

Potential of Embam Fruit (*Mangifera odorata* Griff) which Falling to Support Insects Survival

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Abstract

Embam (*Mangifera odorata*) is one of mango species (*Mangifera* spp.) which has a typical aroma. Some species of fruit flies are more interested in laying eggs on mango fruit compared to other fruits. It does not rule out the possibility that some insect species use fruit which falling to laying eggs or as a food source. Need a research to be done about the potential of falling fruit to support insects survival. This research was conducted in November 2018 by observing of falling embam fruit under the tree to see what insects contained in the fruit and analyze the benefits for these insects. Found 6 insects species from a total of 6 families and 2 order on embam fruit which falling. Insect species of order Diptera are most commonly found with a total of 5 species from 5 families. Insect species from order Hymenoptera found only 1 species. The difference on embam fruit ripeity and condition of embam fruit affects insects species which found. on a ripe embam fruit can be useful as a food source for insects, while in rotten embam fruit can be beneficial for insects to laying eggs.

Keywords: Diptera, Embam fruit, Hymenoptera, Insects survival

1. Introduction

Embam (*Mangifera odorata*) is one of mango species (*Mangifera* spp.) which has a typical aroma. Based on the research by Ariffin *et al.* (2015), *Mangifera odorata* is closely related to harumanis mango, mahathir mango, and apple mango. According to Orwa *et al.* (2009), lokal name of *Mangifera odorata* in several countries such as England (saipan mango), Philippines (uani, kuwini), Francis (manguier, mangué odorante), Indonesia (kuweni, married, hybrid), Malaysia (wani, huani) and Thailand known as Ma-mut and mamuang chingreet.

People in South Sumatra region are familiar with *Mangifera odorata* under the name embam. Population of embam in South Sumatra region is classified as large. Especially in Sirah Pulau Padang Sub-district, Ogan Komering Ilir District this embam tree can be found easily because of its large population.

In the harvest season, embam fruit can be obtained easily and the economic value of this fruit is relatively low compared to other mangoes. Even for fruit which falling

just leave it alone. This embam fruit which falling can be useful to support insects survival.

Based on the research by Dias *et al.* (2018), fruit flies from species of *Anastrepha fraterculus* to lay eggs more on mango fruits compared to papaya, guava, orange and tangerine fruit. According to Rossetto *et al.* (2006), some mango varieties has different resistance to species of fruit flies.

It does not rule out the possibility of some species of insects using fruit which falling to laying eggs or as a food source. It is necessary to do research on the potential of fruit which falling to support insects survival. The results of this study can provide insight into the benefits of the link between embam fruit to some insect species and can be an alternative fruit trap to provoke the presence of some insect species.

2. Reseach Methods

This research was conducted in November 2018 by observing of embam

fruit which falling under the tree to see what insects contained on the fruit and analyze the benefits for these insects. The selection of embam trees used for observation is to have criteria that have ripe fruit. This observation was carried out in some embam trees which had fruit which falling. The location for choosing embam trees is in the area of Serdang Menang Village, Sirah Pulau Padang Sub-district, Ogan Komering Ilir District. The selection of this location is based on consideration at the time of

conducting the research, embam fruit is easy to find during the harvest season from October to November. Observations were made on the differences in ripe fruit, raw, and rotten species of insects found. Also observed was the condition of the fruit with open skin and intact fruit on the insect species found. This observation was carried out visually and documented with a camera assistance. Identification of insect species obtained is done by matching the species of insects which has been identified.

3. Results and Discussion

Based on the observation has been done, results obtained are:

Table 1. Insect species found in embam fruit which falling

Ordo	Family	Genera	Species
Diptera	Calliphoridae	Chrysomya	<i>Chrysomya megacephala</i>
	Drosophilidae	Drosophila	<i>Drosophila melanogaster</i>
	Micropezidae	Micropeza	<i>Micropeza</i> sp.
	Muscidae	Musca	<i>Musca domestica</i>
	Tephritidae	Bactrocera	<i>Bactrocera dorsalis</i>
Hymenoptera	Formicidae	Tapinoma	<i>Tapinoma</i> sp.

Found 6 insect species from a total of 6 families and 2 order on embam fruit which falling. Insect species found is *Chrysomya megacephala* (Calliphoridae), *Drosophila melanogaster* (Drosophilidae), *Micropeza* sp. (Micropezidae), *Musca domestica* (Muscidae), *Bactrocera dorsalis* (Tephritidae), and *Tapinoma* sp. (Formicidae). Insect species of order Diptera are most commonly found with a total of 5 species from 5 families. Insect species from order Hymenoptera found only 1 species, namely *Tapinoma* sp.

Not found any insect species on embam fruit which is still raw. Found *Bactrocera dorsalis* on ripe embam fruit and on rotten embam fruit found *Micropeza* sp. Ripe and raw embam fruit can be distinguished by smelling the aroma, ripe fruit will give off a scent. The absence of insect species found on raw embam fruit which estimated raw embam fruit does not emit scents that can provoke the presence of certain insect species.

