

# CHAPTER I

## PRELIMINARY

### 1.1. Background of Research

One of the names of plants that was widely spread in Indonesia is avocado, avocado plants that have great potential in the treatment because it has efficacy as a medicine. The plant is commonly utilized in traditional medicine communities. In this section of the plant is an exciting part is the seeds that are considered by the community as waste; it can treat the diseases. Allah SWT created the entire world has its own benefits, one of which is a plants which are a source of natural materials that can produce chemical components in it and according to 92% consumer survey of state that natural ingredients can be trusted as safe drugs and do not cause plant side effects which function as a treatment can also be called herbal medicine (Dubick, 1986).

The existence of plants is a blessing and favor of Allah SWT given to all of its creatures. As Allah SWT said:

فَأَنْبَتْنَا فِيهَا حَبًّا [۷۲] وَعِنَبًا وَقَضْبًا [۸۲] وَزَيْتُونًا وَنَخْلًا [۹۲] وَحَدَائِقَ  
عُلْبًا [ ] [ ۰۳ ] وَفُكْهَةً وَأَبًّا [ ۱۳ ] مَتَاعًا لَكُمْ وَلِأَنْعَمِكُمْ [ ۲۳ ] سورة  
عبس: (۲۳-۷۲)

*Artinya: "And caused to grow within its grain. Vines, fresh vegetation, Olive trees, palm trees, and gardens of dense orchards, Fruits and fodder, as for you and your grazing livestock" (QS. 'Abasa (80): (27-32).*

The verses of the Qur'an in Sura 'Abasa: (27-32) has been explained about the power of the Almighty Allah SWT created whole grains, vegetables, fruits, and grasses can become food for humans and livestock. Food items have unique benefits to the human body that can be researched in life (Imani, 2005).

Plants in the preparations of the drug that is generally in the form of extracts from natural materials, in general, have a low solubility in fat, then the necessary development to improving bioavailability is better than extract preparations ingredients worlds (Rajiv, 2013). Some events of studies showing that avocado seeds contain compounds are secondary metabolites that are included in a class of alkaloids, tannins, flavonoids, triterpenoid, saponins (Marlinda et al., 2012), which has the effect of pharmacological.

According to research Suhendra et al., (2016) seed extract of avocado (*Persea americana* Mill.) can lower total cholesterol levels in wistar rats which have induced propylthiouracil with a dose of 125 mg/kg BW and 250 mg/kg BW amounting to 18.1% and 31.2%, due to the presence of flavonoids content. Flavonoids prevent adhesions lipoprotein polyethylene.

Flavonoids have actions to reduce cholesterol levels in the body by inhibiting activity of the enzyme HMG-Co-A reductase as cholesterol biosynthesis (Sekhon et al., 2012), according to Elekofehinti et al., (2013) saponins have action by inhibiting fat peroxidation and increasing the concentration of antioxidant enzymes, while tannins are able to reduce the accumulation of cholesterol in the blood by accelerating the removal of cholesterol through feces (Rahayu, 2005).

Judging from previous studies that avocado seeds have significant benefits, the development of these active substances requires dosage forms are durable, easy to consume, and easy to store. Some of the development of avocado seed extract has been made in other dosage forms as in the research of Hidayah (2018) avocado of seed extract has been made in conventional tablet dosage forms with the effect of Na-CMC binder concentration and 1500 Starch Crushing material with Factorial Design method, besides Microgranul Mucoadhesive Avocado Seed Extract with Differences in Carbopol Concentration (Aditya, 2016), and effervescent granules a combination of avocado seed extract and rosella flower petals (Mas'adah, 2015).

So for the development of avocado seed extract innovations in this study chewable tablet dosage forms were shown to cover the bitter taste caused by avocado seed content on (Zuhrotun, 2007). Because the purpose of chewing tablets is to provide residues with good taste in the oral cavity so that they are easily swallowed and do not leave a bitter or unpleasant taste (Agoes, 2008), in addition, the dosage form of chewable tablets is very appropriate to be used to make it easier for children or parents who are difficult to swallow whole drugs. Extracts formulated into chewable tablets are more easily released as active ingredients in body tissues and absorbed by the body.

The advantage of chewing tablets when compared with other oral substantial dosages is it can improve patient comfort by eliminating the need for drinking water to swallow drugs, besides that it can be used as a substitute for liquid dosage forms if fast drug work (onset) is needed, increasing patient acceptance due to taste which is fun and has a unique product from a marketing standpoint (Siregar, 2010).

In this formulation, it is varying the filler to get the concentration of the material which can cover the bitter taste of the active substance. The cartridges used are mannitol, mannitol is a substance that is not hygroscopic and can be combined with active ingredients that are sensitive to moisture, the concentration used ranges from 10% -90% (Rowe, 2006).

The mannitol taste is about 70% of the sugar with a cooling taste in the mouth, has sufficient solubility in water and is usually used as a filler in chewable tablets so that the manufacture of mannitol granulation has the advantage that granules will dry more quickly. Because chewable tablets have a distinctive taste that makes them comfortable for consumption, thus producing a feeling that consumers like (Ansel, 1989).

The use of wet granulation method in this formulation is one method that can be used to make chewable tablets, and with this method can increase compressibility, obtain better flow, and can increase the uniform distribution of the womb. The purpose of this formulation study was to determine the

effect of the physical properties of avocado seed extract (*Persea americana* Mill.) by varying the concentration of mannitol fillers, to obtain the physical properties of standard.

## **1.2. Problem Formulation**

The problems in this research are:

1. Are avocado seed extracts (*Persea americana* Mill.) With variations in the concentration of mannitol, fillers can be formulated into chewable tablet preparations?
2. How does the comparison of variations in mannitol filler material on the physical properties of avocado seed extract chewable tablets (*Persea americana* Mill.)?

## **1.3. Research Objectives**

The purpose of this research is:

1. Making avocado seed extract (*Persea americana* Mill) chewable tablet formulations with variations concentration of mannitol fillers material.
2. Find out the influence of mannitol fillers to the physical properties of avocado seed extract tablets (*Persea americana* Mill.)

## **1.4. Benefits of Research**

### **1.4.1. Theoretical Benefits**

Add to the treasure of knowledge about natural herbal medicine, and avocado seeds are one of Allah SWT creation that should be examined because it has the benefits of secondary metabolites contained in the content of avocado seeds. The avocado seed extract (*Persea americana* Mill) chewable dosage form is made, which produces the best physical properties that can make it easier for sufferers who have difficulty swallowing tablets.

#### **1.4.2. The Practical Benefits**

Practically, the results of this research are expected to be input to research further in researching avocado seeds (*Persea americana* Mill.), So they can produce various avocado seed products.