

BIOCONTROL OF FLESH FLY AND BLOW FLY; ATTRACTING OF *Sarcophaga carnaria* & *Lucilia caesar* BY THE SMELL OF FRIED SALTED AND DRIED FISH

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Abstrak : Penelitian berkenaan prospek biokontrol lalat bangkai dan lalat berdengung telah dilakukan di Indralaya pada Nopember 2007. Ikan asin dan ikan sale digunakan sebagai umpan untuk menarik lalat-lalat tersebut dengan cara menggorengnya di wajan menggunakan kompor. Jala serangga digunakan untuk mengkapi lalat-lalat yang datang. Perangkap botol plastik yang diisi ikan asin dan ikan sale tersebut juga ditempatkan di halaman untuk melihat apakah lalat datang untuk mendapatkan makanan atau juga untuk tempat bertelur. Penelitian membuktikan bahwa *Sarcophaga carnaria* dan *Lucilia caesar* tertarik oleh umpan bau dari ikan yang digoreng dan terlihat bahwa lalat bangkai (*S carnaria*) aktif di pagi hari dan lalat berdengung (*L caesar*) aktif di sore hari. Juga terbukti bahwa lalat mencari bau ikan untuk bertelur.

Kata Kunci : biokontrol, lalat bangkai, lalat berdengung,

Abstract : A research for biocontrol purpose of fleshfly and blowfly has been done at Indralaya, South Sumatera, at November 2007. Salted fish and dried fish have been used as attracting material by cooking them on the stove and the flies that come were caught by insecting net. Fish also put in palstic bottle trap to know wether flies come for nutrition only or for oviposition too. *Sarcophaga carnaria* & *Lucilia caesar* can be attracted by the smell of fried salted and dried fish. *S carnaria* seemed active at morning day and *L caesar* at afternoion alternatively. Flies attracted to fish for nutrition and oviposition

Keywords : biocontrol, flesh fly, blow fly, attractant, salted fish and dried fish

INTRODUCTION

The use of attractants againts insect has been developed much more than the use of repellants. Attractants can be combined with other control methods to introduce selectivity, i.e; the species to be controlled is selectively 'lured' to its 'doom'. The high specificity of sex attractants has showed of particular value (Van Emden, 1974). Ecologically the smell of plants dominate our atmosphere, and the insects have to select them for oviposition, nutrition,

or sex signal, opr even for protection. For dipteran insect, like fruit flies, some of chemical sonstituents have been known as kairomon; terpineol acetate, α -copaen, α -ylangen, keton raspberry, methil eugenol, diprophildisulphide, allil isotiosianate, trans-asaron, trans-2-hexanol, hexanal, heptanal, butil-2-methylbutanoate, prophil hexanoate, butil hexanoat, hexil propanoate, and hexil butanoate (Metcalf, 1992).

Sarcophaga carnaria (L), was known as flesh fly with 10 – 18 mm length, life in

meadow habitat, and eat dung, death animals, *Phallus impudians*, *Rubus idaeus*, nectar of *Tanacetum vulgare* at adult phase, and parasitoid in lumbricidae at larval phase (Anonymous, 2007). Larva also found at ulcers, wounds, nasal passage and sinuses of human and animals and known as initiative of myiasis (Anonymous, 2005).

Soper et al. (1976) in Bailey (1991) reported that sarcophagid flies be predator of cicadas using acoustic signals to track their insect prey. As a member of Sarcophagidae family, they have characteristics like below; the arista in plumose only on the basal half, the tip being bare. The abdomen tends to be longer than in Muscidae. Many of larvae parasitoid upon such insect as grasshopper, caterpillars and beetles. Some of the species attack their victims while both insects are in flight and deposit already hatched larvae on other bodies. Others develop in the carcasses of animals or in dung or garbage or live in wounds or even in the stomach or larger animals. (Saunders, 2001) reported that *S. argyrostoma* as photoperiodic sensitivity and diapause induction during ovarian, embryonic and larvae development. (Saunders, 2001).

