

## The life cycle of *Bagrada picta* (FABRICIUS)

(Hemiptera: Pentatomidae)

von

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### Introduction

*Bagrada picta* (FABRICIUS) is widely distributed throughout India. It has been reported as a serious pest of *Brassica campestris* LINN., *Brassica oleracea capitata* LINN., *Brassica oleracea botrytis* LINN. and *Raphanus sativus* LINN. RAKSHPAL (1949) made observations on the biology of *Bagrada cruciferarum* KIRKALDY. However, he did not give illustration in support of his observations. The species *B. cruciferarum* KIRKALDY has been synonymised with *B. picta* (FABRICIUS) by HORVATH (1936), which is accepted by the present authors.

The present observations were carried out under laboratory conditions, temperature: 70 - 80 ° F, relative humidity: 70 - 80 % and food: cabbage (*Brassica oleracea* LINN.).

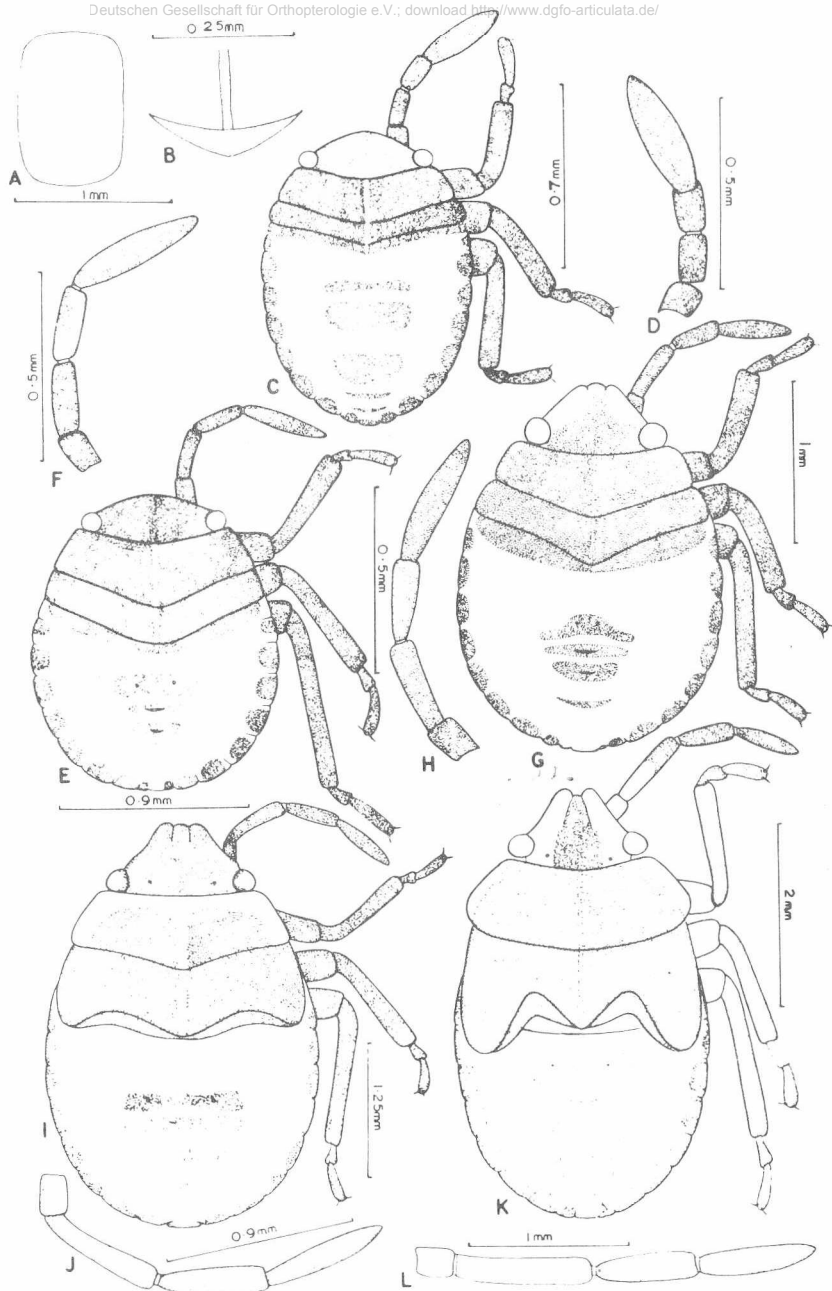
### Copulation and egg laying

Copulation occurs 4-5 days after the last moult. The process lasts 10-12 hours if not disturbed. It may occur frequently. Preoviposition period varies from 2-3 days. Eggs are laid singly and the female usually lays 25-30 eggs at a time on the under surface of the leaves.

Egg (Fig. A). Freshly laid eggs are creamy white in colour and become red after 20-24 hours. They are barrelshaped, smooth with a lid or pseudoperculum apically. Each egg is about 1.0 mm long and 0.75 mm wide. The egg burster (fig. B) well developed and T-shaped present beneath pseudoperculum. The incubation period varies from 2-5 days.

