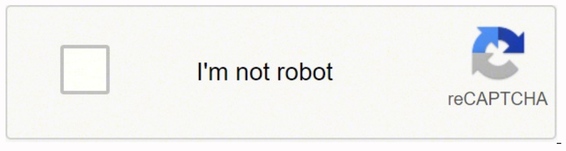

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Biology, seasonal activity of fruit fly (*Bactrocera cucurbitae* Coq.) on pointed gourd (*Trichosanthes dioica* Roxb.) and weather relations

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ABSTRACT

Bactrocera cucurbitae (Coq.) is considered as a serious pest of pointed gourd. Peak incidence of it was obtained in third week of May to first week of June during all the three years of study (*i.e.* 2007-08, 2008-09, 2009-10). Studies on biology showed that the incubation, larval, pupal and adult longevity periods were 2 to 5 days, 5 to 7 days, 6 to 9 days, 37 to 41 days in June-July and 4 to 6 days, 16 to 19 days, 17 to 21 days, 23 to 32 days in August-October, respectively. Correlation with individual weather factors revealed that each of maximum and minimum temperature had significant positive correlation (r = +0.386 and +0.501, respectively) on the population build up of the pest. The relative humidity % of morning hours had significantly negative correlation (r = -0.451) and that of evening slightly positive (r = +0.284). Rainfall had insignificantly positive (r = +0.195), soil temperature significantly positive (r = +0.555) and the bright sun shine hours insignificantly positive (r = +0.103) effects on the population development.

Keywords: Pointed gourd, fruit fly, biology, incidence, correlation

Introduction

Pointed gourd (*Trichosanthes dioica* Roxb.) has been subjected to damage by cucurbit fruit fly, *Bactrocera cucurbitae* (Coq.) (Chintha *et al.* 2002; Jha *et al.*2007) limiting the production and productivity of the crop. In India, several reports had been found on this pest. Extent of yield loss caused by the pest to cucurbitaceous vegetables ranged from 30 to 100% depending upon cucurbit species and the season in different parts of the world (Gupta & Verma 1992; Dhillon *et al.* 2005a b c; Shooker *et al.* 2006). The report on infestation of the pest attacking pointed gourd in West Bengal is scanty. Jha *et al.* (2007) observed infestation of fruit fly to the tune of 17% on the crop in the district of Malda, Murshidabad and Nadia. The female lays eggs in groups under the pericarp of young fruits and after hatching maggots bore into the tissues making cavities and feeding on it. Subsequently fruit rots and maggots jump out making exit holes. It is necessary to have basic information on the incidence of the pest in relation to weather parameters which in turn help us in determining appropriate time of action and suitable management methods to be adopted. Hence, through the present study, attempt was made to record the biology, periodicity of occurrence and their relations to various abiotic factors.

Materials and Methods

The field experiment on seasonal incidence of fruit fly was done for three consecutive crop growing seasons from 2007-08 to 2009-10, in the plot area of 3m×2m with a plant spacing 100cm × 135cm. All the recommended agronomic practices were followed to raise the crops. The incidence of fruit fly was recorded on the basis of number of fruits damaged by the pest. The maggots per infested fruits were counted. Data were later converted to maggot population per fruit with the following formula (Gupta & Verma 1992)

$$\text{Maggot population per fruit} = \frac{\text{No. of infested fruits} \times \text{No. of maggots per infested fruit}}{\text{Total no. of fruits sampled}}$$

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SUSCEPTIBILITY OF WATERMELON GENOTYPES TO FRUIT FLY *BACTROCERA CUCURBITAE* (COQUILLETT)

