

## RECORD OF SOME INSECTS ASSOCIATED WITH *CALOTROPIS PROCERA* (ASCLEPIADACEAE) IN JABALPUR DISTRICT (M.P.), INDIA

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**ABSTRACT :** *Calotropis procera* (Asclepiadaceae), commonly known as Aak or Madar plant is a perennial wild herb which plays various important ecological roles, ranging from settlement in sandy soils, prevention of soil erosion, natural reproduction and in weavering, rubbering and medical industries. Taking in to consideration the commercial and medical importance of the plant, surveys was conducted to access the diversity of insects associated with the plant in Jabalpur, Madhya Pradesh. Observations resulted in the identification of one species of order Lepidoptera viz. *Anosia chrysippus* (Linnaeus), four species of Order : Hemiptera viz., *Spilostethus pandurus* (Fabricius), *S.hospes* (Fabricius), *Leptocorisa acuta* (Thunberg) and *Aphis nerii* Boyer de Fanscolombe and three species of Order : Coleoptera viz. *Aulacophora foveicollis* (Lucas), *Corynodes peregrinus* (Fuessly) and *Cheilomenes sexmaculata* (Fabricius).

**Key words :** *Calotropis procera*, Coleoptera, Hemiptera, Lepidoptera.

### INTRODUCTION

Aak or Madar plant - *Calotropis procera* (Asclepiadaceae), is a perennial wild herb widely distributed in tropical and subtropical areas such as India, Africa, Egypt, Pakistan, Iran, Arabic islands and Australia. It plays various important ecological roles ranging from settlement in sandy soils, prevention of soil erosion, natural reproduction and in weavering, rubbering and medical industries. The plant is known as 'vegetable mercury' of India and its byproducts are widely used in treatment of various diseases such as cholera, hepatic, spleen enlargement, cancer, diarrhea, dysentery, cough, asthma, piles, ulcers, eczema, leprosy and other ailments. The whole plant from root to leaf is having medicinal importance. For example leaf containing calotropiin and calotropagenin is beneficial in covering wounds and latex of flowers has anti-inflammatory and antihelminthic properties. The plants of *Calotropis procera* are observed to serve as host for different insect pests. Researches on insects associated with this plant were carried out by (Lefroy, 1906; Verma *et al.*, 1978 and Tara & Sudan, 2011).

### MATERIAL AND METHODS

Field observations were carried out in different localities around Jabalpur, M.P., during June to November, 2011. Insects with their Juvenile forms associated with *Calotropis procera* plants were collected using different collection methods and thereafter permanently preserved using adequate preservation technique. Larvae of *Anosia chrysippus* (Linnaeus)

were also reared in laboratory so as to take observations on their feeding potential on the host plant. Insects were then identified with help of available literature and matched with the reference collection present in Central Zone Regional Centre, Zoological Survey of India, Jabalpur and deposited in the museum. Field photographs were taken with the help of Nikon DSLR-D7000.

### RESULTS AND DISCUSSION

Specimens collected during field observations undertaken during June to November, 2011, resulted in the occurrence of eight insect species belonging to three orders and six families which are listed below :

S. Species name	Order	Family	Observation
1. <i>Anosia chrysippus</i> (Linnaeus)	Lepidoptera	Nymphalidae	Defoliator
2. <i>Spilostethus pandurus</i> (Fabricius)	Hemiptera	Lygaeidae	Sap sucker
3. <i>Spilostethus hospes</i> (Fabricius)	Hemiptera	Lygaeidae	Sap sucker
4. <i>Leptocorisa acuta</i> (Thunberg)	Hemiptera	Alydidae	Sap sucker
5. <i>Aphis nerii</i> Boyer de Fanscolombe	Hemiptera	Aphididae	Sap sucker
6. <i>Aulacophora foveicollis</i> (Lucas)	Coleoptera	Chrysomelidae	Defoliator
7. <i>Corynodes peregrinus</i> (Fuessly)	Coleoptera	Chrysomelidae	Defoliator
8. <i>Cheilomenes sexmaculata</i> (Fabricius)	Coleoptera	Coccinellidae	Predator



