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**Report of metallic shield bug, *Scutellera perplexa* (Fabricius) (Scutelleridae: Hemiptera) on Phalsa (*Grewia asiatica* L.) from Gujarat, India**

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## Introduction

India and Southeast Asia are home to the indigenous plant phalsa (*Grewia asiatica*, L.; Family: Malvaceae). It is mostly grown commercially in the Punjab and the area near Bombay. Many insect pests attack on phalsa, the major pests are phalsa bug, *Gargara mixta*; mealybug, *Drosicha mangiferae*; bark eating caterpillar, *Indarbela tetraonis*; hairy caterpillar, *Euproctis fraternal*; psylla, *Psylla* sp.; brown beetle *Anomala* sp.; beetle, *Oxycetonia* sp.; phalsa caterpillar, *Giaura szeptica*; aphid, *Aphis craccivora*; root-knot nematode, *Meloidogyne* sp.; spiral nematode, *Helicotylenchus* sp.; soft furred field rat, *Millardia meltada*; smaller bandicoot, *Bandicata bengalensis*; common house rat, *Rattus rattus* etc. attack on phalsa in direct and indirect way (Satyagopal *et al.*, 2014). The term "Jewel bugs" refers to members of the Scutelleridae family of insects. These bugs have an expanded scutellum that covers the majority of the abdomen, and the membrane tip is typically visible caudally. The majority of Scutellerinae subfamily species have appealing, colourful bodies. According to

Lattin (1994), there are 450 species of Jewel bugs classified into 80 genera described worldwide. Among them, 14 species are known to originate from India (Distant, 1902).

## Material and methods

The present study was conducted during 2022 at college farm of College of Horticulture, S. D. Agricultural University, Jagudan (Latitude-23.5134° N, Longitude-72.3998° E, altitude- 95 m above MSL) in Gujarat, India. The collection of the insect was done with two sampling methods *viz.* sweep net and hand picking. The collected samples were killed in killing jar and pinned properly on scutellum. The morphological characters of the said specimens were studied under the microscope in the Entomology laboratory.

## Results and Discussion

Based on morphological features and earlier identification on aonla by Pathan *et al.*, 2019 the insect was confirmed as Metallic shield bug, *Scutellera perplexa* (*Scutellera nobilis*). Metallic shield bug causes damage mainly to the leaves.

### Nature of damage of *S. perplexa*

Eggs, nymphs and adults were observed on leaves of phalsa (Fig. 1 A, B, C). Nymphs and adults were observed sucking sap from the leaves. These bugs caused direct damage by sucking the sap. Nymphs started sucking sap on the plant parts where they hatched. Nymphs were mostly observed feeding on the lower surfaces of leaves mostly in groups and rarely singly. Adults have been seen sucking sap off young, green branch tips and leaves. The size of the leaves was diminished as a result of the sap being sucked by these bugs. Bugs that feed heavily on the leaves show necrosis symptoms, which eventually causes early leaf fall. Plant leaves turn yellow from bug punctures and shrivelling, which restricts the development and productivity of the plant (Fig. 5). Bug damage results in restricted development and, occasionally, dieback in nurseries, especially when there is a severe infestation when the plants are young.

### Morphological characters of *S. perplexa*

Scutellum of the Scutelleridae family is exceptionally lengthy and covers the majority of the body. Underside of body, rostrum, and legs are reddish in colour. The sternum's lateral side and the lateral bands on the abdominal segments are metallic bluish green. Head is triangular, longer than it is wide, and angled downward. A transverse black streak that runs from the prothorax to the centre of the elytra. The insect is oval-shaped and elongated. Its

pronotum and scutellum are metallic green in colour, and it has little or big black markings on them. Finely pliable body (Fig. 2 A, B, C). Antennae four segmented. Wings are not visible from dorsal side but appear when insects want to start flying. Forewings are shiny dark blackish in color where hindwings light blackish in color with wing venations seen (Fig. 3 A, B, C). Adult females laid eggs in batches. Eggs were barrel in shaped and observed to be attached on leaves. Freshly laid eggs were white in colour which later on turned light red to bright reddish in colour prior to hatching. Nymphs after hatching were reddish orange in color and observed to remain in groups near the egg cases for some time and later on spread to further places.

