

I. INTRODUCTION

1.1 Background

Ficus originating from the Moraceae family is a key species found in tropical areas because it can bear fruit all year round, so many species of Ficus are a source of food and a source of habitat for various types of animals. The diversity of life forms of Ficus. interesting and easy to find in various types of ecosystems (Hao *et.,al.*, 2016). Ficus plants grow in many forests and hills in Indonesia. Ficus plants are often found around waterways and are also cultivated. The tree is medium tall, grows 10-16 meters in height. The lush green foliage provides good shade. The bark is reddish-gray and is often cracked. Ficus is a member of the Moraceae tribe which has many types. There are 735 species of Ficus in the world and more than 60% are in the Indo - Australian region (Janzen, 1979). Ficus are unique in their flowering and pollination systems. The Ficus inflorescence is called a closed crooked or *syconium* flower where the flower is inside the false fruit which is an enlargement of the base of the flower.

Ficus consists of nearly 800 species, which are distributed throughout the world but are more common in the tropics and mostly in Indo-Malesia (Ridley, 1925). Of the many species of Ficus, Ridley (1925) reported that there were 92 species in Asia and tropical Asia. Merrill (1974), published 100 species found in the Philippines. Kochummen (1978) also reported that 101 species occur in the Malay Peninsula, while Java has 72 species (Backer, 1965). Hooker (1982) published 600 species found in India, Burma, and Sri Lanka. According to Loutfy *et. al.*, (2005), the number of Ficus in the tropics is nearly 800 species.

Despite the many differences between each species of the Ficus tree, all of these plants have a unique flower shape called *syconium*, which is also known as the Ficus fruit (Janzen, 1979). Ficus fruit contains hundreds or thousands of very small male and female flowers scattered in the open space inside (Berg 1989; Anstett *et. al.* 1997). Ficus fruit sizes vary

widely, depending on the species, ranging from only a few mm in diameter to more than 20 cm (Compton *et. al.* 1996). A Ficus tree can produce 500 - 1,000,000 *syconium* in short peduncles at the base of the leaves (Janzen, 1979). Ficus is one of the most important plant species in the forest ecosystem. Some living organisms depend on the presence of Ficus, such as specific insect (Whitmore, 1978), one of which is *Ficus racemosa*. *Ficus racemosa* (syn. *Ficus glomerata* Roxb) is a type of plant species in the Moraceae family. This *Ficus racemosa* is known as the Cluster Fig Tree or Goolar (gular). *Ficus racemosa* is a lot of native plants that can be found in Australia, Malesia, Southeast Asia, and the Indian continent. In Indonesia, it is found in many tropical forest areas and many also live in swamps, rivers, and streams. Because the *Ficus racemosa* tree contains a lot of water. In general, people in Indonesia know *Ficus racemosa* with the name Ara or Aro, Jilabuak or Sikalabuak, with a characteristic shape and structure of the fruit called fig or *syconium*. Fig is a compound pseudo fruit or flower composed of a receptaculum or flower base which is fleshy and juicy. The real flower or fruit is on the inner wall of the receptaculum (Hooker, 1982).

Ficus racemosa is a false flower or compound fruit that is composed by the receptaculum or the base of the flower which is fleshy and watery. The real flower or fruit is found on the inner wall of the receptaculum (Hooker, 1982). The fruit of *Ficus racemosa* grows in groups on the trunk and main branches of the tree. The fruit is round or pear-shaped with a diameter of up to 4 cm. The fruit when unripe is green, then red when ripe. *Ficus racemosa* fruit is favored by birds and bats. Non-toxic so it is safe for human consumption.

The flower arrangement on Ficus looks like a fruit and is commonly referred to as a pot or *syconium* flower. The flowers are very small and hidden in a fruit-like structure. Just imagine a pot made of clay and small red beunying flowers attached to the inside of the pot. Because the flowers are hidden, pollination is not assisted by butterflies or bees. The pollination of Ficus is carried out by a special type of insect from the Agaonidae family or known as the wasps.

Ficus has a pollination strategy. Ficus is determined by its reproductive system which is monoecious or dioecious assisted by an insect (*wasps fig*) belonging to the Agaonidae family. (Weiblen, 2002).

Pollination in Ficus fruit is entirely dependent on the various species of pollinating insect from the Agaonidae family, the Agaoninae sub-family, the Hymenoptera order (Kerdelhue *et. al.* 2000). The survival of these pollinator insects and Ficus trees is highly dependent on one another (Compton *et. al.* 1996). Female insects, which carry pollen, enter the *syconium* through the *ostiole* holes to carry out pollination and lay eggs on female flowers (Gibernau *et. al.*, 1996).

This research was conducted to see the effect of the presence of non-polluting insects on the development of pollinator insect and seed production. Knowledge of the insect communities that live in Ficus fruit is expected to help understand the survival of various other species that depend on the *Ficus racemosa* tree. The system of interdependence between insect and Ficus trees will also affect the functioning of ecosystems and biodiversity in Indonesia.

1.2 Problem Formulation

The problems to be answered in this study are as follows:

1. What are the characteristic of inflorescence of reophytic Fig (*Ficus racemosa* L.)?
2. What species are the insect visitors on the syconia of reophytic Fig s its pollinator of *Ficus racemosa* L.?

1.3 Research Objectives

Based on the problem formulations above, the objectives of this study are as follows:

1. To evaluate the characteristic of inflorescence of reophytic Fig (*Ficus racemosa* L.)

2. To determine the insect visitor on the syconia of reophytic Fig s its pollinator of *Ficus racemosa* L.

1.4 Research Benefits

The benefits obtained from this research are to fill in the treasury of knowledge in the field of plant biosystematics, especially the study of the plant pollination system of *Ficus racemosa*, as well as to introduce the unique biodiversity of Rheophytic plants which play a very important role in preserving the river ecosystem in West Sumatra.

