



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(8): 1714-1717
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www.thepharmajournal.com
Received: 27-06-2022
Accepted: 30-07-2022

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Prevalence of viral diseases in muskmelon in Andhra Pradesh

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Abstract

Musk melon (*Cucumis melo* L.) is an important fruit crop. Survey was conducted in musk melon crop growing areas in Ananthapuramu and Y.S.R. Kadapa districts of Andhra Pradesh during the 2021-2022. In roving survey, the per cent disease incidence was recorded 38.43, 33.12 in Ananthapuramu and Y.S.R. Kadapa districts respectively. Maximum per cent disease incidence was recorded in the Raghavarajapuram village of Kodur mandal in Y.S.R. Kadapa district i.e., 62.50% followed by Yerradoddi village of Kadiri Mandal in Ananthapuramu district i.e., 55% and lower per cent of disease incidence was recorded in Palampalli village of Kadapa mandal in Y.S.R. Kadapa district i.e., 25%. Per cent of disease incidence in each district was shown in the tables.

In Ananthapuramu district maximum per cent disease incidence was recorded Yerradoddi village of Kadiri Mandal i.e., 55% followed by Kalasamudram village of same Mandal and lowest disease per cent disease incidence was recorded in Kothakota village of Bukkapatnam Mandal i.e., 27.50%.

In Y.S.R. Kadapa district maximum per cent disease incidence was recorded in Ragavarajapuram village of Kodur Mandal i.e., 62.5% followed by Nagavaram village of Obulavaripalli Mandal i.e., 35% and lowest per cent disease incidence was observed in Palampalli village of Kadapa Mandal i.e., 25%. The per cent disease incidence was varied according to the crop age, location and varieties grown by the farmers. It was observed that majorly famers were grown Kohinoor, Kundan, Papasa varieties.

Keywords: Survey, percent disease incidence, muskmelon

Introduction

Muskmelon (*Cucumis melo* L.) belongs to the family Cucurbitaceae. In general, melons are oblong or round in shape, measure 4.5-6.5 inches. in diameter and weigh 450-850 g, and in some times the fruits are more 1kg in weight. It is extensively cultivated in the warmer regions of the world. It is cultivated throughout the India with an area of 23.01 lakh hectares of land with the production of 205.29 lakh MT (DAC&FW, 2019-2020) [1]. In Andhra Pradesh muskmelon is grown in an area of 9.9 thousand Ha. with the production of 3.14 lakh MT (NHB, 2018) [6].

Melons are susceptible to various viral diseases and are attacked by more than 30 viruses (Zitter *et al.* 1996) [8], including Cucumber mosaic virus and Zucchini yellow mosaic virus, which cause serious damage to muskmelons (Sharma *et al.* 2012) [9]. Incidence of other viruses, viz. Melon Necrotic Spot Virus, Muskmelon yellows virus (MYV) and CGMMV in muskmelon, has also been reported from various parts of world including India (Yin *et al.* 2014) [10].

Different viruses causes the different symptoms in cucurbits, *Watermelon bud necrosis virus* causes symptoms on watermelon include mild mottling, yellowing and necrotic spots, narrowing of leaf lamina, rugosity of leaves, stunted plants, shortened internodes, and plants were very brittle, un opening of flower buds, bud necrosis, die back upright growth of younger branches and another conspicuous symptoms reported were presence of longitudinal brown necrotic streaks on vines, tendrils, petioles, and fruits stalks. Fruit set yield were drastically reduced. (Krishna Reddy and Singh 1993) [4]. Similarly Tomato spotted wilt virus-W (TSWV-W) causes mild mottling, crinkling, yellowing and dark brown necrotic spots and rugosity of young leaves (Singh and Verma 2002) [7]. *Tomato leaf curl virus* were yellowing and curling of leaves with necrotic streaks symptoms on the fruits of muskmelon field (Dhak *et al.* (2020) [3]. Desbiez and Lecoq (1997) [2] observed symptoms caused by the ZYMV include yellowing, malformation, stunting, blistering, mosaic, necrosis, distortion, deformation of leaves, and stunting of plants. WMV symptoms include vein banding, mild chlorosis, severe mosaic, leaf distortion, deep leaf serration, crowding of leaves, shortening of internodes, reduction in

overall plant size, colour breaking or interveinal chlorosis of the leaves and also produces symptoms on fruits like distortion and discoloration of fruits, malformation and knobby overgrowth, and extended vine growth.