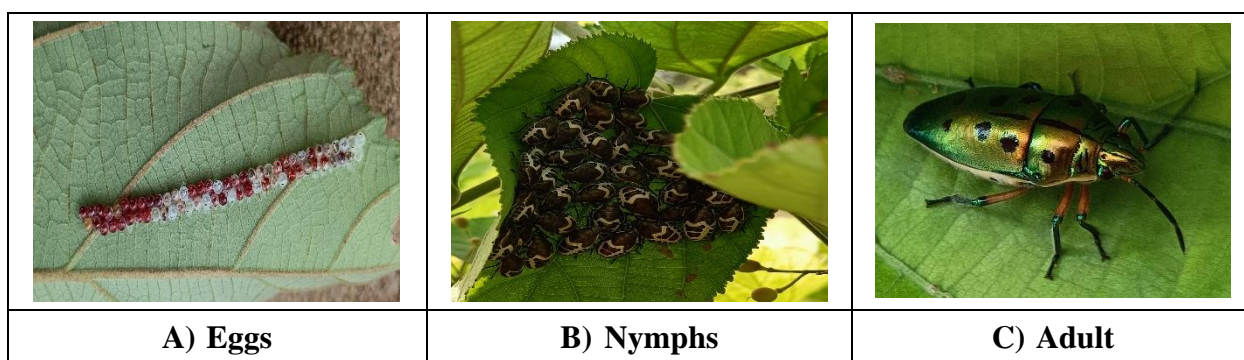
### Behaviour of *S. perplexa* adult

It passes through four moults and five nymphal instars. The colour of the newly emerging adult is reddish orange. The bugs didn't exhibit any unique precopulatory behaviour. First bodily contact when approaching each other seems to be the stimulation. Mature partners stay close to one another for a while before mating begins. Adults move from one twig or branch to another while they engage in end-to-end copulation (Fig. 4 A, B, C).

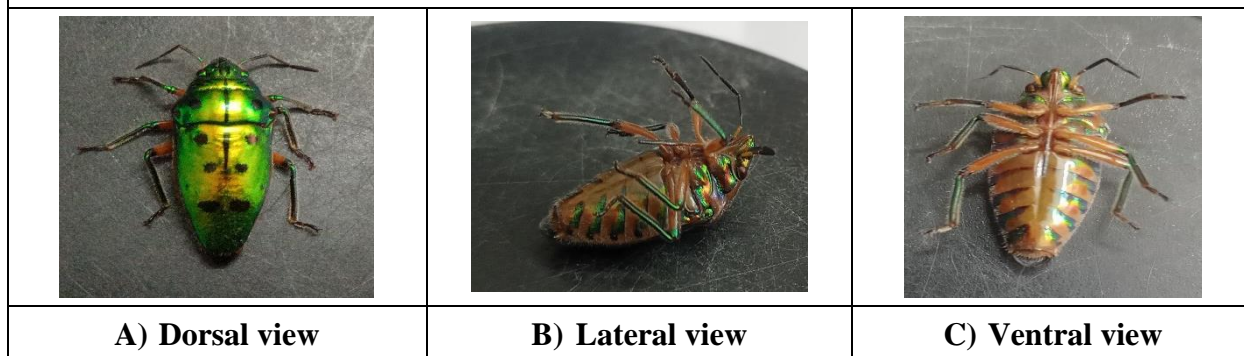
Earlier *S. nobilis* was reported for the first time on *Embllica officinalis* in East Forest Division, Chhindwara, Madhya Pradesh causing damage to fruits (Meshram & Garg, 1999) and it was also reported as a

sucking pest of grapes in Punjab (Singh & Kaur, 2015). *Scutellera perplexa* (Westwood) was also observed as a serious sucking pests of *Jatropha curcas* L. from Delhi (Parveen *et al.*, 2010). Pathan *et al.*, (2019) reported infestation of *S. nobilis* on aonla from Gujarat. But no single report from phalsa crop in Gujarat. So, the present study was the first report of *S. nobilis* infestation on phalsa from North Gujarat region.