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ABSTRACT

Host plant resistance is an important component for management of the melon fruit fly, *Bactrocera cucurbitae* (Coquillett) owing to difficulties associated with its chemical and biological control. A total of 27 watermelon varieties/ genotypes were evaluated for their susceptiblity to the fruit fly in hot arid region of Rajasthan. The results showed that the varieties/ genotypes *viz.* percentage of fruit infestation and larval population per fruit varied significantly. Pooled data showed that the varieties/genotypes *viz.*, AHW/BR-60, BSM-1, IC 582909, AHW/BR-9, AHW/BR-137, Durgapura Kesar, AHW/BR-10, AHW/BR-18, AHW/BR-8, AHW/BR-21, AHW/BR-20 and YF-4 can be categorized as susceptible with considerable fruit infestation (55.72%, 59.28%, 53.05%, 67.20%, 60.43%, 61.83%, 63.87%, 63.62%, 59.45%, 59.62%, 62.52% and 55.68%, respectively) and with larval population per fruit *viz.* 17.12, 17.85, 16.45, 19.23, 17.90, 18.48, 18.38, 18.32, 18.40, 17.57, 17.93 and 17.70, respectively. The varieties/ genotypes Asahi Yamato, AHW/BR-16 and Thar Manak had 12-18% fruit infestation (12.75%, 15.05% and 18.18%, respectively) with 1-1 lawal per fruit (10.13, 10.82 and 11.08, respectively) and declared which can be considered resistant. Lower values of host plant susceptibility indices based on fruit infestation (HPSI) were recorded on resistance varieties/ genotypes, *viz.*, Asahi Yamato, AHW/BR-16 and Thar Manak (28.85%, 34.05% and 41.14%, respectively). These could be used as a source of resistance for developing watermelon varieties/ genotypes resistant to fruit fly.

Key words: *Citrullus lanatus, Bactrocera cucurbitae, infestation, density, HPSI*

Watermelon [*Citrullus lanatus* (Thunb.) Mansf.] is a popular desert crop and fruit fly, *Bactrocera cucurbitae* (Coquillett) (Diptera: Tephritidae: Dacinae) is its economically important pest. This fruit fly has more than 81 plant species as its hosts (Dhillon *et al.*, 2005a), but plants of family Cucurbitaceae are considered to be its preferred hosts (Allwood *et al.*, 1999). Development of varieties resistant to melon fruit fly is an impotent component of integrated pest management (Panda and Khush, 1995). But development of watermelon varieties/ genotypes resistant to fruit fly has been limited in India owing to inadequate information on the sources of plant traits associated with resistance. The present study was designed to screen of watermelon varieties/ genotypes for resistance against melon fruit fly in terms of fruit infestation and larval density under field conditions.

MATERIALS AND METHODS

Twenty seven varieties/ genotypes of watermelon *viz.*, RSS-1, AHW/BR-18, AHW/BR-8, AHW/BR-21, AHW/BR-20, YF-4, AHW/BR-19, AHW/BR-96, YF-5, YF-7, AHW/BR-10, Durgapura Kesar, AHW/BR-137, Durgapura Lal, AHW/BR-9, Sugar Baby, AHW-65, AHW-19, IC 582909, BSM-1, AHW/BR-16, Charleston Grey, Asahi Yamato, Arka Manik, AHW/BR-60, AHW/BR-12 and Thar Manak were sown at experimental farm of Central Institute for Arid Horticulture (CIAH), Bikaner (28°06'N, 73°21'E). The crop was sown in summer, 2012 and kharif, 2013 with three replicates (blocks) for each variety/ genotype following a randomized block design. The area of each bed was 5 m × 2 m and the plant to plant distance was maintained at 50 cm with drip irrigation system. All the recommended agronomic practices (e.g. weeding, fertilization, hoeing, etc.) were performed equally in each experimental bed. Three pickings were done for the entire growing season of watermelon fruits. Ten fruits were randomly selected from each picking from each experimental bed; a total of 30 fruits were taken from each picking of each genotype and were brought to the laboratory for examination of infestation. The infested fruits were sorted and the % infestation was calculated. Ten fruits from all infested fruits from each picking of each genotype were then randomly selected for further examination, and the number of larvae were

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SEASONAL BIONOMICS OF MELON FRUIT FLY, *BACTROCERA CUCURBITAE* COQUILLETT ON BOTTLE GOURD IN LABORATORY CONDITION

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ABSTRACT

Present studies on seasonal bionomics of *Bactrocera cucurbitae* Coquillett on bottle gourd were carried out in the laboratory during 2011 and 2012. During 2011 and 2012, the egg incubation, total larval (maggot) and pupal periods were 1-2, 3-9 and 4-9 days in summer and rainy season and 2-3, 8-23 and 6-14 days in winter, respectively. The male and female adult longevity were 14-30 days and 13-33 days during summer and rainy season and 23-72 days and 22-76 days in winter, respectively during both the years. Results also indicated that the sex ratio of adult was found to be more or less similar during the experiment in both years *i.e.* 1-1.063: 1-2.096.

