Polymorphism in southern green stink bug, *Nezara viridula* (L.)
(Hemiptera: Pentatomidae)

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Stink bugs, which belong to family Pentatomidae, are well-known for the obnoxious odour produced by the scent glands located on the metasternum. Many of them are polyphagous pests of agricultural crops belonging to various families especially Fabaceae. Among the several pentatomid pests of legume crops, the green stink bug, *Nezara viridula* (L.) is perhaps the most important. It is cosmopolitan and highly polyphagous, feeding on plant species in more than 30 families (Panizzi, 1997). In one of the earliest works on the Indian fauna of Pentatomoidea by Distant (Distant, 1902) in the monumental fauna of British India Series, he mentioned the occurrence of two varieties, viz., var.a and var.b in addition to the common green type. However there was no mention of names of the varieties and also he treated the common green form as *Nezara viridula* (L.). Later on Freeman (Freeman, 1940) gave an account of the genus *Nezara* Amyot & Serville, in which he clearly mentioned the common green form must receive the status of variety by the law of priority. Yukawa and Kiritani (1965) studied the polymorphism in the southern green stink bug from various geographical regions in world. They reported nine forms including the fundamental forms such as G, O, F and R. Even though Indian species of *Nezara* Amyot & Serville was studied by Azim and Shafee (1978), the polymorphic forms of the species, *N. viridula* (L.) was not mentioned. As many as ten different colour’morphs which are derived from four basic types have been reported from neotropical region (Vivan and Panizzi, 2002). This paper deals with the three colour forms of *N. viridula* (L.) and helps to avoid the mistake of considering this colourmorphs altogether a new species of *Nezara*, as these are common in many natural agro ecosystems. In nature, it was also observed the mating between the various colourmorphs.

Collection of pentatomids was made by sweep net method from various ecosystems covering almost all districts of Karnataka. Besides this, specimens were procured on loan from various agricultural institutions. Collected specimens were killed using ethyl acetate; bugs of smaller size were mounted singly on triangular card points on the right hand side of the thorax by using Fevicol. Large bugs were directly pinned through scutellum slightly towards right side of the midline, without spreading the wings. The data label with information regarding locality, date of collection, host plants and name of the collector was transfixed separately to the respective specimen. Older specimens were repinned and relabeled whenever necessary.

The diagnostic characters of the genus *Nezara* Amyot and Serville and the three morphs of *Nezara viridula* (L.) are discussed here.
Genus Nezara Amyot and Serville, 1843

Head with lateral margins slightly sinuate in front of eyes, jugae as long as tyulus, rounded at apex, lower surface of head with black spot in front of eye and above insertion of antenna.

Dorsal body surface with punctae. Antenna with first segment short, thick, not reaching apex of head. Rostrum slightly extending beyond posterior coxae, basal segment almost as long as bacculae. Pronotum with lateral angles rounded, not prominent. Mesosternum carinate. First visible abdominal sternum with basal tuberculate spine.

The species Nezara viridula (L.) is highly variable with respect to colour and the following three forms were observed.

**Nezara viridula var. smaragdula** (Fabr.) (Colour form 1) (Fig. 1)

Typically green, margin of entire body narrowly yellow, especially lateral margins of head and pronotum, basal lateral margin of hemelytra and edge of connexivum. Ventral surface pale green, with median longitudinal yellowish area, including basal abdominal tuberculate spine, three sometimes five small yellow spots across base of the scutellum. Legs green, coxae, base of femora yellow, tarsal claws black on apical half. Dark green spot on anterio-medial side of each abdominal spiracle, lateral abdominal margins with small black spots at apices of segmental incisures; spiracular outline luteous. Antennae with fourth, fifth, apical one third of third segment reddish with luteous base, remaining segments green. Rostrum slightly yellowish with apex black. Membrane hyaline.

**Nezara viridula var. torquata** (Fabr.) (Colour form 2) (Fig. 2)

It differs from form 1 in colouration by presence of broad yellow fasciae on head (excluding base), anterior area and lateral margins of the pronotum.

**Nezara viridula** (L.) (Colour form 3) (Fig. 3)

Dorsal surface yellow with green spots arranged as follows: head with tinge of green apically, two small spots basally surrounding ocelli; pronotum with three spots in transverse anterior row, central one largest, lateral ones small; scutellum with large spot at mid-basally, one small spot at each basal angle surrounding basal black spot, one spot at caudal apex; hemelytra with spot near apex of each corium, forming transverse row of three with apical scutellar spot. Connexivum with green suffusion across articulation of segments. Colouration of antennae, venral surface including legs, abdominal spine, rostrum and spiracular outline same as that of colour form 1. Lateral abdominal margins with small black spots at apices of segmental incisures smaller than in other colour forms.

**CONCLUSION**

The original type species should take this name according to the law of priority. But colour form 3 is Var. b according to Distant (Distant, 1902). G-type and O-type reported by Yukawa and Kiritani (Yukawa and Kiritani, 1965) are Nezara viridula var. smaragdula (Fabr.) and Nezara viridula var. torquata (Fabr.) respectively. They did not come across with the colour form three from India that is Nezara viridula (L.). In fact, they examined only two specimens from India to report the above two forms. Hence, we can conclude that, *N. viridula*
(L.) is found in three colourmorphs in nature such as the completely green forms, the one which have green spots on yellow background colouration and the green type with the anterior margins of head and pronotum with yellowish colouration.

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REFERENCES


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Figs. 1-3: Three colourmorphs of *Nezara viridula* (L.)

Fig. 1, *N. viridula* var. *smaragdula* (Fabr.)

Fig. 2, *N. viridula* var. *torquata* (Fabr.)

Fig. 3, *Nezara viridula* (L.)

Figs. 1-3: Three colourmorphs of *Nezara viridula* (L.)

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