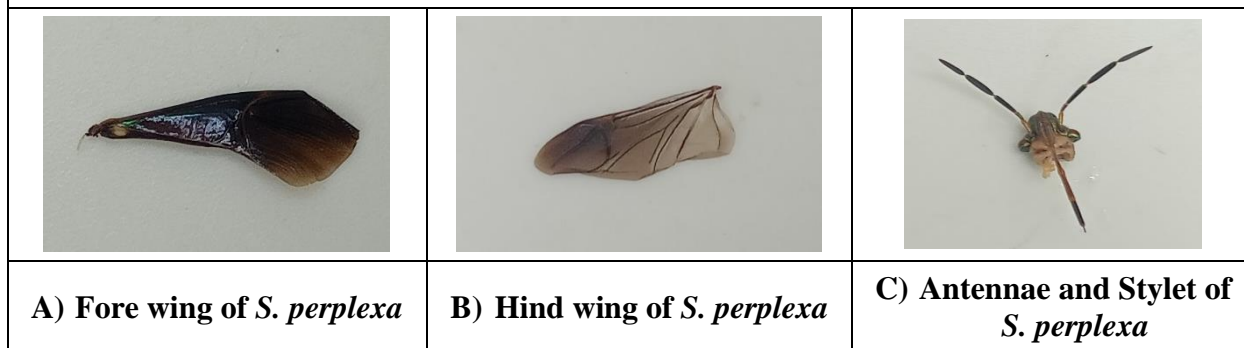
The paper deals with one species *viz.* *S. perplexa* (*S. nobilis*) of family Scutelleridae recorded from Research farm of College of Horticulture, S. D. Agricultural University, Jagudan (District: Mehsana). Therefore, new record of host range of Scutelleridae came to light.



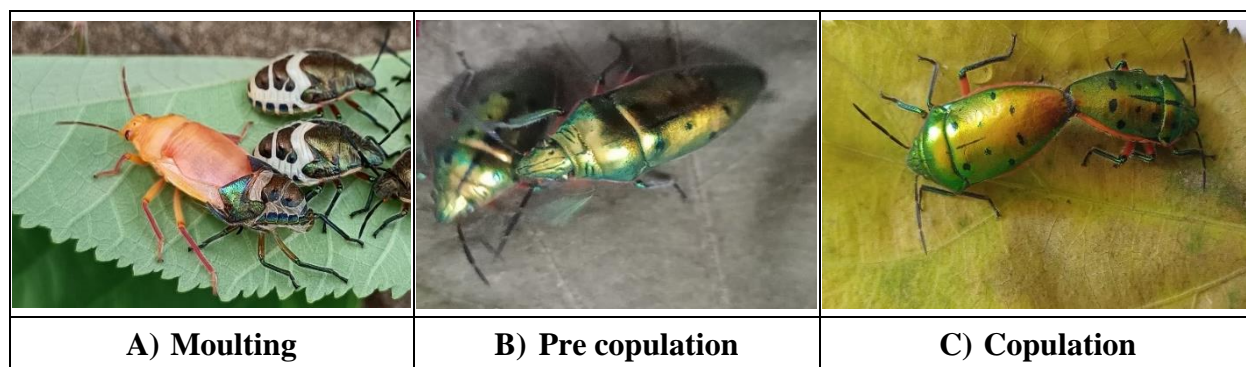
**Fig. 1: Life stages of *S. perplexa***



**Fig. 2: Positional View of *S. perplexa* adult**



**Fig. 3: Different body parts of *S. perplexa* adult**



**Fig. 4: Behaviour of *S. perplexa* adult**



**Fig. 5: Healthy and damaged leaves of phalsa**

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