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Trap catches of *Bactrocera* species in selected urban sites in Bengaluru

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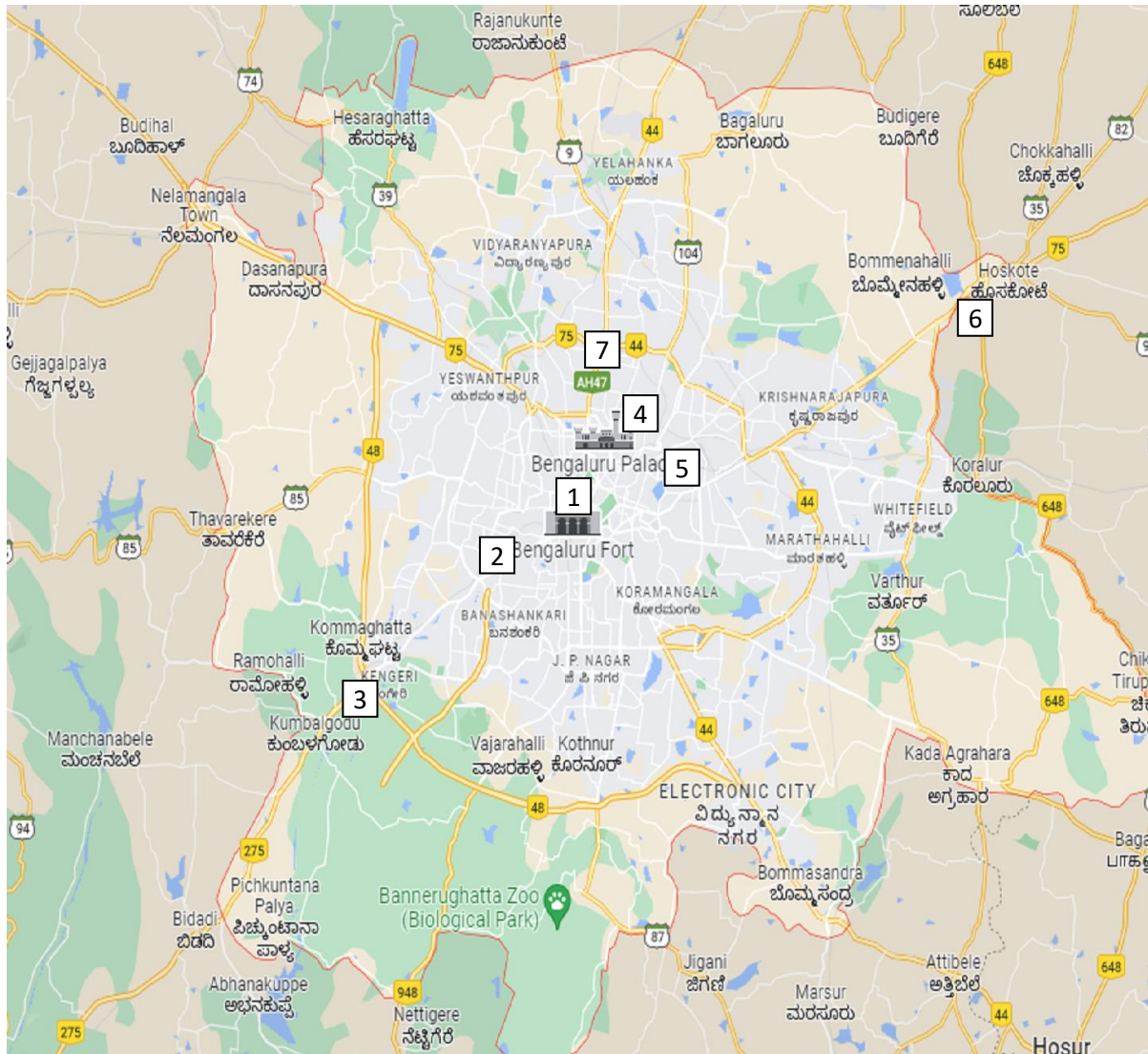
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The fruit fly tribe Dacini is a species-rich taxon within Tephritidae (Diptera) and contains around a fifth of all known species in the family, all Dacini members are frugivorous or florivorous and about 10% of the 932 currently recognized species are pests of commercial fruits and vegetables (Camiel *et al.* 2018). The risk of fruit flies especially *B. dorsalis* spread to new areas is mainly through infested fruits facilitated by its concealed nature of infestation, wide host range, high fecundity, food adaptability of the larvae, short life cycle, rapid dispersal ability (can fly 50–100 km) and possible influences of climate change (Peng, 2011; CABI, 2013). Fruit fly dispersal may be adventive (the long-distance human assisted transport) or appetitive dispersal by natural means after been transported into previously uninfested areas and how a population disperses after an introduction has occurred (Dominiak, 2012). With the aforesaid eco-biology of the fruit-fly pests an attempt was made to collect flies from different urbanised sites in Bengaluru to assess adventive or appetitive mode of dispersal.

