



RESEARCH NOTE

Efficacy of colour sticky traps for monitoring chilli thrips, *Scirtothrips dorsalis* Hood (Thysanoptera: Thripidae) on rose

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ABSTRACT: Different colour sticky traps were evaluated for the purpose of monitoring chilli thrips, *Scirtothrips dorsalis* Hood on Rose both under open and protected conditions. Among the colour traps used, blue colour attracted highest number of *S. dorsalis* adults followed by yellow and pink.

Keywords: Rose, colour sticky traps, thrips

Rose (*Rosa indica*) is an economically important ornamental crop in India with 4330 ha area producing 874 million stems valued at Rs. 44 crore and is under cultivation in the states of Tamil Nadu, Karnataka, Maharashtra and West Bengal (www.nabard.org/English/plant_rose.aspx). It is used for cut flowers or as garden plants and also used in making rose oil, rose water and gulkhand. Roses are important ornamental hosts of chilli thrips, *Scirtothrips dorsalis* Hood (Thysanoptera: Thripidae). Adults and nymphs of *S. dorsalis* inhabit tender leaves, buds and flowers and suck sap from them causing deformities in leaves with brown or silvery patches or with burnt margins and browning and drying of flower buds and flowers (Bose and Yadav, 1989; Jhansirani and Sridhar, 2003; Duraimurugan and Jagadish, 2011). Loss by thrips feeding results in 28-95 percent damage with a population density of 11-33 thrips per flower (Gahukar, 2003).

Pest control decisions are often based on trap catches as a cultural control measure. Insects are differentially attracted to coloured surfaces, particularly yellow as a general insect attractant; a feature exploited among entomologists for collection of Coleoptera, Hemiptera, Hymenoptera and Thysanoptera (Riley and Schuster, 1994; Kersting and Baspinar 1995). Different colour preferences of many species of thrips have been studied by various authors to assess efficacy in attraction. Thrips can readily move long distances floating with the wind and get trapped while moving between rows of plants. Attractive colours incorporated into various traps

have been tried for a number of decades in population monitoring or direct control of thrips throughout the world (Terry, 1997; Mark *et al.*, 2002; Ranamukhaarachchi and Wickramarachchi, 2007), because of the simplicity in obtaining relative estimates of thrips population densities with little effort.

The present study was taken up to study the colour preference of *S. dorsalis* to sticky traps in Rose during 2014 in both polyhouse and open fields of 50m² each, located at Indian Institute of Horticultural Research, Bengaluru. Rose *cv* First red was used for the study. Four sticky colour traps *viz.* yellow, blue, pink and white of uniform size (1' x 0.5") were tested to determine the preference to *S. dorsalis* in getting attracted. Each card was fixed into a metal frame, which was fixed in the field using a bamboo stick in such a way colour traps were placed at the canopy level (~2 feet above ground level). Colorless and transparent insect trapping adhesive (White grease) was uniformly applied as a thin layer on both surfaces of each color card. Weekly observations for four successive weeks were made for thrips, *S. dorsalis* attraction. The trial was carried out in a randomized block design with five replications. Thrips stuck on glue of different colour cards were counted using hand held magnifying lens. Data on thrips catches were subjected to analysis of variance and means were separated by Duncans Multiple Range Test using SAS V 9.3. The colour codes for various charts used in the study were noted using Royal Horticultural Society Colour (RHSC) charts of 2007 edition (Table 1).

Table 1. Mean no. of thrips *S. dorsalis* recorded in different colour traps

Visual color of the traps	Color range and code as per RHSC	Mean no. of thrips / trap	
		Open field condition	Polyhouse condition
Blue	Blue - Green (115-D)	19.40 ^a	21.20 ^a
Yellow	Yellow (12-A)	10.40 ^b	8.00 ^b
Pink	Red Purple (65-A)	8.60 ^c	7.80 ^b
White	White (N155-D)	8.20 ^c	6.60 ^b
S. Em. (±)		1.67	1.59
CD @ 0.05		1.78	1.73

In the present study, thrips attraction has revealed differential attraction to various colours in the sequence of blue>yellow>pink>white under both field and polyhouse conditions. In both experimental conditions, maximum trap catch of *S. dorsalis* was significantly higher in blue traps (Table 1) and relatively more trap catch was observed in protected conditions might be due to more incidence of the pest. Colour attraction is an innate characteristic of insects. It is well known that yellow is attractive to sucking complex, fruit flies, western yellow-jacket, and whitefly parasitoids, *Eretmocerus* spp. (Hoelmer *et al.*, 1998). Thrips, in contrast, showed a greater photo tactic response to bright blue sticky traps with a peak reflectance at 460nm. Numerous other reports also indicate that thrips are attracted to blue as well as to white (Brodsgaard, 1993). Earlier findings by various authors differed regarding attraction of various colours in attracting different species of thrips. Blue and white have been considered as the preferred or the most preferred colors for several species of thrips, including *Thrips tabaci*. Blue traps caught significantly more thrips than the white ones in this study, is in line with the previous findings of Liu and Chu (2004) and Eric *et al.*, (2007). However in contrast to the present observations highest attraction to thrips, *S. dorsalis* was observed in okra on yellow color trap followed by green colour (Malik, *et al.*, 2012) and yellowish green followed by green and yellow for yellow tea thrips (Masatoshi *et al.*, 2009). Differential color attraction for thrips by different authors may be attributed to the effect of different cultivated crops (Gharekhani *et al.*, 2014) affecting attraction of thrips species to colour traps and the wave length range of colours used for traps, which needs to be studied. Colour cards can also be used for mass trapping and monitoring insects in horticultural crop ecosystems.

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