



RESEARCH ARTICLE

SURVEY AND SURVEILLANCE OF INSECT PEST COMPLEX AND ASSOCIATED BIOAGENTS OF *cajanus cajan* (PIGEON PEA) OF CHAPRA, BIHAR

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ABSTRACT

Cajanus cajan (Pigeon pea) is economically an important crop which provides high quality vegetable protein and high nutritional value. But different biotic and abiotic factors like weather, temperature, insect pests and different diseases constraint the potential yield of crop. In view of little information on diversity of insect pest and their infestation on various growth phases of this crop under varied climatic condition of this region, survey was conducted in different areas i.e., Telpa, Rouja and Katra of chapra. A total of 3 fields were surveyed weekly from Oct to March 2015-2016. The insect pests found are *Helicoverpa armigera* Pod-fly, Plume moth and Cow bugs, Thrips, Blister beetles, Blue butterfly of order Coleopteran, Dipterans, Hemiptera and Homoptera including diseases like cercospora leaf spot, fusarium wilt, and sterility mosaic. *H.armigera* was found to be major pest with its predominant presence in all sites surveyed.

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INTRODUCTION

Pulses are important sources of protein, high in fiber content and provide ample quantity of vitamins and minerals. Keeping in view large benefits of pulses United Nation has proclaimed 2016 as the "INTERNATIONAL YEAR OF PULSES". *Cajanus cajan* (Pigeon pea) is most common and economically most important pulse crop of India. But day by day the production decreases, among various constraints attack by insect pests is one of the major cause for low productivity of crop. Nearly, 300 species of insect pests are known to infest pigeon pea at its various growth stages in India (Lal and Singh, 1998). These insect pests belongs to different categories i.e., oligophagous, polyphagous, surface feeding, concealed feeding, chewing to piercing and sucking types. The present survey was conducted to investigate the insect pests, parts of plant damage and incidence of pest including the pest natural enemy attracted by pests (Subharani and Singh, 2004). In view of a little information on diversity of insect pests and their infestation on various growth phases of the crop under varied climatic condition of this region. Survey of crop fields of Telpa, Rouja and Katra of Chapra for collection of different pest complex during the period of oct-march. The concerned insects was closely studied in their natural habitat. Their integration with particular host plant, mode of damage caused, response to predator, activity during different phase of day.

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MATERIALS AND METHODS

Materials required: Hand glass, scissors, forceps, needles, blade, and poly bags of different sizes, cello tape, rubber band, pins, cardboard boxes, bottles and plastic containers.

Method of observation: Insect pests occurring were observed at weekly visit from randomly selected plants. Pest was collected through net sweeping by forceps and hand picking method. Keeping them alive in different bottles and plastic containers to watch their life cycle.

RESULT AND DISCUSSION

During the observation number of insect explored from different fields of Rouja, Telpa and Katra. These collections were recorded at flowering stage, pod development stage and full pod stage. Pest recorded during present study (Mandal and Roy, 2010) i.e., *Maruca vitrata*(Fabricius), *Helicoverpa armigera*(Hubner), *Lampides boeiticus* L, *Exelastis atomosa*(walsingham), *Melanogromyza obtuse*(Malloch), *Blister beetles*, *cow bugs*, *Thrips*, *Ash weevil* the injurious activities of these pest complexes causes less production of pegion pea (Kumar and Nath, 2003). Along with these pest some diseases like fusarium wilt, sterility mosaic (Mitra, 1931), cercospora leaf spot (Reddy *et al.*, 1990) were observed in crop field. Birds like mynah and sparrow acts like associated bioagents as they were seen feeding efficiently on moth and

