

Factsheet *Bactrocera latifrons* (Hendel)

Original name: *Chaetodacus latifrons* Hendel, 1915: 425.

Vernacular name: Solanum fruit fly

Formal redescription (provided by I.M. White)

Wing length, 4.4-6.1 mm.

Head. Pedicel+1st flagellomere not longer than ptilinal suture. Face, antennal furrow with a dark spot. Frons, frontal setae 2, orbital seta 1.

Thorax. Scutum black; postpronotal lobe yellow; notopleural callus yellow; notopleural xanthine absent; lateral postsutural vitta present; medial postsutural vitta absent. Scutellum without any dark patterning (except for basal dark margin). Anepisternum with a stripe from notopleural callus to (or almost to) katepisternum, extended onto katepisternum; stripe very broad (anteriorly extending to, or almost to postpronotal lobe). Lateroterga with a single xanthine across both anatergite and katatergite. Thoracic setae. Anterior notopleural seta present; anterior supra-alar seta present; prescutellar acrostichal seta present; basal scutellar seta absent.

Wing. Basal cells bc and c without an almost complete covering of microtrichia; cell bm without microtrichia. Narrow subbasal raised section of cell br with extensive covering of microtrichia. Crossvein R-M beyond middle of cell dm. Costal band complete; shallow, not or only slightly extending below vein R2+3 before wing apex; expanded into a small apical spot. Anal streak present (colour extending beyond cell bcu). Cells bc and c hyaline. Without any crossbanding.

Legs. Femora pale, sometimes with a dark preapical marking, or bicoloured (pale basally, red-brown to fuscous apically). Abdomen. Red-brown, patterned black.

Tergites II-V separate. Male. Tergite III with pecten, dense microtrichia adjacent end A1+Cu2, and hindtibia preapical "pad". Basal costal sections without specialised setae.

Female. Aculeus pointed and with preapical "shoulder"; no torsion; length, 1.4-1.7mm.

Encyclopedia of Life link: <http://eol.org/pages/726161/overview>

DNA barcoding

Multiple reference DNA barcodes from the species distribution are available on the Barcode of Life Data Systems (BOLD) at :

http://www.boldsystems.org/index.php/Taxbrowser_Taxonpage?taxon=Bactrocera+latifrons&searchTax=

In BOLD (March 2017), *B. latifrons* only forms monospecific BINs. For this reason, DNA barcoding might be considered as a suitable tool for the molecular identification of this species.

Biology

Bactrocera latifrons can complete its life cycle in about 21 days (Vargas and Nishida, 1985). Egg incubation takes about 2 days, while larval stage lasts about 8-9 days. Duration of pupa stage is about 10 days and adult female can live for about 64 days (Vargas and Nishida, 1985).

Host plant list

Bactrocera latifrons mainly attacks Solanaceae and is a major pest of *Capsicum* and *Solanum* species (Drew & Romig, 2013). Detailed studies on host range can be found for Tanzania (Mziray et al., 2009). Throughout its range in Africa it is recorded from the hosts listed in the table below.

PlantFamily	PlantLatinName	PlantCommonNameEnglish
Cucurbitaceae	Citrullus lanatus	watermelon
Cucurbitaceae	Cucumis dipsaceus	teasel gourd
Cucurbitaceae	Momordica trifoliolata	
Solanaceae	Capsicum annuum	bell pepper, capsicum
Solanaceae	Capsicum chinense	Habanero pepper
Solanaceae	Lycopersicon pimpinellifolium	Cherry tomato
Solanaceae	Solanum aethiopicum	
Solanaceae	Solanum anguivi	
Solanaceae	Solanum incanum	
Solanaceae	Solanum lycopersicum	tomato
Solanaceae	Solanum macrocarpon	
Solanaceae	Solanum melongena	aubergine
Solanaceae	Solanum nigrum	black nightshade
Solanaceae	Solanum scabrum	
Solanaceae	Solanum sodomaeum	Sodom apple

Additional information on African host records and associated specimens can be found on : <http://projects.bebif.be/fruitfly/taxoninfo.html?id=371>

Host records from his native range in Asia can be found in Allwood et al. (1999)

Information on host range worldwide can be found on the USDA Compendium of Fruit Fly Host Information (see Liquido et al., 2016).

Impact & management

Bactrocera latifrons is one of the few species in Africa infesting cultivated Solanaceae.

Management for this species is, as for most fruit fly pests, most efficient using an IPM (Integrated Pest Management) program, including aspects such as orchard sanitation, bait sprays, mass trapping among others. General reviews on the current IPM components applied in Africa can be found in chapters 13 to 20 of Ekesi et al. (2016).

