# DIVERSITY OF INSECTS WITH POTENTIAL PESTS ON CAYENNE PEPPER (*Capsicum frutescens* L.) IN BANJAR BANGAH, BATURITI VILLAGE, TABANAN REGENCY

**Made Mika Mega Astuthi[1)], Kadek Ayu Charisma Julia Dewi [2)]**

[1)] *Agrotechnology Study Program, Faculty of Agriculture and Business Dwijendra University*
[2)] *Agribusiness Study Program, Faculty of Agriculture and Business Dwijendra University*
*E-mail : made.mika90@gmail.com*

**ABSTRACT**

Cayenne pepper *(Capsicum frutescens* L.*) is one of the horticultural plants from the vegetable type that has small fruit with a spicy taste. Chili pepper plants are one of the plants that can be attacked by pests from the start of growth until harvest. Pests that attack plants are generally animals. In general, plant pests are grouped into three groups, namely the mammal group, the insect group, and the bird group (arves). To produce chili pepper plants that can avoid pest attacks, observation and collection of data and information regarding disturbances are very important to do. The available information can be used to be applied in field management and decision making. This paper aims to explore and find out information on the types of insects that have the potential to be pests on chili pepper plants in Banjar Bangah, Baturiti Village, Tabanan Regency. Observations were carried out from October to December 2024 using a survey method. The results of observations in the field showed that the insect pests that attack chili pepper plants include (1) aphids that attack by sucking the liquid on the leaves. The leaves become dry and the leaf surface curls, (2) whiteflies that cause direct damage to plants are in the imago and nymph phases. Whiteflies suck leaf fluids and cause symptoms of necrotic spots on the leaves that damage the cells and leaf tissue, and (3) thrips are important pests on chili plants. Thrips pests are usually found on the inside of the leaves and live in colonies. Like other groups of phytophagous thrips, these insects damage plants by grating and sucking.*

Keywords*: Cayenne pepper, aphids, whiteflies, thrips*

## 1. INTRODUCTION

Cayenne pepper (*Capsicum frutescens* L.) is one of the horticultural plants from the vegetable type that has small fruit with a spicy taste. This type of chili is cultivated by farmers because it is in great demand by the community, in general, cayenne pepper plants can be planted almost throughout the DI Bali area, especially in Banjar Bangah, Baturiti Village. Cultivation of cayenne pepper plants experiences many obstacles, one of which is insect pest attacks. Cayenne pepper plants are one of the plants that can be attacked by pests from the start of growth until near harvest. Indonesia has a very high level of biodiversity and is one of the centers of biodiversity in the world, so Indonesia is called a mega-biodiversity country. Biodiversity includes ecosystem diversity, types in ecosystems and germplasm (genetic diversity) which are in each type (Suhartini, 2009). Insect diversity is one form of biological wealth in Indonesia which is estimated to reach hundreds of thousands of insect species, but not all insect species are known, including new insect species (Kahono and Amir,

2003). The role of harmful insects is insects that cause wounds on plants, causing damage/loss and are called pests. Plant injuries by insects are carried out by, among others, biting, sucking, eating, injuring roots, laying eggs or making nests, observing other insects, and transmitting diseases (Untung, 2010). In Indonesia, more than 111 species of Arthropods are recorded as pests, 53 species are non-targets, 61 species are predators and 41 species are parasitoids (Okada et al. 1988). To produce cayenne pepper plants that can avoid pest attacks, observation and collection of data and information regarding disturbances are very important. The available information can be used to be applied in field management and decision making. This paper aims to explore and find out information on the types of insects that have the potential to be pests on cayenne pepper plants.

## 2. RESEARCH METODOLOGY

### 2.1. Place and Time

This research was conducted from October 2024 to December 2024 in Banjar Bangah, Baturiti Village, Tabanan Regency.

### 2.2. Tool

The tools used in this study were insects, stationery and insect boxes.

### 2.3. Material

The materials used in this study were the target pests observed.