KEY WORDS
Melon fruit fly
Bottle gourd
Seasonal bionomics
Sex ratio

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INTRODUCTION

Melon fruit fly, Bactrocera cucurbitae (Coq.) is an important pest of cucurbit fruits in the world (Dhillon et *al*., 2005). It is also the most common and destructive pest of cucurbits throughout Indo-Pakistan subcontinent (JainHu et *al*., 2008) and damage to about 20 cucurbitaceous and solanaceous hosts all over the Pakistan (Syed, 1971). Jha et *al*. (2007) observed infestation of fruit fly to the tune of 17% on the crop in the district of Malda, Murshidabad and Nadia. For cucurbits, especially bitter gourd, the melon fruit fly damage is the major limiting factor in obtaining good quality fruits and high yield (Srinivasan, 1959; Lall and Singh, 1969; Mote, 1975; Rabindranath and Pillai, 1986). Barma and Jha (2013) opinioned that *B. cucurbitae*, Coq. is one of the most important pests of pointed gourd. The extent of losses varies between 30 to 100%, depending on the cucurbit species and the season (Sapkota et *al*., 2010). Maggots feed inside the fruits. Generally, the females prefer to lay the eggs in soft tender fruit tissues by piercing them with the ovipositor. The eggs are laid into unopened flowers, and the larvae successfully develop in the taproots, stems, and leaf stalks (Weems and Heppner, 2001). Miyatake et *al*. (1993) reported <1% damage by pseudo-punctures by the sterile females in cucumber, sponge gourd and bitter gourd. The fruits attack in early stages fail to develop properly and drop or rot on the plant. The melon fruit fly remains active throughout the year on one or the other host. During the severe winter months, they hide and huddle together under dried leaves of bushes and trees. During the hot and dry season, the flies take shelter under humid and shady places and feed on honeydew of aphids infesting the fruit trees (Dhillon et *al*., 2005). Its life cycle lasts from 21 to 179 days (Narayanan and Batra, 1960). Development from egg to adult stage takes 13 days at 29ºC (Hollingsworth et *al*., 1997). High temperature and long period of sunshine as well as plantation activity influence the *B. cucurbitae* abundance (Lee et *al*., 1992). Bhatia and Mahto (1969) reported that the life cycle is completed in 36.3, 23.6, 11.2, and 12.5 days at 15, 20, 27.5, and 30ºC, respectively. There are 8 to 10 generations in a year (White and Elson-Harris, 1994; Weems and Heppner, 2001). Therefore, there is a basic need to identify the vulnerable stages of this devastating menace by thorough understanding of its bio-ecology which in turn helps us in determining appropriate time of action and suitable management methods to be adopted.

MATERIALS AND METHODS

The life cycle study was carried out during 2011 (June- July at 33.11 ± 2.35ºC and 96.31 ± 3.09 per cent RH and November-December at 27.61 ± 3.38ºC and 96.48 ± 3.74 per cent RH) and 2012 (February-March at 31.47 ± 3.39ºC and 92.68 ± 6.02 per cent RH, May-June at 35.73 ± 2.73ºC and 91.07 ± 6.59 per

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Effects of autodisseminated Metarhizium guizhouense PSUM02 on mating propensity and mating competitiveness of Bactrocera cucurbitae (Diptera: Tephritidae)

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Sexually dimorphic morphological traits in melon fruit fly, *Bactrocera cucurbitae* (Diptera: Tephritidae)

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ABSTRACT: *Bactrocera cucurbitae* (Coquillett) is well recognized pest fruit fly predominantly spread in Indian subcontinent. Its two sexes can be easily identified by the presence of pointed ovipositor at the posterior abdominal tip of female and a rounded abdominal end in male. Besides this, we have identified the presence of pecten hairs on the dorsal surface of abdomen and a distinct posterior depression in the wings restricted in males only. Wings in the males also show bushy appearance of microtrichia at post anal lobe which is totally lacking in females. The number of pecten hairs showed normal distribution pattern on right and left halves of the abdomen. An analysis pertaining to the distribution of pecten hairs on both sides of abdomen revealed non-significant difference between the mean numbers of hairs of the two sides.

Keywords: Cucurbitaceae; Pecten hairs; Microtrichia; Oviscape; Aculeus; Melon fruit fly.