Materials and Methods

The roving survey was conducted during 2021-22 Anantapuramu and Y.S.R. Kadapa districts of southern Andhra Pradesh to assess the status of muskmelon viral disease. A minimum of two fields were selected randomly in each village for assessing the disease status. The incidence of the disease, variability of symptoms, crop variety present in the fields were recorded. The per cent disease incidence was calculated using the following formula.

$$\text{Per cent disease incidence} = \frac{\text{The total number of plants infected}}{\text{The total number of plants observed}} \times 100$$

Results and Discussion

Maximum per cent disease incidence was recorded in the Raghavarajapuram village of Kodur mandal in Y.S.R. Kadapa district i.e., 62.5% followed by Yerradoddi village of Kadiri Mandal in Ananthapuramu district i.e., 55% and lower per cent of disease incidence was recorded in Palampalli village

of Kadapa Mandal in Y.S.R. Kadapa district i.e., 25%. Per cent of disease incidence in each district was shown in the tables (Table no: 1), graph (Graph no: 1)

In Ananthapuramu district maximum per cent disease incidence was recorded Yerradoddi village of Kadiri Mandal i.e., 55% followed by Kala samudram village of same Mandal and lowest disease per cent disease incidence was recorded in Kothakota village of Bukkapatnam Mandal i.e., 27.50%.

In Y.S.R. Kadapa district maximum per cent disease incidence was recorded in Ragavarajapuram village of Kodur Mandal i.e., 62.5% followed by Nagavaram village of Obulavaripalli Mandal i.e., 35% and lowest per cent disease incidence was observed in Palampalli village of Kadapa Mandal i.e., 25%. The per cent disease incidence was varied according to the crop age, location and varieties grown by the farmers. It was observed that majorly famers were grown Kohinoor, Kundan, Papasa varieties. Krupashankar (1998) [5] also recorded the similar type of results that per cent of disease incidence was ranged from 0.7 to 10 per cent up to 30-45 DAS and later increased to 10 to 100 per cent up to 60-100 DAS. The per cent of disease incidence was low, might be due to the low temperatures during the survey, which effects the vectors population.

Table 1: showing the per cent of disease incidence in Ananthapuramu and Y.S.R. Kadapa districts of Andhra Pradesh Ananthapuramu district

S.NO:	Mandal name	S.NO:	Village name	Per cent of disease incidence	Average per cent disease incidence per village	Average per cent disease incidence per Mandal			
1	Kadiri	1	Kala samudram		45	46.25			
			Field no:1	45					
			Field no:2	45					
		2	Patnam		42.50				
			Field no:1	45					
		3	Yerra doddi		55				
			Field no:1	50					
		4	Nadim palle		42.50				
			Field no:1	45					
			Field no:2	40					
		2	Bukkapatnam	1	Pamudurti		37.50	32.5	
					Field no:1				35
Field no:2	40								
2	Gunipalle			32.50					
	Field no:1				30				
3	Krishnapuram			32.50					
	Field no:1				35				
4	Kothakota			27.50					
	Field no:1				30				
	Field no:2				25				
3	Mudigubba			1	Sankepalli		42.50		39.37
					Field no:1	45			
		2	Gunjepalli		40				
			Field no:1	35					
		3	Valimicherlopalli		35				
			Field no:1	40					
		4	Jonnalakothapalli		40				
			Field no:1	45					
			Field no:2	35					
		4	Garladinne	1	Yerraguntla		35.62		

			Field no:1	35	35	
			Field no:2	35		
		2	Marthadu			37.50
			Field no:1	40		
		3	Sirivaram			32.50
			Field no:1	30		
		4	Budedu			37.50
			Field no:1	40		
			Field no:2	35		