**Fig. 1** *Anosia chrysippus* (Linnaeus)



**Fig. 2** *Anosia chrysippus* (Linnaeus) Caterpillar feeding on host plant leaf



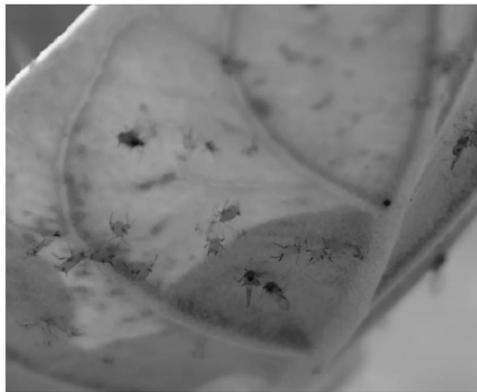
**Fig. 3** *Anosia chrysippus* (Linnaeus) Pupa



**Fig. 4** *Spilostethus pandurus* (Fabricius)



**Fig. 5** *Leptocorisa acuta* (Thunberg)



**Fig. 6** *Aphis nerii* Boyer de Fonscolombe



**Fig. 7** Host plant leaves infested with *Aphis nerii* Boyer de Fonscolombe



**Fig. 8** *Aulacophora foveicollis* Lucas

**Order : Lepidoptera**

**Family : Nymphalidae**

**1. *Anosia chrysippus* (Linnaeus) :**

**Diagnosis :** Common butterfly called as plain tiger or African Monarch. Medium sized with wing span of about 7-8 cm. Body, shiny, orange in color with black and white spots on their wings. Hind wing with 3 black spots around the center and having a thin border of black enclosing a series semicircular white spots (Figs.1&3).

**Caterpillar and damage :** Caterpillar's body uniformly cylindrical and covered with black and white interspersed with thick, yellow dorso-ventral spots. In early stages, larvae usually feed on the lower side of leaf in a way that they nip a complete circle around itself in the lower cuticle and feeds on leaves and makes some damage and losses to the plant. Final instars eat both lower and upper cuticle of the leaf and leaving circular hole both the sides of the leaf. The larvae also attack on young shrubs and causes decline and death at last (Fig.2).

**Order : Hemiptera**

**Family : Lygaeidae**

**2. *Spilostethus pandurus* (Fabricius), 1775**

**Diagnosis :** Pale sanguineous in colour. A spot present at inner margin of each eye. Pronotum with two large obscure ochraceous spot on basal area. Scutellum with a small spot near apex of clavus. A transverse fascia present on corium, pro-sternum, abdominal segmental margins and with stigma spots. Membrane black with a central white spot and two crescent white markings on membranous suture. Labium reaches 2<sup>nd</sup> coxae. Legs black, femora distinctly spined beneath (Fig.4).

**Damage :** Adults with its piercing and sucking types of mouth parts are reported feeding *Calotropis gigantea* and *Calotropis procera* (Mukhopadhyay,1988). Both adults and nymphs make damage to great extent to the leaves. Their abundance was low, in course of conducted surveys 2-3 individuals per five plants at each period were collected during the months.

**3. *Spilostethus hospes* (Fabricius), 1794**

**Diagnosis :** Pale sanguineous and body finely pilose. Head with a spot at inner margins of eyes, with two broad central discal fasciae on pronotum. Rostrum reaching the posterior coxae and scutellum with large central spot on corium. Membrane, disc of sternum and abdomen and legs black. Femora unarmed.

**Damage :** Adults with its piercing and sucking types of mouth parts are reported feeding *Calotropis procera* (Mukhopadhyay,1988). Both adults and nymphs make damage to great extent to the leaves. Their abundance was very low, in course of conducted surveys very less number of specimens were collected ranging from 2-3 individuals per ten plants at each period were collected during the months.

**Other host plants :** *Calotropis gigantea*, *Solanum melongena*, *Antirrhinum* sp., *Morus indica* (Ghosh,2008).

**Family : Alydiadae**

**4. *Leptocoris acuta* (Thunberg), 1783**

**Diagnosis :** Above brownish-olivaceous and beneath pale greenish. Abdomen above reddish-brown with the margins pale greenish-yellow. Antennae fuscous, bases of second, third and fourth joints luteous. Above with sternum beneath thickly and coarsely punctate. A small distinct tubercle near each lateral pronotal angle. Rostrum short hardly reaching 2<sup>nd</sup> coxae. A distinct central carinate line on pronotum (Fig.5).

