and *C. chinense*. Triangular shaped fruits were observed in three *C. annuum* accessions, one *C. frutescens* and two *C. chinense* accessions. One accession under *C. annuum* had wrinkled fruit surface, vegetative characters, plant height and canopy width varied substantially. Variation was also observed in leaf length and leaf width. Fruit length ranged from 3.4 to 16.0 cm in *C. annuum*, 2.3 to 6 cm in *C. frutescens* and 3.9 to 10.9 in *C. chinense*. Fruit weight ranged from 0.7 to 7.4 g in *C. annuum*, 2.3 to 4.8 g in *C. frutescens* and 1.9 to 4.0 g in *C. chinense*. Seed weight also varied significantly. In *C. annuum*, 1000-seed weight ranged between 2.6 to 7.5 g whereas 3.1 to 4.2 g in *C. frutescens* and 2.1 to 3.5 g in *C. chinense*. Non-additive gene action had been reported for characters like plant height and fruit length (Rao and Chhonkar, 1983).

In Kerala, bacterial wilt and mosaic are serious problems in chilli cultivation. Susceptibility of collected accessions to bacterial wilt as well as chilli mosaic was also recorded during the evaluation. Eight accessions (four each from *C. annuum* and *C. chinense*) were free from bacterial wilt. Whereas 9 accessions of *C. annuum* were free from chilli mosaic. These genotypes may prove helpful in developing resistant varieties. Highest/plant yield was recorded in three accessions collected from Palakkad district.

Table 2. Variability in some quantitative attributes of chilli accessions

Characters	Range		
	Capsicum annuum	*Capsicum frutescens*	*Capsicum chinense*
Plant height (cm)	27.0-82.5	47.2-76.9	46-71
Canopy (cm)	24.5-77.0	37.0-78.5	44-106
Stem length (cm)	6.5-49.0	20.544.5	27.3-47.3
Stem diameter (cm)	2.0-5.1	2.2-3.9	2.4-3.7
Leaf length (cm)	7.8-17.9	9.6-22.1	11.9-17.4
Leaf width (cm)	2.4-8.3	3.2-9.1	3.3-7.5
Fruit length (cm)	3.4-16.6	2.3-6.0	3.9-10.9
Fruit width (cm)	0.4-2.4	0.7-2.2	1.1-2.4
Pedicel length (cm)	1.8-6.3	2.0-2.5	2.8-5.6
Fruit weight (g)	0.7-8.9	2.34.8	1.9-4.0
1000-seed weight (g)	2.6-7.5	3.1-4.2	2.1-3.5

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Evaluation of Guava Germplasm for the Incidence of Spiralling Whitefly, *Aleurodicus dispersus* Russell

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Key Words: *Aleurodicus dispersus*, Spiralling whitefly, Guava germplasm

The spiralling whitefly, *Aleurodicus dispersus* Russell (*Homoptera: Aleyurodidae*) is an exotic pest which was reported to have entered India through Sri Lanka in mid nineties (Ranjith *et al.* 1998). Within a span of a couple of years after its first report of occurrence in Kerala, Tamil Nadu and Karnataka (Palaniswamy *et al.* 1995; Mani and Krishnamurthy, 1996), its menace on a wide range of crops including guava, has grown to an alarming level. Recently the pest caused havoc among guava growers in Andhra Pradesh. The eggs, laid in circular fashion, pupae and adults of this insect are found on the lower surface of leaves as conspicuous white cottony cushion coating. Nymphs and adults suck sap from leaves making them turn yellow resulting in stunted plant growth. Owing to its recent introduction, an effective IPM package for the whitefly is yet to be standardised. Except for recording a list of host plants across the country, studies on varietal preference are yet to be taken up. Hence, an attempt has been made to screen guava germplasm for their variable susceptibility to this alien pest. The information generated on these lines would go a longway in breeding resistant varieties.

Twenty-five guava germplasm collections (Table 1) including popular cultivars, exotic collections and a species

Table 1. Incidence of *Aleurodicus dispersus* on different guava germplasm collections during the year 2000 and 2001