1. INTRODUCTION

Sexual dimorphism refers to contrasting morphological features between male and female of a species. Dioecious insects show distinct sexually dimorphic characters [1]. In most of the cases, females are generally the larger sex which is due to selective pressure of fecundity and a positive correlation between female body size and fecundity. This aspect has already been reported in many insect species Shine [2-4]. *Bactrocera cucurbitae* is melon fruit fly and is a highly destructive pest species of fruits and vegetables of family Cucurbitaceae. This insect pest belongs to family Tephritidae of order Diptera. Its damaging nature has substantially been investigated by a number of entomologists [5-7]. Asymmetrical distribution of its members due to colour preference matching with the host plants has been reported in *B. cucurbitae* [8]. Substantial amount of study has been done on the control of this insect pest by using sterile insect technique (SIT) under which mass reared sterile males are released in the field to compete with non-sterile males for mating purpose [5]. This insect pest can be easily identified for its sex by simple observation as its female possesses pointed ovipositor at the posterior tip of its abdomen which lacks in male [5].

While observing the morphological features of *B. cucurbitae*, we have been able to observe some more sexually dimorphic features in the two sexes which have not been reported at all by earlier researchers. In this paper, we are reporting some salient characteristics of such unnoticed dimorphic features in this pest species.

Eggs are usually laid in young fruit, although they are also laid in succulent gradients of many host plants, in cavities made with the help of a sharp ovipositor. Description (Back to top) Adult: The adult fly is 6 to 8 mm long. CÃÁ¡ceres c, mcinnis d, shelly t, jang e, robinson A, hendrichs j. back ea, pemberton ce. Figure 9. A single hardy female can lay up to 1,000 eggs. Puppation normally occurs in the ground, usually under the host, at a depth of up to 2 inches. Peiping (Peijing) 5: 93-138. Laboratory tests in Hawaii extended the egg stage to 11 days, the larval stage to 30 days, and the pupal stage to 51 days, expanding specimens at low temperatures. LARVA: The larva has three isters. Anal praise. Eggs are often somewhat curved. The periods of development can be extended considerably by the cool climate. Although found in Hawaii, it is not present in the continental United States. Memories of the American Entomological Society 12: 1-161. Adults mainly feed on host plant juices, nectar and honeydew secreted by various types of insects. In Hawaii, the pumpkin and pumpkin were heavily attacked even before the fruit had laid, with the eggs laid in unopened male and female flowers, with larvae successfully developing in stoppers, stems and foliar stems. Adults can live longer than a year. Heppner Jb. Dacus Dorsalis (Frusta Oriental Fly) (Diptera: Tephritidae). Studies in Hawaiian fruit flies (Diptera, Tephritidae). Synonyms (back to top) Chaetodacus Cucurbitae (Coquillett) Dacus Cucurbitae Coquillett Strumeta Cucurbitae (Coquillett) Zeugodacus Cucurbitae (Coquillett) Distribution (back to top) The melon fly is well distributed over most of India, which is considered its home. Christmas, and around the world most of Asia University of Florida (Gainesville), M.S. thesis. Procedure of the Entomological Society of Washington 51: 181-205. Identification of frequently intercepted fruit fly larvae a of entry into the United States. Zool., Natl. Quality management systems for fruit fly (Diptera: Tecquitidae) Sterile insect technique. Only the ripe fruit of some hosts are attacked. The larva has a typical fruit fly larval shape – cylindrical-lean shape, elongated, narrow anterior extremity and a little ventrally curved, with anterior mouth hooks, ventral fusiform areas and flattened caudal extremity. Acad. 2004). The melon flies to Hawaii. The establishment of this fly in areas similar to Florida indicates that this species could become a serious parasite of cucurbit and other truck crops, and possibly some fruit crops, if introduced to Florida. However, white elson-harris (1994) claim that many of these records may have been based on occasional observations of adults resting on plants or caught in traps set in nonhost trees. 367-368. Life history (back to top) development from egg to adult in summer conditions takes from 12 to 28 days, depending on the individual and weather conditions. Damage (Back to top) In the Indo-Malay region, the melon fly, sometimes called the melon fruit fly, is considered the most destructive parasite of melons and related crops, and has greatly reduced the production of melons,

