

RAJITHA- A NEWLY RECOMMENDED TOMATO VARIETY

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Bacterial wilt caused by *Ralstonia solanacearum* in one of the major production constraints, for successful and extensive cultivation of tomato in Sri Lanka. Therefore the Department of Agriculture pays much attention towards the development of varieties with bacterial wilt resistance. However, during the recent past, the farmers and consumers are much interested in the quality attributes of the tomato varieties, as the tomato fruit being highly perishable, encounters several problems in its transportation, storage and marketing. Badulla, Kandy and Matale are the major tomato growing districts in Sri Lanka where the environmental conditions are favorable for the cultivation. Farmers in these areas especially Kandy and Matale districts prefer to grow T-245 variety and they always request for a new tomato variety which has determinate growth type, medium fruits with firm and long shelf life and with bacterial wilt resistance. Therefore, there was an urgent necessity, to recommend a new tomato variety possessing the above traits. A variety named Rajitha was developed by Horticultural Crop Research and Development Institute, Gannoruwa. It is a cross between T-245/Caribe and developed through hybridization and bulk method of selection. The yield performance of Rajitha is presented in Tables 1&2

Table 1. The yield performance of Rajitha in station trials, Gannoruwa.

Variety	Marketable fruit yield t/ha	
	<i>Yala</i> season	<i>Maha</i> season
Rajitha	23.5 a	22.7 a
T 245 (check)	10.8	39.8 b
CV(%)	37.8 b	7.8

Means followed by the same letter were not significantly different at 5% level based on DMRT

Table 2. The yield data (t/ha) in national coordinated varietal trials conducted at four RARDCs

Variety	Yield t/ha			
	(a) Gannoruwa	(b) Makandura	(c) Bandarawela	(d) Girandurukotte and Mahailupallama*
Rajitha	26.4	22.9	21.5	4.6
T-245	21.4	18.1	20.2	3.6

RARDC – Regional Agricultural Research and Development Center

(a) - Average yield of 06 seasons

(b) - Average yield of 04 Season

(c) - Average yield of 04 seasons

(d) - Average yield of 03 seasons

** Low yields were reported due to poor fruit setting due to high temperature.

Marketable fruit yield data on adaptability trials conducted in farmer fields, is presented in Table 3.

Table 3. Yield performance of Rajitha in varietal adaptability trials t/ha.

Season	Location	AEZ	T-245	Rajitha
<i>Maha 99/00</i>	KANDY			
	Godamune	WM3	9.25	8.00
	Kundasale	IM3	15.93	13.20
	Imbuldeniya	WM2	12.77	18.00
	KEGALLE			
	Beminiwatte	WM3	12.12	11.25
	Aranayake	WM3	08.00	3.50
		VDM	4.31	5.13
		VDV	42.00	13.30
	<i>Yala 2000</i>	KANDY		
Wewela		MCWZ	27.50	37.75
Marassana		MCIZ	23.31	22.10
MATALE				
Walawela		MCIZ	9.37	8.37
Weeragama		MCIZ	8.37	6.25
KEGALLE				
Beminiwatte		MCWZ	12.25	14.50
Rambukkana		LCWZ	12.50	9.82
N'ELIYA				
Mungwatte		UCIZ	7.25	6.75
Karalliyadda		MCIZ	9.50	7.25
		VDM	2.11	2.58
		VDV	5.94	2.58
<i>Maha 2000/01</i>	KANDY			
	Godamunne	IM3	12.75	12.50
	Marassana	IM3	8.25	7.40
	Imbuldeniya	WM2	22.88	26.13
	KEGALLE			
	Pinnawela	WL2	11.0	13.13
	Beminiwatta	WL2	6.38	6.88
	Ambanpitiya	WL2	13.18	13.70
		VDM	1.42	0.54
		VDV	1.26	0.36

VDM - Mean of Deviations from Maximum Response

VDV - Variance of Deviations from Maximum Response

A variety possessing the lowest VDV and VDM values is considered to be the most adaptable and stable variety. Rajitha variety had comparatively lower VDV and VDM values than T 245, clearly exhibiting its superior adaptability and stability. Rajitha has moderate level of bacterial wilt resistance as in T 245 Variety. Reaction to bacterial wilt disease is presented in Table 4

Table 4. Reaction to bacterial wilt disease

Variety	Reaction 1	Reaction 2
Rajitha	MR	MR
T 245	MR	R
*Marglobe	S	S
** KWR	HR	HR

* Susceptible Check variety Reaction 1 Laboratory
 ** Resistant check variety Reaction 2 Field
 MR Moderately resistant HR Highly resistant
 S Susceptible R Resistant

(Evaluation was done at the pathology Division at HORDI)

The fruit quality characteristics of Rajitha variety in comparison with T 245, T 146 and KWR are presented in Table 5.

Table 5. Fruit quality characteristics

Character	Variety			
	Rajitha	T 245	T 146	KWR
AV. Fruit weight (g)	82.4	71.8	80.0	51.2
Fruit Colour	Orange	Orange	Orange-red	Orange-red
Fruit circumference (cm)	18.5	14.3	14.8	11.8
Fruit height (cm)	8.9	8.2	9.6	4.3
Thickness (cm)	0.4	0.4	0.2	0.18
Fruit shape	Slightly flattened	Slightly flattened	Slightly flattened	Round
Firmness	Medium	Medium	Soft	Soft
No. of locules	4	3-6	4-6	3-4
pH	3.7	3.8	3.8	3.8
Acidity % as citric acid	0.94	0.80	0.73	0.64
Brix	3.9	5.0	3.8	3.8
Cracking	Very mild	Mild	Heavy	Heavy
Keeping quality	Vey good	Good	Bad	Very bad

According to field surveys, it is reported by the tomato farmers that Rajitha variety is highly preferred than T 245, because of its low incidence of pest and diseases especially curly top virus and bacterial wilt, high fruit yield, fruit size and good keeping quality and less damage in long distance transportation.

The Department of Agriculture released the variety Rajitha (Acc. No. HT 1-16-38) in 2001 and the seed of this variety is now available in Department of Agriculture and it is now very popular among farmers in Matale District.