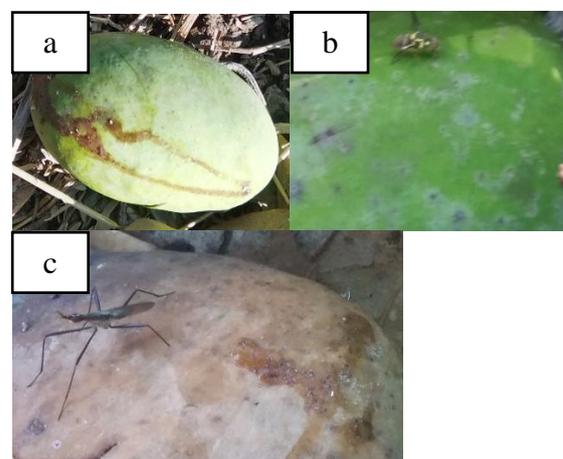


Figure 1. a. Raw embam fruit, b. Ripe embam fruit and *Bactrocera dorsalis*, c. Rotten embam fruit and *Micropeza* sp.

Insect species found on embam fruit which open and start to rot is *Bactrocera dorsalis*, *Chrysomya megacephala*, *Drosophila melanogaster*, and *Musca*

domestica. Insects found on this rotten embam fruit suspected as a medium for laying eggs. In some time, these eggs will become larvae. According to Dias *et al.* (2018), some species of fruit flies are more interested laying eggs on embam fruit. According to Duarte *et al.* (2013), food substrate density affects the survival of insect larvae.

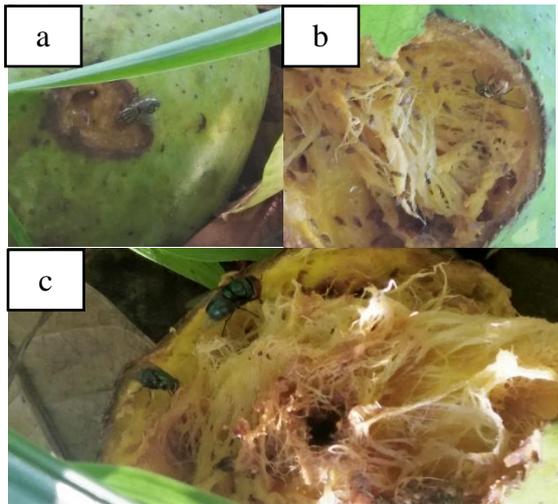


Figure 2. Insect species found on fruit embam which open and start to rot is a. *Musca domestica*, b. *Bactrocera dorsalis* and *Drosophila melanogaster*, and c. *Chrysomya megacephala*.

Insect species found on ripe embam fruit and open is *Bactrocera dorsalis*, *Chrysomya megacephala*, *Micropeza* sp., and *Tapinoma* sp. Insect species found on this ripe embam fruit suspected to make this ripe embam fruit as one of food source. According to Sugiarto (2018), one of ant species which found in Serdang Menang Village, Sirah Pulau Padang Sub-district, Ogan Komering Ilir District is *Tapinoma* sp. and provoke the presence can be done with using coconut oil.

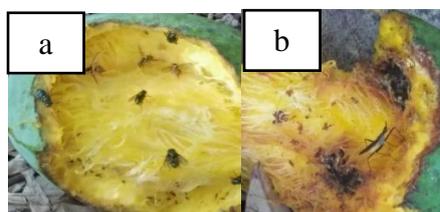


Figure 3. Insect species found on ripe embam fruit and open is a. *Bactrocera dorsalis* and *Chrysomya megacephala*, b. *Micropeza* sp. and *Tapinoma* sp.

Insect species found on embam rind is *Crysomya megacephala* dan *Musca domestica*, while insect species found on embam seed is *Micropeza* sp.

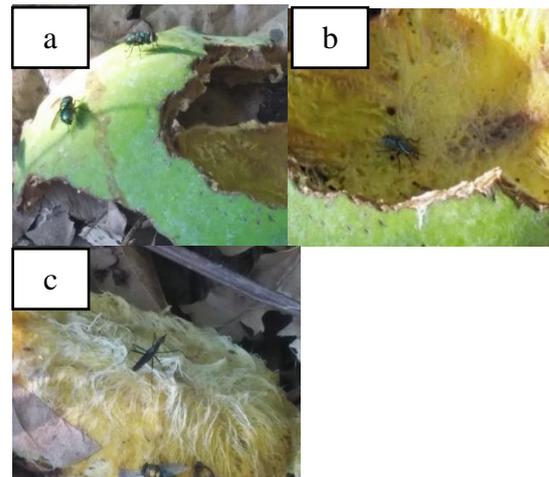


Figure 4. Insect species found on rind and seed of embam is a. *Chrysomya megacephala*, b. *Musca domestica*, c. *Micropeza* sp.

4. Conclusion

Embam fruit which falling can be support survival from some insect species because of embam fruit which this falling can be food source and as a medium for laying eggs for some insect species. Difference in embam fruit ripeity and condition also affects insect species found. In ripe embam fruit can be useful as a food source for insects, while the rotten fruit embam is useful for insects to lay their eggs.

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