On the other hand, blow fly, known as *Lucilia caesar* is a member of Calliphoridae family, with blue green colour of body, and like *S. carnaria* has the real sound while flying. Fischer & Vichar (2003) reported this fly could be attracted by *Phallus impudicus* (Phallaceae) and *Stapelia grandiflora* (Asclepiadaceae). Roberts (1952) in Huffaker & Rabb (1984) published that blow

fly attack the sheep in Australia. "Mules operation" protect sheep from the fly, where loose skin is removed from each buttock, altering growth of wool around the vulva, so that wool in this area is no longer wetted by urine, thus reducing attractiveness to flies. Blow fly also known very sensitive to water logging. For ovarian development it was necessary to allow for solar radiation on the insect body. In the interspecific competition experiment of Pimental & Al – Hafidh (1965) in Huffaker & Rabb (1984) shift in competitive superiority of house fly and blow fly population seemed to occur alternatively, fostering coexistencies.

In Indralaya, 33 km southern of Palembang (South Sumatera province, Indonesia), those two flies, seemed attracted by fried of salted and dried fish. This local town area is known as producer of salted fish and dried fish because of many fish living in the swamp area located here. Hypotetically, many of blow and flesh fly and house fly increase their population by attack the fish that put around houses for drying and salting. To test the attracting of salted and dried fish, this research be done, in order developing of biocontrol prospect of flies.

METHODOLOGY

Research was done at Indralaya, a little town about 33 km south of Palembang, South eastern of Sumatera Island, at November 2007. Fifty gram of salted fish fried on the stove and the time of flesh fly / blow fly arrival noted by watch. Flies caught

by insecting net, put in plastic bag, added by alcohol and carried to laboratory of Biology Department , FMIPA, University of Sriwijaya, for identification and documentation. Attracting of flies by salted fish and dried fish were done at morning 09.00 western Indonesian Time and at afternoon, 15.00 Western Indonesian Time. Ten gram fish also put in a plastic bottle trap, to know wether flies search the fish for nutrition or for oviposition too.

RESULT AND DISCUSSION

Table below show the result of study; number flies caught by insecting net.

Salted fish (ikan asin)

Morning (09.00)		Afternoon (15.00)	
<i>S carnaria</i>	<i>L caesar</i>	<i>S carnaria</i>	<i>L caesar</i>
6	0	0	6
4	0	0	3
3	0	0	2
4	0	0	2

Table below show the result of using dried fish (ikan salai) as attracting material by fried them on the stove and smoke / smell spread around.

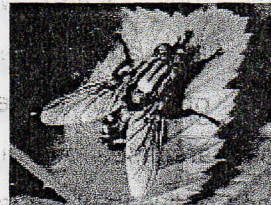
Morning (09.00)		Afternoon (15.00)	
<i>S caenaria</i>	<i>L caesar</i>	<i>S caenaria</i>	<i>L caesar</i>
0	2	0	6
0	3	0	5
0	2	0	4
0	3	0	4

Time of arrival, after fish put into frying pan (minutes)

<i>S carnaria</i>	<i>L caesar</i>
5	3
6	4
5	2

It seemed, that *S carnaria* flies attracted to salted fish smell and only at morning, but *L caesar* could bu caught at morning and afternoon both by salted fish and dried fish smell. Aminah (2003) reported that *Sarcophaga* was a species trhat come to saltred fish as a pest and she porpose to avoid them by added *Pangium edule* to salted fish for control.

Picture 1. *Sarcophaga carnaria*



Picture 2. *Lucilia caesar*



Study of fish that put in plastic bottle as lure of flies shows that there many larvae of blow fly living in the bottle after 5 days and it is mean that the arriving of flies to salted/dried fish not only for nutrition cause, but for oviposition too.

SUMMARY

Sarcophaga carnaria & *Lucilia caesar* can be attracted by the smell of fried salted and dried fish. *S. carnaria* seemed active at morning day and *L. caesar* at afternoon alternatively. Fles attracted to fish for nutrition and oviposition.

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