**Damage :** Adults and nymph suck sap from plant leaves.

**Other host plants :** Commonly called as Gandhi Bug. The adults feed and breed on rice, a number of wild grasses, other weeds, millets, forest trees, etc. pertaining to about 80 important species (Ghosh,2008).

**Order : Hemiptera**

**Family : Aphididae**

**5. *Aphis nerii* Boyer de Fonscolombe, 1841**

**Diagnosis :** Bright yellow aphid and can be distinguished from both *Aphis crassivora* Koch and *A. gossypi* Glover in colour and number of caudal hairs.

**Apterous viviparous female :** Bright yellow. Antennae 6 segmented, rostrum reaching hind coxae or beyond. Dorsal portion of Abdomen with polygonal reticulations and abdominal hairs arranged in rows. Longest hairs on anterior abdominal tergites. Siphunculi broad, dark brown, cylindrically tapering towards apex and twice as long as cauda (Fig.6).

**Alate viviparous female :** Siphunculi stubby, cylindrical, dark brown, imbricated. Caudal dark, somewhat conical, spinose and imbricated, bearing 10-11 hairs (Fig.6).

**Damage :** Both nymphs and adults suck plant sap and in due result the leaves got curled downwards and plants give shabby look. The maximum infestation was found during November and December. The aphids reproduce parthenogenetically and distributed throughout India (Fig.7).

**Other host plants :** *C.gigantea*, *Asclepias curassavica*, *Asclepias* sp., *Bryophyllum pinnatum*, *Cryptostegia grandiflora*, *Cucurbita moschata*, *Daemia extensa*, *Duranta plumeri*, *Duranta rapens*, *Lyonia ovalifolia*, *Nerium* sp., *Tylophora asthmatica* and other plants of medicinal importance (Ghosh,2008).

**Order : Coleoptera**

**Family : Chrysomelidae**

**6. *Aulacophora foveicollis* (Lucas), 1849.**

**Diagnosis :** Brilliant orange red in colour black on ventral surface. Metasternum and abdominal sternites entirely or largely black in the male humerus covered with erect hairs (Fig. 8).

**Damage :** Adults are Polyphagous in nature and feed on leaves, flowers and fruits of the plant. The beetle is very destructive to *Calotropis* plant. The grubs damage the plants by boring into the cotyledons, flowers and foliage by biting holes into them (Fig.8).

**Other host plants :** The beetle is known to cause damage to various plants such as *Binincasa hispida*, *Cucurbita pepo*, *Citrullus vulgaris* and *Luffa aegyptcia* (Atwal & Dhaliwal, 2009).

#### 7. *Corynodes peregrinus* (Fuessly), 1783

**Diagnosis :** Metallic blue. Head very coarsely and deeply punctured, front rugose and irregularly excavated at lower border. Clypeus wedge shaped, more closely and finally punctured than the front. Antennae dark blue reaching to the base of the elytra or slightly beyond, fifth and following joints gradually widened, terminal joints very broadly dilated. Thorax nearly twice as wide at base anterior region. Elytra sub cylindrical (Fig.9).

**Damage :** Adults feed gregariously and voraciously on the leaves and sometimes on the foliage and soft tender shoots and cause severe damage to host plants. The population of

these beetles was most abundant during June and July and found feeding heavily on leaves. They start gnawing it completely leading to the total defoliation of plant (Fig.10).

**Family :** Coccinellidae

#### 8. *Cheilomenes sexmaculata* (Fabricius), 1781

**Diagnosis :** Six spotted zigzag ladybird beetle. Broadly oval to sub rounded, dorsum moderately convex and shiny. Elytra with six black markings including two zigzag lines and a posterior black spot. Ventral side uniformly yellow. Larva dark gray to brown, with yellow patches. In posterior half, colour orange to red or yellow and head with a black markings (Fig.12).

**Feeding habit :** Aphidophagous in nature, but also feed on psyllaids, whiteflies, mealy bugs, leaf and plant hoppers and early instar lepidopterous larvae. Both grubs and adults were observed to show predatory behavior on *A.neeri* (Fig.11).



Fig. 9 *Corynodes peregrinus* (Fuessly) (Mating)



Fig. 10 Infestation of *Corynodes peregrinus* (Fuessly) on host plant leaves



Fig. 11 *Cheilomenes sexmaculata* (Fabricius) larvae feeding on aphids



Fig. 12 *Cheilomenes sexmaculata* (Fabricius) Adult

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