture Institute, Mirpurkhas, were planted in the experimental plots of the Institute. The experiment was laid out in a randomized block design with three replications. Tubers were planted on ridges and the soil was duly fertilized with P_2O_5 and K_2O . Potato plants were inoculated by the method of Douglas & Pavek (1971), using a conidial suspension of *Alternaria solani* containing 25 ± 5 conidia/ml. The inoculum was obtained from the previously sown crop. Disease incidence was assessed according to the method adopted by Chattopadhyay & De (1979) on the basis of average number of infected plants and severity of disease rated on 0 to 5 scale with:

0 = No infection, immune (I)

1 = A few spots on lower leaves and very little damage, resistant (R)

- 2= A few to several spots affecting 25% of leaf area, moderately resistant (MR)
 3= Spots on lower as well as upper leaves affecting 50% of leaf area, moderately susceptible (MS)
 4= Spots on 75% of leaf area on almost all leaves, susceptible (S)
 5= Spots all over the surface on 100% leaves, highly susceptible (HS)

Table 1. Reaction of potato varieties against early blight.

Variety	Percent infected plant	Mean disease intensity	Reaction
Multa	76.65	2.06	MR
Vekaro	66.66	1.71	MR
Emergo	84.26	2.25	MS
Estima	70.40	1.81	MR
Redbad	47.80	1.08	R
Manna	80.00	2.15	MS
Bintje	94.50	2.31	MS
Atom alu	52.02	1.75	MR
Baraka	77.72	2.00	MR
Spartaan	81.58	1.87	MR
Prima	72.24	1.75	MR
Desiree	60.00	1.93	MR
Mean	71.99	1.87	--
L.S.D. at P = 05	7.90	0.69	--
L.S.D. at P = .01	10.72	0.94	--

Results and Discussion

Of the 12 varieties tested, cv. Bintje showed maximum infection (94.5%) followed by Emergo (84.25%), Spartaan (81.58%) and Manna (80.0%) accompanied with maximum disease intensity of 2.31. Other cultivars developed less infection with Redbad showing the least infection (47.8%) with minimum disease intensity of 1.08. It would suggest that cv. Emergo, Bintje and Manna can be classed moderately susceptible; Multa, Baraka, Desiree, Spartaan, Estima, Prima, Atom alu and Vekaro moderately resistant and Redbad as resistant to early blight of potato (Table 1). Approximately 52.20% plants of Redbad and 47.98% of Atom alu escaped infection. Such similar observations have been made by Reynard & Andrus (1945) and Gutmaraes (1953). Redbad and Atom alu appeared to be promising cultivars since they could tolerate the disease to a much greater extent than the other cultivars tested. Chattopadhyay & De (1979) also observed Redbad showing a marked resistance against early blight.

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