

NOTES ON THE DACINE FRUIT FLIES (DIPTERA: TEPHRITIDAE) OF ANDAMAN AND NICOBAR ISLANDS

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ABSTRACT. - A survey of the fruit fly fauna in the Andaman and Nicobar islands revealed 11 species belonging to the genus *Bactrocera*. Three species reared, one each from *Spondias pinnata* (L. f) Kurz (Anacardiaceae) and *Strychnos andamanensis* Hill (Loganiaceae), and one from *S. andamanensis* and several cucurbits, are probably new to science.

INTRODUCTION

Dacine fruit flies belonging to the genus *Bactrocera* Macquart include highly destructive, polyphagous pest species attacking a wide range of fruits and vegetables. In addition to causing economic loss they pose a serious threat of being introduced to places where pest species are not present.

Indian records include 35 species in *Bactrocera* (Agarwal, 1988), including a single representative from the Andamans, *B. andamanensis* Kapoor (Kapoor, 1971). Except for this, the fruit fly fauna of these far flung islands remains largely unexplored. In a bid to fill this gap, a survey was initiated in these islands. This paper includes the results of the initial part of the ongoing survey (from December 1990 to May 1993).

MATERIAL AND METHODS

The 572 islands, islets and rocks constituting the Andaman and Nicobar archipelago extend for about 850 km from Landfall, the northernmost island to Great Nicobar, the southernmost island between lower Burma (Myanmar) and upper Sumatra (situated east of the 90°E ridge in the eastern Indian Ocean). The six main islands, Middle, North and South Andaman, Great Nicobar, Little Andaman and Baratang, in their order of size - make up a little over 75 per cent of the total land area of 8249 sq. km. The remaining 25 per cent is made up of islands

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off the shores of the main islands along with Narcondam and Barren, the two volcanic islands in the group, forming a separate eastern arc. The islands have a mass of hills enclosing valleys and the major part of them have canopy. The vegetation is mostly of the Burmese and Malay types.

The climate is warm and humid with temperature fairly constant and with high relative humidity throughout the year coupled with high rainfall.

The survey was conducted mainly in South Andaman with few visits to North, Middle and Little Andaman, Nicobar and Great Nicobar islands. The survey included the collection of infested host fruits in cultivated and forest areas and also through the deployment of attractant (methyl eugenol and cue lure) baited Steiner traps. Traps were hung about 1.5 m above ground level. Attention was taken to see that the sun rays did not fall directly on the traps. Traps were charged once in ten days.

RESULTS

In total, nine species of *Bactrocera* were recovered by rearing host fruits and two collected in cue lure traps. Two species of *Bactrocera* (*Bactrocera*) reared, one each from *Spondias pinnata* (L. F) Kurz (Anacardiaceae) and *Strychnos andamanensis* Hill. (Loganiaceae), not assigned to any described species, are probably new to science as is one species of *B. (Paradacus)* reared from *S. andamanensis* and several (Cucurbitaceae) (D. L. Hancock, pers. commn.). Details of the distribution of the collected species and their hosts are provided below.

Bactrocera (Zeugodacus) cucurbitae (Coquillett)

Remarks. - A serious pest, widespread over Andaman and Nicobar islands, which attacks fruits and flowers of various cucurbits. Specimens were also reared from *Momordica dioica* Roxb. ex Wild and *Mukia maderaspatana* (L.) M. Roem. (Cucurbitaceae) (new host record), a weed generally seen in the field. Males respond to cue lure.

Bactrocera (Zeugodacus) tau (Walker)

Remarks. - Recorded from South, Middle, North Andaman and Car Nicobar. Bred from *Cucumis sativa* L. (Cucurbitaceae). Males attracted to cue lure.

Bactrocera (Paradacus) sp. (near fulvipes (Perkins))

Remarks. - Reared from bottle gourd *Lagenaria siceraria* (Molina) Standley, *Luffa acutangula* (L.) Roxb., *Luffa aegyptiaca* Miller (Cucurbitaceae) and *Strychnos andamanensis* Hill (Loganiaceae) from South Andaman. Males attracted to cue lure. New record for India.