No SIT (Sterile Insect Technique) application specifically for this species has been developed in Africa.

Attractants & trapping

Both sexes can be attracted by protein bait products such as liquid protein baits and three component Biolure.

Male specimens can be attracted by latilure enhanced with cade oil (McQuate et al., 2004). However, experiments in Tanzania did not yield substantial trappings using this lure (Mziray et al., 2010).

General information on trapping, types of traps, lures and required density of trapping stations can be found in IAEA (2013), Shelly et al. (2014), and Manrakhan (2016).

Distribution

Bactrocera latifrons is an Asian species introduced into Africa. First findings were in Tanzania in 2006. Records so far show only limited dispersal with records from Kenya and Tanzania. Not found on islands of the western Indian Ocean.

Distribution map for Africa, based upon specimen records with georeferences, is available at:

<http://projects.bebif.be/fruitfly/taxoninfo.html?id=371>

For worldwide distribution, see GBIF: <http://www.gbif.org/species/7775152>

Others

CABI Plantwise factsheet on *B. latifrons* can be found at:

<http://www.plantwise.org/knowledgebank/datasheet.aspx?dsid=8719>

CABI invasive species compendium on *B. latifrons* can be found at:

<http://www.cabi.org/isc/datasheet/8719>

REFERENCES

Allwood, A.J., A. Chinajariyawong, R.A.I. Drew, E.L. Hamacek, D.L. Hancock, C. Hengsawad, J.C. Jipanin, M. Jirasurat, C. Kong Krong, S. Kritsaneepaiboon, C.T.S. Leong & S. Vijaysegaran. 1999. Host plant records for fruit flies (Diptera: Tephritidae) in South East Asia. The Raffles Bulletin of Zoology suppl 7: 1-92.

Drew, R.A.I. & M.C. Romig. 2013. Tropical Fruit Flies of South-East Asia. CABI, Wallingford, vii+653pp.

Ekesi, S., S.A. Mohamed & M. De Meyer (Eds). 2016. Fruit fly research and development in Africa – Towards a sustainable management strategy to improve Horticulture, Springer Verlag, xx + 778pp.

IAEA. 2013. Trapping manual for area-wide fruit fly programmes. IAEA, Vienna, 46pp.

Liquido, N., G. McQuate & K. Suiter. 2016. USDA Compendium of fruit fly host information (CoFFHI). Proceedings of the 9th International Symposium on Fruit Flies of Economic Importance 420-434.

Manrakhan, A. 2016. Detection and monitoring of fruit flies in Africa. In: Ekesi, S., S.A. Mohamed & M. De Meyer (Eds) Fruit Fly Research and Development in Africa. Springer Verlag, 253-273.

McQuate, G.T., Y.S. Keum, C.D. Silva, Q.X. Li & E.B. Jang. 2004. Active ingredients in cade oil that synergize attractiveness of alpha-lonol to male *Bactrocera latifrons* (Diptera: Tephritidae). Journal of Economic Entomology 97: 862-870.

Mziray, H.A., R.H. Makundi, M.W. Mwatawala, A. Maerere & M. De Meyer. 2009. Spatial and temporal abundance of the solanum fruit fly *Bactrocera latifrons* (Hendel) in Morogoro, Tanzania. Crop Protection 29: 454-461.

Mziray, H.A., R.H. Makundi, M.W. Mwatawala, A. Maerere & M. De Meyer. 2010. Host use of *Bactrocera latifrons* (Hendel), a new invasive tephritid species in Tanzania. Journal of Economic Entomology 103(1): 70 – 76.

Shelly, T., N. Epsky, E.B. Jang, J. Reyes-Flores & R. Vargas (Eds). 2014. Trapping and the detection, control, and regulation of tephritid fruit flies. Springer Verlag, Dordrecht, xv+638pp.

Vargas RI & T. Nishida. 1985. Life history and demographic parameters of *Dacus latifrons* (Diptera: Tephritidae). Journal of Economic Entomology 78:1242–1244.

This factsheet is compiled within the framework of two network projects: The “ERAfrica_NI_027 Fruit Fly” project and the networking project “BL/37/FWI 08 FRUITFLY” funded by the Belgian Science Policy. Data are provided by collaborators of the following institutions: Centre de coopération internationale en recherche agronomique pour le Développement (CIRAD, La Réunion, France); Citrus Research International (CRI, Nelspruit, South Africa); Royal Museum for Central Africa (Tervuren, Belgium); Sokoine University of Agriculture (SUA, Morogoro, Tanzania), Stellenbosch University (SU, Stellenbosch, South Africa) and Universidade Eduardo Mondlane (EMU, Maputo, Mozambique).