cucumbers and tomatoes in Hawaii. 4 PP. Biology and identification of trypetid larvae (Diptera: Typetidae). 1953. 69 pp. It was introduced to the Hawaiian Islands from Japan around 1895. A classification of some larvae and pupar of the Tefritidae (dittera). In the Solomon Islands it has been subjected to an eradication campaign using a combination of bait spray and male annihilation traps. Rear breaths. Hardy’s. Figure 2. No other known fruit The larva has this combination of characters, besides other features of the anterior spiracles and pharyngeal-cephalic skeleton (Berg 1979, Chu 1949, Green 1929, Hardy 1949, Phillips 1946, Pruitt 1953). Within its range, the melon flies, Bactrocera Bactrocera suipof ediotissarap ovou'l e)irtsevliS(irehctelF ailattysP elavral ediotissarap lI .)ttelliuqoC(eatibrucuC arecortcaB ,enoleM otluda elinimmef enoleM .ainrofilaC alled ÂtisrevinU ,kralC kcaJ id aifargotoF .tC neerG .alov enolem lI .)4002(.8891 .acimonoib e enoizacifitnedi orol al :ocimonoce otacifingis id alov atturF .tsnI .6 arugiF .1 arugiF .tV spillihP .4 arugiF .863-343 :)91(9 ivitarepooc icimonoce ittesni rep otroppaR .ominonA)oizini'lla anrot(itanoizeles itnemirefiR .)0102 OPPAN(enoizacilbbup id atad atseuq ad onaunitnoc erusim etseuq e etaname etnemadipar etats onos enoizacidare id e anetnarauq id erusim eL .HG greB .9591 .otinU ongeR ,noxO .9491 .etnemlartnev etnemlartnev eairts esrevid e aegniraf artsaip allus etnenimorp oiccuppac nU ;aegniraf artsaip alla eroiretsop avruc allus ennart otazziridni etnemavitaler elasrod egdirB ;osivid eroiretsop oiggar noc elasrod ala ottaiP ;etnenimorp muimotsarap ;elasrod ala artsaip alled elartnec aera id itazzitorelcs iggar noc isuf ,elasrod etnop la avruc ilaimosopi-tsop ittaiP ;otadnotorra orofiromes ,etnenimorp id atsopyhbus noc muimotsopi ;atasopsid -3 acric id oicnag ingo e etnenimorp elasrod obol nu noc ,otal ingo atnup a otitnuppa ossevnoc ossevnoc oicnag oipma noc oegniraf-erolafec ortelehcS .acsep e aiapap ,aicnara ,ognam ,ocif ,enaznalem :onodulcni ilanoisacco tsoh ilG .7 arugiF .pps arolfissaP ,eroif-eroif e ;OTAMLAP SOLCYCOLPID ;sunogirT simucuC ;.ps soyciS - tibrucuc id ireneg euD ;htnycoloc ;.pps acidromom ,esenic oloirteC ;maslaB elppA :onodulcni icitavles tsoh ilG .B e)ledneH(silasroD arecortcaB ,elihcsam atturf id ehcsom id hctaC snarT parB sneulfnI eruL euC e loneguE litem art eirotibini e ehcigrenis inoizaretnI .01 arugiF .inroig 59 a 93 ad oivvo id odoirep li e inroig 62 a 7 ad otarud ¨Ä otsopivooerp id odoirep li ,enippiliF elleN .7191 .erednetnoc onoved erudrev id irotavitloc i iuc noc itnatropmi ¹Âip itissarap ied onu ¨Ä ,)ttelliuqoC((Sonan) were introduced into Hawaii to parastize the bactrocera kut (Bautista et al. California Insect Bulletin California Step 7: 1-117. Reg. Insects unknown in the United States. The larva of the melon fly¨ is particularly characteristic for having a dark sclerotised horizontal line below the spiral region at end caudal, with a curved ridge on both sides. Journal of Agricultural Research (Washington) 38: Pruitt JH. Chu HF Egg: The egg¨ pure white, about 2 mm long, elliptical, almost flat on the ventral surface, plusÃ₂ convex on the dorsal. Leaflet 581. Pupa: The puparium Ä¨ is about 5-6 mm long and varies in color from opaque red or brownish yellow to opaque white, depending on the host. San Salvador organ. In August 2010, several flies were discovered in Kern County, California. Fly of the adult melon, Bactrocera cucurbitae (Coquillett). Adult wing worship. White IM, Elson-Harris MM. Florida Entomologist 90: 1-9. caudal end with paired dorsal papules (D1 and D2) diagonally back each spiracular plate; intermediate papillae as curved crest on each side, with a prominent dark central line under spiracles about a metÃ road between spiracles and anal lobes, but with I3 on each side of spiracles; L1 at the median edge of