***Bactrocera (Bactrocera) carambolae* Drew & Hancock**

Remarks. - Widespread over Andaman islands, seen attacking severely fruits of rose apple (*Syzygium jambos* (L.) Alston), watery rose apple (*S. aqueum* (Burman.) Alston), malay apple (*S. malaccense* (L.) Merr. & Perry) (Myrtaceae), to a lesser extent guava (*Psidium guajava* L. (Myrtaceae), and mango (*Mangifera indica* L. (Anacardiaceae). Other reared hosts are *Terminalia procera* Roxb. *T. manii* King (Combretaceae), *Artocarpus gomeziana* Wall ex. trec., *Artocarpus* sp. (Moraceae), *Planchonella longipetiolatum* (King and Prail), *Mimusops elengi* L., *Manilkara littoralis* (Kurz) (Sapotaceae), *Dryptis longifolia* (B.) Pax & Hoffm. (Euphorbiaceae), *Syzygium samarangense* (Blume) Merr. & Perry (Myrtaceae), *Paramignya andamanica* (King) Tanaka (Rutaceae) (most new host records). Males attracted to methyl eugenol. For a discussion of this species see White & Elson-Harris (1992) and Drew & Hancock (1994).

***Bactrocera (Bactrocera) albistrigata* (de Meijere)**

Remarks. - A pest of guava in the Car Nicobar island, also recorded attacking fruits of *Terminalia procera* Roxb. (Combretaceae) and *Neisosperma oppositifolium* (Lam.) Fosb. & Sach (= *Ochrosia oppositifolia* (Lam.) K.Schum) (Apocynaceae) in Great Nicobar. Collected in cue lure traps in South Andaman.

***Bactrocera (Bactrocera) limbifera* (Bezzi)**

Remarks. - Reared from the fruits of *Dracontomelon dao* (Blanco) Merr. & Rolfe. (Anacardiaceae) in South Andaman and collected in cue lure traps at Car Nicobar. Males attracted to cue lure. New record for India.

***Bactrocera (Paratridacus) expandens* (Walker)**

Remarks. - Reared from the fruits of *Garcinia andamanica* King (Guttiferae) collected from Middle, South and Little Andamans. In South Andaman, adults are seen feeding on the inflorescence of *Excoecaria agallocha* L. (Euphorbiaceae). Males do not respond to lures. New record for Andamans.

***Bactrocera (Bactrocera) andamanensis* (Kapoor)**

Remarks. - Trapped in cue lure traps in various localities in South Andaman. First described by Kapoor (1971), based on collections made by Ferrar in 1927 in Middle Andaman. Males attracted to cue lure.

***Bactrocera (Bactrocera) melastomatos* Drew & Hancock**

Remarks. - Collected in cue lure traps in South, Middle and North Andaman. This species is reported to attack flower heads of *Melastoma malabathricum* L. (Melastomaceae). Males are attracted to cue lure. New record for India. For description see Drew & Hancock (1994).

DISCUSSION

Of the 11 species of *Bactrocera* recovered during the survey, *B. cucurbitae* and *B. carambolae* are dominant in the Andamans, *B. cucurbitae* and *B. albistrigata* in the Nicobars. All are economically important.

Bactrocera tau and *B. (Paradacus)* sp. together formed about 15% of the total catch in South Andaman. *Bactrocera (Paradacus)* sp. which seems to attack bottle gourd, ridge gourd and sponge gourd, especially during May- August, could limit much more the cultivation of cucurbits in these islands. However, *B. cucurbitae* stands as the major pest attacking cucurbits throughout the year.

Bactrocera carambolae and *B. albistrigata* are known to be distributed in Malaysia, Indonesia and southern Thailand (White & Elson-Harris, 1992). Definite presence of these two species in these islands, while extending their distribution further west in South East Asia, poses a serious quarantine problem at ports of entry into the Indian mainland, since these species so far are not recorded there.

Unrestricted movements of vegetables and fruits from the Indian mainland into these islands and vice-versa could lead to unwanted introduction of destructive species unless strict quarantine laws are enforced at the ports of entry.

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