### 2.4. Ways of working

This study uses a survey method, namely conducting direct (visual) observations of insects that attack cayenne pepper plants

## 3. LITERATUR REVIEW

### 3.1. Description of Cayenne pepper (*Capsicum frutescens* L.)

Cayenne pepper is a plant that has a height of approximately 50-135 cm. Chili pepper has a scientific name (*Capsicum frutescens* L.), according to the Agricultural Research and Development Agency (2011), chili pepper can produce 0.7-1.5 kg with a harvest period of 20 times which can be harvested twice a week. According to Simpson (2010), cayenne pepper can be classified as follows:

Kingdom : Plantae

Plantae : Magnoliophyta

Class : Magnoliopsida

Order : Solanales

Family : Solanaseae

Genus : Capsicum

Species : *Capsicum frutescens*

### 3.2 Pests

Animals that damage plants and cause economic losses are called pests, the losses themselves will be associated with economic value, but if the presence of the pest does not reduce the economic value, then the presence of pests on the plant does

not require control or eradication (Astuti et al., 2016). Pests are also divided into several groups, one of which is insect pests. Wounds on plants caused by insects and resulting in damage or loss are called pests (Cheppy et al., 2021). The presence of an animal in a plantation before causing economic losses is not considered a pest in this sense. However, their potential as pests will later need to be monitored in an activity called monitoring. In general, animals that can become pests have the following characteristics, namely pests can be seen by the naked eye, generally from the animal group (rats, birds, insects, caterpillars and so on), pests tend to damage certain parts of the plant so that the plant dies or the plant remains alive but does not produce much. The status of insects as pests is influenced by the abundance of the population and disturbances to plants due to their feeding activities which can affect plant physiology, causing crop yield losses, both in terms of quality and quantity (Nurulalia et al., 2018). Pests that attack plants are generally animals. In general, plant pests are grouped into three groups, namely the mammal group, the insect group, and the bird group (arves).

## 4. RESULTS AND DISCUSSION

The results of field observations showed that the insect pests that attack cayenne pepper plants include:

### 4.1 Aphids (*Myzus persicae*)

Aphids attack by sucking the liquid on the leaves. The leaves become dry and the leaf surface curls. Pracaya (2010) in Meilin (2014) stated that wingless aphids have red or yellow or green bodies and are 1.8 - 2.3 mm long, the head and chest of aphids are brown with a yellowish green abdomen, the same length as the body. Aphids are very small in size but are visible if the aphids cluster on the underside of the leaf blade or on the top of the plant. Its host plants are more than 400 species, with the main hosts on vegetables being chilies, potatoes and tomatoes. This aphid can act as more than 90 types of disease viruses in around 30 plant families (Meilin, 2014)

Figure 1. *Myzus persicae*

Source : Mika

### 4.2 Whitefly Pest (*Bemisia Tabaci*)

Whitefly pests are one of the important pests that attack horticultural plants. Whiteflies generally live in groups on leaves, twigs, flowers, or fruits. Whitefly pests on leaves have caused direct and indirect damage to plants. Direct damage to plants is caused by imago and nymphs of Bemisia tabaci that suck leaf fluids, in the form of necrotic spots on the leaves due to damage to leaf cells and tissues. Whitefly excretion produces honey which is a good medium for the growth of black sooty mold, causing the photosynthesis process to not take place normally. Meanwhile, indirect damage caused by whitefly pests is related to the role of Bemisia tabaci as

a vector of gemini viruses in plants, such as: yellow disease (Singarimbun, Pinem, and Oemry, 2017).

Figure 1. *Bemisia tabaci*

Source : Mika

### 4.3. *Thrips parvispinus*

*Thrips parvispinus Karny* (Thysanoptera: Thripidae) is an important pest in chili plants (Kalshoven 1981). Plants attacked by this pest will cause curled leaves, flower loss and can inhibit the growth of leaf shoots. Thrips pests are usually found on the inside of the leaves and live in colonies. Thrips pest attacks will increase in the rainy season because this pest likes humid places. Like other phytophagous thrips groups, this insect damages plants by grating and sucking (Lewis 1973). The damage caused to chili leaves is in the form of silvery spots (Prabaningrum & Moekasan 1996). In addition, Vos (1991) stated that severe attacks by T. parvispinus on chili plants can cause silvery spots to turn brownish and leaves to curl upwards. It is now known that T. parvispinus also acts as a vector for the TSV virus (Tobacco streak ilarrvirus) (Klose et al. 1996).

Figure 1. Thrips parvispinus

Source : Mika

## 5. CONCLUSION

The diversity of insect pests that attack cayenne pepper plants in Banjar Bangah, Baturiti Village, Tabanan Regency are (1) aphids that attack by sucking the liquid on

the leaves. The leaves become dry and the leaf surface curls, (2) whiteflies that cause direct damage to plants are in the imago and nymph phases. Whiteflies suck the leaf liquid and cause symptoms of necrotic spots on the leaves that damage the cells and leaf tissue, and (3) thrips are important pests on chili plants. Thrips pests are usually found on the inside of the leaves and live in colonies. Like other groups of phytophagous thrips, these insects damage plants by grating and sucking

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