

## Research Paper

# Development of F<sub>1</sub> hybrids in tomato for yield, quality and field tolerance to bacterial wilt

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### ABSTRACT

Thirty two F<sub>1</sub> hybrids developed as a result of line x tester design involving 8 lines and 4 testers were evaluated with three replications during 2005-2006 at Horticulture department, Gandhi Krishi Vignyan Kendra, Bangalore. The data pertaining to yield, quality, field tolerance to bacterial wilt were recorded. Three hybrids viz., Vybhav x Arka Alok (L<sub>2</sub> x T<sub>2</sub>), PKM-1 x Arka Abha (L<sub>4</sub> x T<sub>1</sub>) and Hissar Anmol x Sankranthi (L<sub>3</sub> x T<sub>3</sub>) were found to be moderately resistant to bacterial wilt and with yield as 3.04 kg per plant (960.80 t/ha), 3.00 kg per plant (60.00 t/ha) and 2.96 kg per plant (59.20 t/ha), respectively. The quality of the fruit was also satisfactory. Arka Abhijith was used as commercial check to assess yield, quality and field tolerance to bacterial wilt for all the hybrids developed.

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**Key words :** Tomato, F<sub>1</sub> hybrids, Bacteria wilt, Field tolerance

## INTRODUCTION

Tomato (*Lycopersicon esculentum* Mill.) is one of the most important, extremely popular and extensively grown vegetables around the world and belongs to the family Solanaceae. Due to its high nutritional values, there is ever increasing demand for this vegetable. To meet this demand there is a need for development of hybrids with improved yield, quality and tolerance to diseases and pests. Developing commercially acceptable tomato varieties and hybrids with good horticultural qualities and tolerance to bacterial wilt has been the objective of many breeding programmes. In view of this a study was conducted at Department of Horticulture, University of Agricultural Sciences, Bangalore during 2005 – 2006.

## MATERIALS AND METHODS

The experiment material consisted of eight lines and four testers to develop 32 F<sub>1</sub> hybrids. F<sub>1</sub> hybrids, parents along with commercial check Arka Abhijith (Table 1) were assessed for yield, quality and field tolerance to bacterial wilt in a Randomized Complete Block Design with three replications. A spacing of 100 x 50 cm was adopted and

the plants were provided with simple staking. The observations were recorded for yield, quality and disease parameters on five plants selected at random in each cross

**Table 1: Details of lines, testers and commercial check used for line x tester analysis**

Sr. No.	Details	Developed by
<b>Lines</b>		
L <sub>1</sub>	L-15 (Megha)	UAS Dharwad
L <sub>2</sub>	Vybhav	UAS Bangalore
L <sub>3</sub>	Hissar Anmol	HAU-Hissar.IARI, New Delhi
L <sub>4</sub>	PKM-1	TNAU-Coimbatore
L <sub>5</sub>	Pusa Ruby	IARI, New Delhi
L <sub>6</sub>	Arka vikas	IIHR, Bangalore
L <sub>7</sub>	Arka Meghali	IIHR, Bangalore
L <sub>8</sub>	Arka Sourabh	IIHR, Bangalore
<b>Testers</b>		
T <sub>1</sub>	BWR-1 (Arka Abha)	IIHR, Bangalore
T <sub>2</sub>	BWR-1 (Arka Alok)	IIHR, Bangalore
T <sub>3</sub>	Sankranthi	UAS Bangalore
T <sub>4</sub>	Nandi	UAS Bangalore
Commercial Check	Arka Abhijith.	IIHR, Bangalore