

Spices as host crops of Cotton mealybug, *Phenacoccus solenopsis*

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Persistent increase in the population of mealybug on cotton and other hosts has threatened the economical cotton production besides many other crops in India since 2007. Knowledge on the specific category of plants serving as hosts of *P. solenopsis* helps, not only in preventing the infestation of mealybugs in the plant species *per se* but also is essential for assessing their role in spread of the pest to other crops including the main host *viz.*, cotton.

A year round fortnightly survey of host plants for *P. solenopsis* was carried out between 2008 and 2010 across North, Central and South cotton growing zones. The identity of the host plant species along with the severity of *P. solenopsis* infestation on them was made using one to four scale *viz.*, (0-no mealybug; Grade 1 (G1) - scattered appearance of few mealybugs on the plant; Grade 2 (G2) - severe incidence of mealybug on any one branch of the plant; Grade 3 (G3) - severe incidence

Table 1. Spices as alternate hosts of *Phenacoccus solenopsis*: seasonality and severity across cotton growing zones.

Botanical name	English name	Seasonality			Severity		
		North	Central	South	North	Central	South
<i>Foeniculum vulgare</i> Miller	Fennel	–	Off season	–	–	Grade I	–
<i>Trachyspermum ammi</i> (L.) Sperg.	Ajwain	–	Cotton season	–	–	Grade I	–
<i>Mentha piperita</i> L.	Peppermint	–	Throughout the year	Through out the year	–	Grade I	Grade 1
<i>Murrya koenigii</i> Spreng	Curry leaf	–	Through out the year	Through out the year	–	Grade 4	Grade 4
<i>Capsicum annum</i> L.	Chilli	Cotton season	Cotton season	Cotton season	Grade 2	Grade 4	Grade 2

of mealbug on more than one branch or half portion of the plant and Grade 4 (G4) - severe incidence of mealy bug on the whole plant). Present communication reports the five species of spice crops from four families serving as alternate hosts of *P. solenopsis*.

While all five spice hosts were documented from Central zone while three and one host was recorded at South and North zones, respectively. Nagrare *et al.* (2012) also documented five spice hosts amongst a total of 166 across the cotton growing zones of India. Fennel (*Foeniculum vulgare*), ajwain (*Trachyspermum ammi*) and peppermint (*Mentha piperita*) with G1 severity indicated their role as carryover host of *P. solenopsis* rather than being suitable for perpetuation. Curry leaf (*Murrya koenigii*) had the highest severity (G4) with year round seasonality, thus, indicating higher preference by *P. solenopsis* for feeding and multiplication. Vennila and Agarwal (2013) also recorded important fruit crops as host to the mealy bug. Chilli (*Capsicum annum*) was the only host common across all three zones during cotton season, although severity differences were obvious. Peppermint and curry leaf, common between Central+South zones supported *P. solenopsis* throughout the year as incidental (G1) and preferred (G4) hosts, respectively. The Central zone exclusive hosts *viz.*, fennel and ajwain although

belong to same family (Apiaceae) had *P. solenopsis* during off and cotton season, respectively with severity level of G1. Differential severity of *P. solenopsis* on chilli *viz.*, G2 at North and South zone and G4 at Central zone could have arisen due to the production and cropping system differences amongst cotton growing zones besides variation in agro climatic conditions and cotton growing seasons. From the management perspective, the curry leaf deserved to be monitored throughout the year at Central + South zones. Chilli as a field grown crop also needs careful monitoring and management of *P. solenopsis*. Removal of *P. solenopsis* affected plant parts by pruning and uprooting of completely infested plants must be practiced followed by their proper disposal through burial and burning, respectively.

References

- Nagrare, V.S., Rishi Kumar, M. Amutha, B. Dharajothi, S. Kranthi, S. Vennila, A.J. Deshmukh, K.D. Bisane, Manjula and K.R. Kranthi (2012). A record of host plants of mealbug, *Phenacoccus solenopsis* Tinsley for devising ecofriendly management strategies. *J. Entomol. Res.* **36**: 327-344.
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