### 1st Instar (fig. C)

The newly hatched nymphs remain inactive and aggregated around the empty egg capsules for about 6-8 hours. Later, they become active. Feeding does not occur during this stage. However, RAKSHPAL (1949) pointed out that after emergence, the nymphs take rest for sometime, then they begins to move about and such the cell sap from the leaf. Body dark except submedian areas of abdomen yellow; impunctate. Head strongly deflexed; jugs slightly shorter than tylus; eyes yellowish brown and small; ocelli indistinct; rostrum dark brown, 4-segmented, extending much beyond hind coxae, segment second slightly shorter than fourth; antennae (fig. D) brownish, 4-segmented, segment second and third subequal, together much shorter than fourth. Thorax with a mid-longitudinal hyaline line; pro-, meso- and metanotum transverse and plate-like; median length of pronotum about



Life cycle (Figs. A-L)

as long as median length of meso- and metanotum together; posterior margin of metanotum not clearly demarcated; wing pads and metasternal scent gland ostioles indistinct; legs dark brown, tarsi 2-segmented, basal segment much shorter than apical segment. Abdominal dorsum with stink pores 1 surrounded by narrow transverse patch, pores 2 and 3 surrounded by oval patches; spiracles and trichobothria clearly differentiated outlined in black; sexes not differentiated. Duration of instar 2-3 days.

Body length: 1,1 mm.

#### 2nd Instar (fig. E)

Resembles first instar except in the following characters: Feeding starts from this stage. Rostrum with segment second distinctly longer than fourth; antennae (fig. F) with segment second and third subequal and together slightly longer than fourth; legs brownish much longer. Abdominal dorsum with stink pores connected by transverse bands. Duration of instar 2-3 days.

Body length: 1,6 mm.

#### 3rd Instar (fig. G). Resembles 2nd Instar except in the following characters:

Head brownish, slightly deflexed; juga as long as tylus; eyes red; ocelli represented by white spots; rostrum brownish extending just beyond hind coxae; antennae (fig. H) brownish, segment second slightly longer than third and together much longer than fourth. Thorax brownish; legs yellowish brown. Duration of instar 2-3 days.

Body length: 2,3 mm.

#### 4th Instar (fig. I)

Head brownish and slightly deflexed; juga as long as tylus, lateral margins slightly sinuate before eyes; eyes red and projecting laterally; ocelli distinct; rostrum dark, never extending beyond hind coxae; antennae (fig. J) dark brown, 4-segmented, segment second as long as fourth; antenniferous tubercles visible from above. Thorax brownish with a T-shaped white patch medially; mesothoracic wing pads developed; metathoracic wing pads and metasternal scent gland ostioles indistinct; posterior margin of metanotum clearly demarcated; Abdomen yellowish with lateral areas and narrow transverse patches medially dark; sexes not differentiated. Duration of instar 2-3 days.

Body length: 4 mm.

#### 5th Instar (fig. K). Resembles 4th instar except in the following characters:

Head with juga longer than tylus, lateral margins slightly reflexed; antennae (fig. L) brownish, segment second much longer than fourth. Thorax brownish; meso- and metathoracic wing pads well developed; scutellum broadly triangular; legs brownish except white patches; male and female external genitalic structures indistinctly differentiated. Duration of instar 3-4 days.

Body length: 4.5 mm.

Adult. - Head with juga much longer than tylus and meeting apically; antennae 5-segmented; hemelytra and wings well developed reaching apex of abdomen; legs with tarsi 3-segmented; abdomen with connexiva much distinct; male and female external genitalic structures clearly differentiated.

Body length: 7 mm.

#### Key to nymphal instars of *Bagrada picta* (FABRICIUS)

1. Wing pads indistinct (fig. C, E, G); antennae (fig. D, F, H) with segment second shorter than fourth; posterior margin of metanotum not clearly demarcated ..... 2
  - Wing pads developed (fig. I, K); antennae (fig. J, L) with segment second as long as or longer than fourth (except in adult); posterior margin of metanotum clearly demarcated ..... 4
2. Rostrum with segment second longer than fourth; antennae (fig. F, H) long, segments second and third together as long as or longer than fourth ..... 3
  - Rostrum with segment second shorter than fourth; antennae (fig. D) short, segments second and third together much shorter than fourth ..... 1st Instar
3. Head strongly deflexed; rostrum extending much beyond hind coxae; antennae (fig. F) with segments second and third subequal, together slightly longer than fourth ..... 2nd Instar
  - Head slightly deflexed; rostrum extending slightly beyond hind coxae; antennae (fig. H) with segment second slightly longer than third, together much longer than fourth ..... 3rd Instar
4. Meso- and metathoracic wing pads well developed; head with juga longer than tylus (fig. K); antennae with segment second longer than fourth (except adult); sexes differentiated ..... 5
  - Mesothoracic wing pads developed, metathoracic wing pads indistinct; head with juga as long as tylus (fig. I); antennae (fig. J) with segment second as long as fourth; sexes not differentiated ..... 4th Instar
5. Antennae 4-segmented; tarsi 2-segmented; head with juga never meeting apically; wing pads never reaching beyond middle of abdomen; scutellum broadly triangular, never reaching beyond basal one-third of abdomen; male and female external genitalic structures indistinctly differentiated ..... 5th Instar
  - Antennae 5-segmented; tarsi 3-segmented; head with juga meeting apically; wings fully developed, reaching apex of abdomen; scutellum well developed extending beyond middle of abdomen; male and female external genitalic structures clearly differentiated ..... Adult

#### Natural Enemies

A tachinid fly (*Alophora pussilla* MEIGEN) was found attacking adults of *B. picta* (FABRICIUS).

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