The study was conducted by setting up methyl eugenol fruit-fly traps at different locations *viz.*, St Joseph's College

(Autonomous) (now St. Joseph's University) 12.92°N, 77.59°E, Chamrajpet 12.95°N, 77.56°E, Kengeri 12.92°N, 77.48°E, Holy Ghost church 13.00°N, 77.61°E, Indiranagar 12.97°N, 77.63°E, Hoskote 13.07°N, 77.78°E and Kaval Byrasandra 13.02°N, 77.63°E (Map 1) during February-March, 2021. Methyl Eugenol traps obtained from IIHR (Indian Institute of Horticultural Research), Hessaraghatta were set up at the mentioned locations for a period of three to five days. The traps were set for 5 days at the St Joseph's College campus as it was easily accessible and for 3 days at other locations at a range within 0.5 km of a mango tree.

A total of 71 flies were collected and was identified as *Bactrocera dorsalis* in St. Joseph's College (Autonomous) but the other locations had comparatively less number of flies. *Bactrocera correcta* was found in Kengeri and *Bactrocera zonata* was collected in Kaval Byrasandra (Table 1). Three species of *Bactrocera* were identified among which *Bactrocera dorsalis* was more dominant in number compared to the other 2 species trapped *viz.*, *Bactrocera zonata* and *B. correcta*.



Map 1. Trap catch sites, Shanthinagar (1), Chamrajpet (2), Kengeri (3), Holy Ghost church (4), Indiranagar (5), Hoskote (6) and Kaval Byrasandra (7). (Source: <https://www.google.co.in/maps>) (PC:Google maps)

In the order of intensity of damage to various crops, *B. dorsalis*, *B. zonata* followed by *B. correcta* and *dorsalis-zonata-correcta* complex is an important fruit fly pest complex in India known to attack similar hosts (Kapoor, 2002; Irsad and Haseeb, 2019). All three are reported to cause a considerable yield loss on different crops in and around Bengaluru (Verghese *et al.* 2002; Madhura and Verghese,

2004). Other species like *B. cucurbitae* (Coquillett) too are recorded inflicting damage to horticultural crops (Kumar *et al.* 2006). *B. dorsalis* has the potential to establish adventive populations in various tropical and subtropical areas (Qin *et al.* 2018). Bengaluru Urban district is encapsulated by peri-urban agriculture zones and transition zones between urban and rural areas serving as repositories of

biodiversity. Horticulture products to the city are managed *via* market supply avenues like Expand both, supermarkets and through farmers directly or indirectly from across the

state. The trap catches in the backdrop of aforesaid factors perhaps indicate both adventive and appetitive modes of dispersal into the city.

Table 1. Trap catches (total numbers) during the study

Sl. No.	Location	<i>Bactrocera dorsalis</i>	<i>B. zonata</i>	<i>B. correcta</i>
1	Shanthinagar	81	-	-
2	Chamrajpet	20	-	-
3	Kengeri	10	-	2
4	Holy Ghost Church	8	-	-
5	Indiranagar	27	-	-
6	Hoskote	4	-	-
7	Kaval Byrasandra	34	2	-

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