Ceratitis cosyra (Walker) (Diptera:Tephritidae)[1]

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INTRODUCTION: *Ceratitis cosyra* is commonly known as the mango fruit fly or marula fruit fly based on its common occurrence in these host plants. Marula is a native African fruit related to mango and sometimes known locally as wild plum. The fly is a serious pest in smallholder and commercial mango across sub-Saharan Africa and has been recorded in Ivory Coast, Kenya, South Africa, Tanzania, Uganda, Zambia and Zimbabwe, where it is more destructive than either the Mediterranean fruit fly (Medfly; *Ceratitis capitata* (Wiedemann)) or the Natal fruit fly (*Ceratitis rosa* Karsch) (Malio 1979; Labuschagne *et al*. 1996; Javaid 1979; De Lima 1979; Rendell *et al*. 1995; Lux *et al.* 1998). Its impact is growing along with the more widespread commercialization of mango in these countries. Late maturing varieties of mango suffer most in Zambia (Javaid 1986). In Ivory Coast, *C. cosyra* and *Ceratitis anonae* Graham are the main pests in guava (N'Guetta 1993). *Ceratitis cosyra*, as larvae in infested mangoes from Africa, is one of the most commonly intercepted fruit flies in Europe (I. M. White, The Natural History Museum, London, personal communication). Fruit flies known as *Ceratitis giffardi* Bezzi and *Ceratitis sarcocephali* (Bezzi) may be the same as *C. cosyra*, but the taxonomy remains ambiguous (De Meyer 1998).

DESCRIPTION: Body and wing color yellowish; sides and posterior of thorax prominently ringed with black spots, dorsum yellowish except for two tiny black spots centrally and two larger black spots near scutellum; scutellum with three wide, black stripes separated by narrow yellow stripes; wing length 4-6 mm, costal band and discal crossband joined; see Fig. 1. Adults are similar in size, coloration, and wing markings to Medfly. However, the thorax of Medfly has much more black, and the apex of its scutellum is solid black; the costal band and discal crossband of the Medfly wing are not joined. *Ceratitis cosyra* differs also from the Natal fly, the latter being larger, lacking black spots laterally (postpronotal) on the thorax, and the costal band and discal crossband are not joined. Also, males of *C. cosyra*, as members of the subgenus *Ceratalaspis*, lack capitate setae such as are present in subgenus *Ceratitis* (*e.g.*, Medfly), and they lack feathering of the tibia as in the subgenus *Pterandrus* (*e.g.*, Natal fly). Excellent keys to distinguish major fruit fly pests of the genus *Ceratitis* are available in White and Elson-Harris (1992). De Meyer (1998) provided a complete taxonomic treatment of the subgenus *Ceratalaspis*, including key characters to separate *C. cosyra* from other closely related and similar pest species, such as *Ceratitis discussa* Munro.

Fig 1. *Ceratitis cosyra* female. Photography credit: Jeffrey Lotz.

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DISTRIBUTION: It is widespread in sub-Saharan Africa, occurring in at least 22 countries, and Madagascar (CABI/EPPO 1999).

HOSTS:

Anacardiaceae:
Mangifera indica (mango),
Sclerocarya birrea (marula plum)
Anisophyllaceae: *Anisopyllea laurina*
Annonaceae:
Annona cherimola (cherimoya)
A. reticulata (custard apple)
A. senegalensis (wild custard-apple)
Rollinia sieberi
Apocynaceae:
Conopharyngia penduliflora
Landolphia sp.
Saba senegalensis
Canellaceae: *Warburgia ugandensis*
Chrysobalanaceae:
Parinari mobola
Chrysobalanus sp.
Ebenaceae: *Diospyros mespiliformis*
Euphorbiaceae:
Uapaca kirkiana
Flacourtiaceae:
Dovyalis caffra (Kei apple)
Lauraceae: *Persea americana* (avocado)
Myrtaceae: *Psidium guajava* (guava)
Papilionoideae: *Cordyla africana*
Rosaceae: *Prunus persica* (peach)
Rubiaceae:
Nauclea latifolia
Sarcocephalus esculentus
Rutaceae: *Citrus aurantium* (sour orange)

(all from White and Elson-Harris 1992; De Meyer 1998; and S. Lux, ICIPE, Nairobi, personal communication).

MONITORING AND CONTROL: *Ceratitis cosyra* adults may be attracted to terpinyl acetate, but not to trimedlure or methyl eugenol. Adult populations can be reduced with insecticidal protein-bait sprays in the same manner as other fruit flies. Post-harvest quarantine treatments include hot water dips (*C. cosyra* larvae survive heat treatment better than Medfly or Natal fruit fly, but exact treatment parameters are not yet established) and prolonged exposure to temperatures below 7.5^{o}C.

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