Variety/Line	White fly population/10 shoots (immature + adults)			% shoot infestation		
	2000	2001	Mean (P)	2000	2001	Mean (I)
Smooth green	10.99 (3.38)	8.99 (3.08)	10.00	20.33 (26.78)	18.33 (25.33)	19.33
Portugal	65.99 (8.15)	71.66 (8.49)	68.82	70.66 (57.21)	74.66 (59.78)	72.66
Mirzapur seedling	15.22 (3.96)	18.33 (4.34)	16.77	32.33 (34.66)	36.66 (37.26)	34.49
Florida seedling	29.92 (7.76)	21.77 (4.72)	25.84	20.00 (26.56)	19.33 (26.09)	19.66
Behat coconut	23.66 (4.91)	16.66 (4.14)	20.16	35.66 (36.66)	27.66 (31.72)	31.66
Karela	8.88 (3.06)	5.99 (2.55)	7.43	20.66 (26.99)	14.33 (22.25)	17.49
Superior sour lucidum	11.77 (3.50)	10.33 (3.29)	11.05	24.33 (29.55)	21.66 (27.72)	23.00
Psidium guinense	9.62 (3.18)	5.33 (2.41)	23.00	16.33 (23.84)	14.33 (22.25)	15.33
Nasik	5.77 (2.50)	3.66 (2.04)	4.71	18.33 (25.36)	16.33 (23.84)	17.33
Pear shaped	21.44 (4.68)	17.33 (4.22)	19.38	22.66 (28.41)	17.66 (24.84)	20.16
Sindh	19.88 (4.51)	15.77 (4.03)	17.82	26.33 (30.88)	21.33 (27.52)	23.83
Seedless	17.88 (4.28)	15.33 (3.98)	16.60	28.66 (32.36)	27.66 (31.72)	28.16
Hafsi	12.21 (3.56)	10.21 (3.27)	11.21	18.66 (25.58)	15.33 (22.06)	17.00
Bangalore local	47.66 (6.94)	41.88 (6.51)	44.77	67.33 (55.20)	60.33 (50.96)	63.83
White flesh	19.99 (4.53)	20.99 (4.64)	20.49	34.33 (35.88)	32.66 (34.85)	33.66
Spear acid	0.00 (0.71)	1.33 (1.35)	0.66	0.00 (0.00)	5.66 (13.75)	2.83
Banaras	7.88 (2.89)	6.44 (2.63)	7.16	12.33 (20.56)	7.33 (15.71)	9.83
Allahabad Safeda	3.99 (2.12)	2.54 (1.74)	3.26	12.33 (20.56)	6.33 (14.57)	9.33
Lucknow-49	17.33 (4.22)	14.22 (3.84)	15.77	26.33 (30.88)	20.66 (26.99)	23.50
Red flesh	36.33 (6.07)	29.66 (5.49)	32.99	35.33 (36.48)	27.33 (31.53)	31.33
Arka Amulya	3.99 (2.12)	2.77 (1.81)	3.38	10.66 (19.05)	7.33 (15.71)	8.99
Arka Mridula	4.77 (2.30)	5.33 (2.41)	5.05	12.33 (20.56)	6.33 (14.57)	9.33
Ec 147034	24.77 (5.03)	22.88 (4.84)	23.82	41.33 (40.02)	36.66 (37.26)	38.99
Ec 147036	40.55 (6.40)	36.33 (6.07)	38.44	72.66 (58.46)	65.33 (53.92)	68.99
Ec 147039	8.54 (3.01)	4.33 (2.19)	6.43	32.66 (34.85)	24.66 (9.77)	28.66
SEm	0.61	0.54				
CD at 5%	1.81	1.63				
C.C. between P & I				R = + 0.756		

Figures in parantheses are square root of x=0.5 (population) and angular transformed values (%)

were evaluated for the incidence of *A. dispersus* during years 2000 and 2001 at Indian Institute of Horticultural Research, Bangalore. Observations were recorded from three trees of about 10-year-old in each variety. Each tree was considered one replication. The population counts of nymphs, pupae and adults of whitefly were taken from 10 randomly selected shoots in each tree at monthly intervals during the peak season *i.e.* March-May. Besides pest population, the extent of incidence in terms of per cent shoot infestation was also calculated.

The data were subjected to statistical analysis. Based on the extent of shoot infestation guava varieties were grouped as– highly susceptible (>50%), susceptible (25-50%), moderately susceptible (10-25%) and least susceptible (<10%).

From the data presented in Table 2, it is evident that the germplasm collections of guava varied significantly in their reaction to *A. dispersus* incidence. In both the years under study, the variety Spear acid recorded the least incidence (0.00 in 2000 and 3.33 in 2001) while the varieties Portugal, Bangalore local and EC 147036 were the most preferred ones with more than 50% shoot infestation. In terms of population counts, higher total number of pupae and adult was recorded from Portugal and least from Spear acid and Allahabad Safeda. Among the popular cultivars, Allahabad Safeda, Arka Amulya and Arka Mridula were under least susceptible group (<10% shoot infestation) while Lucknow-49 was under moderately susceptible group (10-25%). There was a significant positive correlation (r = + 0.756) between population of whitefly and percent shoot infestation indicating the quick dispersed tendency of insect within a preferred variety. Detailed studies to correlate the incidence of *A. dispersus* with morphological and biochemical parameters of leaves in different varieties are in progress.

Table 2. Grouping of guava germplasm collections according to their reaction to spiralling whitefly

Group	Varieties/Lines
Least susceptible (<10%)	Allahabad Safeda, Arka Amulya, Arka Mridula, Banaras, Spear acid
Moderately susceptible (10.25%)	Florida, Hafsi, Karela, Lucknow-49, Nasik, Pear shaped, *P. guinense* Sindh, Smooth green, Superior sour lucidum
Susceptible (25-50%)	Behat coconut, Mirzapur seedling, Redflesh, Seedless whiteflesh EC 147034, EC 147039
Highly susceptible (>50%)	Bangalore local, Portugal, EC 147036

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Characterisation and Intra-group Cluster Analysis of *Musa* Sub-group Pisang Awak (ABB)

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Bananas are the most important among food crops worldwide. They include diverse types such as dessert, cooking and roasting bananas. Bananas are also scientifically referred to by their genome groupings. The crop encompasses a range of diploids, triploids and tetraploids. These are categorised into different genomic groups on the basis of their ploidy levels and the genomes, which they contain. Simmonds and Shepherd (1955) suggested that the present day bananas originated from two wild and seedy species, *Musa acuminata* colla (2n=22) and *Musa balbisiana* colla (2n=22) which are native to South-East Asia, resulting in a series of diploid,