caudal ; v Central papules not evident on raised plates; Rear spiracles as three elongated oval openings (length = 3 to 3,5 euro wide) on each kidney-shaped spiracular plate, with dorsal spiracles and lower torque inclined at the center of extremity caudal; numerous interspiracular processes (hairs), at 4 points on each plate, the tips fork; whole and small anal lobes. There could be eight to ten generations a . . Florida Entomologist 87: 481-486. A more technical description of the larva Ä¨ is as follows: Venter with fusiform areas on segments 2 to 11 (2 to 4 are poorly developed); anterior oral carines generally 18-20 in number; Slightly convex front in a side view, with tubules in average number from 18 to 20 and relatively small. Skeleton cephalopharyngeal. Cucurbitee cucurbitee ertlA .tnoC .VI atturf alled ehcsom id evraL .eaditirhpeT ailgimaf alled atturf alled acsom id evral rep acirottip evaihC .6491 .adirolF ni ollortnoc ous li rep enoitseg id ehcificeps inoizadnamoccar onotsise non ,ilatnenitnoc itinU itatS ilgen avort is non)ttelliuqoC(eatibrucuc arecortcaB li ©ÃhcioP)oiziniâlla anroT(enoitseG .enolem led acsom alled itipso emoc etartsiger etats onos ,erudrev ertla etlom e irodomop ,etibrucuc iuc art ,etnaip id eiceps 521 ertlO)oiziniâlla anroT(tsoH .pp 106 .airugna e orodomop ,oloigaf ,accuz ,accuz ,accuz ,oloirtec ,oloigaf ,opulatnac :onos itireferp itipso ilG .eratnemila elanac led onretniâlla obic led eroloc lad otaretla ¨Ä ottepsa ous li odnauq ennart ,acnaib ¨Ä avral aL .ceporgA .LF ocnaib ,KR edeiP .ilirets ittesni ilged acincet al noc elosi enucla ad otacidars otats ¨Ä uykuyR elosi elleN .ainrofilaC alled eaditirhpeT o alov otturf lI .46-1 :194 itinU itatS ilged arutlocirgAâlled otnemitrapiD led onittelloB .elategev airtsudniâlled enoisivid alled ongesiD .avral alled ossulf id eniF .atturf alled inirecsom inucla id epup elled e evral elled irettaraC .pp 63 .dadinaS .4991 .ominonA .azzehgnul id mm 8,11 a 5,7 ad airav ratsni avral amitluâL .7002 .3691 .epup el rep inroig 11-7 e ,evral el rep inroig 9-4 ,avou el rep inroig 37,1 id atats ¨Ä ,F°ÂÃ68 id aidem arutarepmet anu da ,enippiliF ellen idats ilged atarud aL .atissarap evarg nu Ãig are ,atlov amirp al rep otavresso otats ¨Ä odnauq ,7981 leN .eroiretna olocaripS .alocirgA acreciR id oizivreS ,imissitseP ied ollortnoC enoisiviD ,otnemaveliR e enigadnI id inoizarepO ,ADSU .9791 .eren eihccam noc artsallaig atset al e ,eren erutacram aznes e eraihc ellaig erutacram noc ortsassor ollaig ecarot led osrod li ,annetnaâd otnemges ozret ognul ,erala ongesid li onos otludaâlled evitnitsid ehcitsirettaraC .2-1 :303 eralocriC elategeV aigolomotnE id enoisiviD ,secivreS remusnoC e arutlocirgA id otnemitrapiD adirolF .)eaditirhpeT are reported as follows (CABI 2003): Africa: Cameroon, Ivory Coast, Egypt, Gambia, Kenya, Mali, Mali, Réunion, Seychelles, Somalia, Tanzania Asia: Afghanistan, Bangladesh, Brunai, Cambodia, China (many provinces), Christmas Island, East Timor, India (many states), Indonesia (many islands), Iran, Laos, Malaysia, Myanmar, Nepal, Oman, Pakistan, Philippines, Singapore, Sri Lanka, Taiwan, Thailand, United Arab Emirates, Vietnam and North America: United States: Established in Hawaii, periodic interceptions in other states Oceania: Guam, Kirbali, Nauru, Northern Mariana Islands, Papua New Guinea, Solomon Islands It is not established in the continental United States, although it is often intercepted in ports. Figure 5. Figure 3. An intern. Psyttalia fletcheri (Silvestri), a parasitoid of the melon fly Bactrocera cucurbitae (Coquillett). 1929. Figure 8. Shelly TE, Pahio E, Edu J. CAB International. Photograph by Scott, Bauer, USDA. Pretty head and mouth. Like other Bactrocera species, the melon fly can attach flowers, fruits, stems and roots. Melon fly (Dacus cucurbitae (Coq.)), pp.

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