Average per cent disease incidence in Ananthapuramu (dist.)- 38.43%

Y.S.R. Kadapa district

S. No	Mandal name	s.no:	Village name	Per cent of disease incidence	Average per cent disease incidence per village	Average per cent disease incidence per Mandal	
1	Kodur	1	Anantharajupeta			32.50	40.62
			Field no:1	35			
				Field no:2	30		
		2	Thurpu palli			30	
			Field no:1	25			
				Field no:2	35		
		3	Raghavarajupuram			62.5	
			Field no:1	75			
				Field no:2	50		
		4	Bojjavari palli				
			Field no:1	40			
				Field no:2	35		
2	Obulavaripalli	1	B. Kammappalli			30	33.10
			Field no:1	35			
				Field no:2	25		
		2	Nagavaram			35	
Field no:1	40						
		Field no:2	30				
		3	Kothapalli			32.50	
			Field no:1	35			
				Field no:2	30		
		4	Govindapalli			30	
			Field no:1	30			
				Field no:2	30		
3	Kadapa	1	Bachumpalli			27.50	28.75
			Field no:1	25			
				Field no:2	30		
		2	Palam palli			25	
			Field no:1	30			
				Field no:2	20		
		3	Moda meeda palli			32.50	
			Field no:1	30			
				Field no:2	35		
		4	Nanapalli			28.75	
			Field no:1	35			
				Field no:2	25		
4	Khajipeta	1	Khajipeta			27.50	30
			Field no:1	35			
				Field no:2	20		
		2	Buddayapalli			27.50	
			Field no:1	25			
				Field no:2	30		
		3	Kummarakottala			35	
			Field no:1	30			
				Field no:2	40		
		4	Chennamukka palli			30	
			Field no:1	20			
				Field no:2	30		

Average Per cent disease incidence in Y.S.R. Kadapa district-33.12

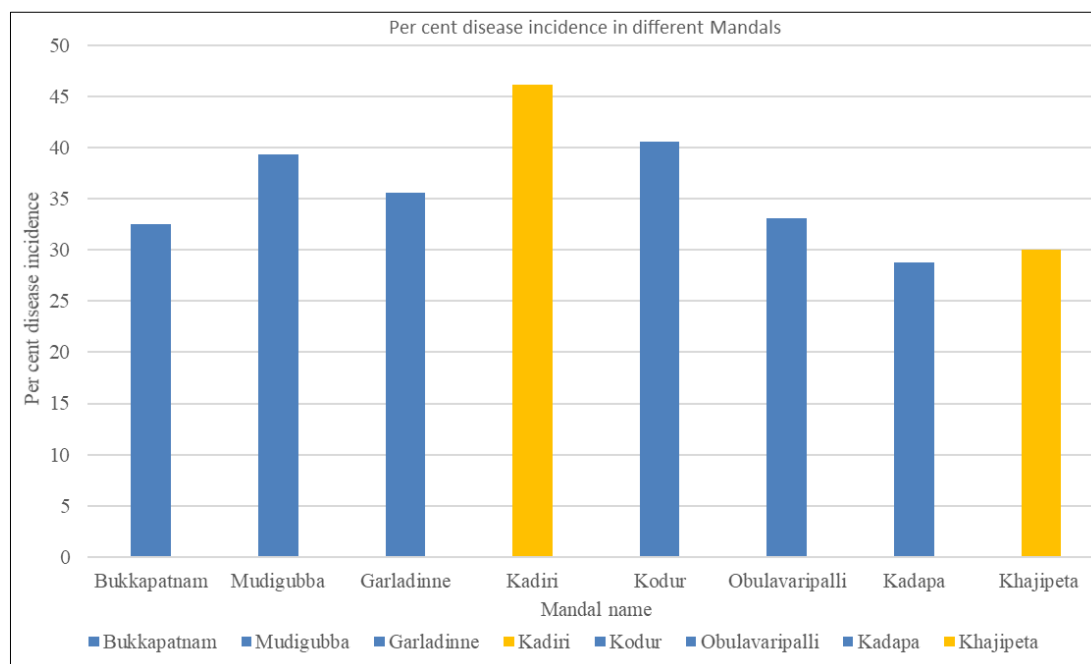


Fig 1: Graph showing the per cent incidence of viral diseases in muskmelon in Andhra Pradesh

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