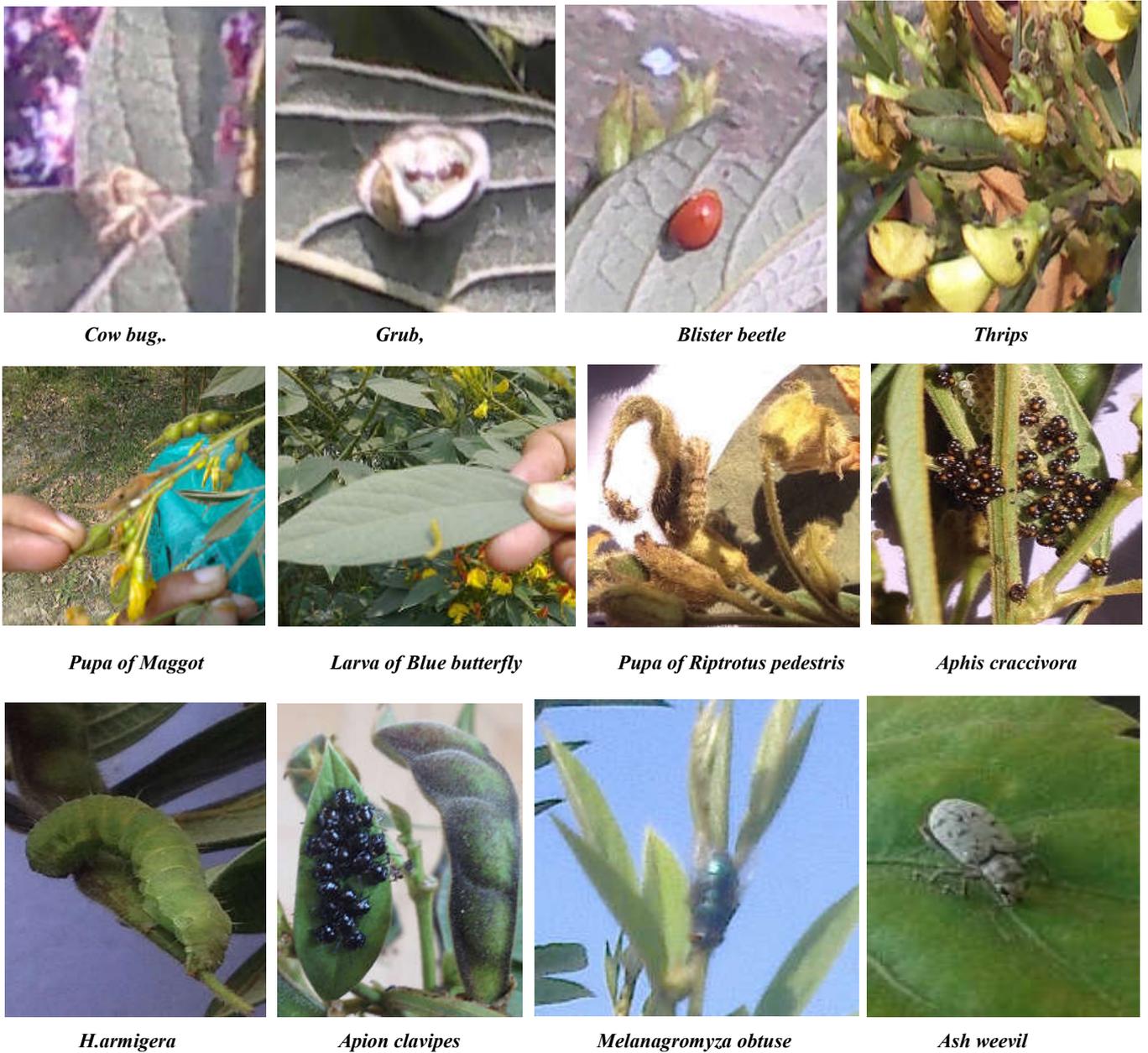


Fig. 1. Insects of Pigeon pea

larva of different insect pests. In present study number of natural enemy have been recorded (Minja *et al.*, 1999; Shanower *et al.*, 1999; Durairaj, 2006) like conccinellids, spiders, ants, praying mantis but a little is known of their effect on pest population. Improving the habitat and impacts of natural control agent is perhaps most neglected and need greater attention. It also helps in improving soil quality by less use of pesticides.

Table 1. Estimated loss% by insect pests

<i>Maruca vitrata</i> , <i>H.armigera</i> , <i>Lampides boeticus</i> , <i>Exelastis atomosa</i> , <i>Melanogromyza obtusa</i>	40-60%
<i>Blister beetle</i>	5-10%
<i>Clavigrella gibbosa</i>	5-10%

Pigeon pea (Early maturing); Pod borer complex

Pigeon pea (Late maturing)

Gram pod borer	15-20%
Pod fly	25-40%

Table 2. Major insect pest and beneficials of pegion pea

Order	Common name	Scientific name	Place
Hemiptera	Brown bug	<i>Clavigrella gibbosa</i>	Rouja, Telpa
Hemiptera	Cow bugs	<i>Otinatus oneratus W.</i>	Rouja, Telpa
Lepidoptera	Plume moth	<i>Exelastis atomosa</i>	Rouja
Lepidoptera	Pod borer	<i>H.armigera</i>	Rouja, Telpa, Katra
Lepidoptera	Blue butterfly	<i>Lampides boeticus</i>	Telpa
Coleopteran	Blister beetle	<i>Mylabris postulate</i>	Rouja, Telpa, Katra
Coleopteran	Ash weevil	<i>Myllocerous undecimpustualus</i>	Rouja, Telpa, Katra

Beneficial insects

Order	Common name	Scientific name	Place
Coleopteran	Lady bird beetle	<i>Coccinella transversalis</i>	Rouja
Hymenoptera	Ants	<i>Myrmica rubra</i>	Rouja, Telpa, Katra
Dictyoptera	Praying mantis	<i>Mantis religiosa</i>	Telpa
Araneida	Spiders	<i>Lycosa.sp</i>	Rouja, Katra

Conclusion

Pigeon pea is an important pulse crop of this region and unfortunately its production decreases day by day. It can be concluded that there was incidence of different insect pests, diseases in crop. It attacked by different pest complex from germination to flowering stage. Apart from production shortage the crop is highly sensitive to attack by a wide range of insects both in fields and storage. Most of the pests attack the crop at reproductive stage causing direct losses. The study helps in enhancing pest management strategies in the growing areas of the crop.

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