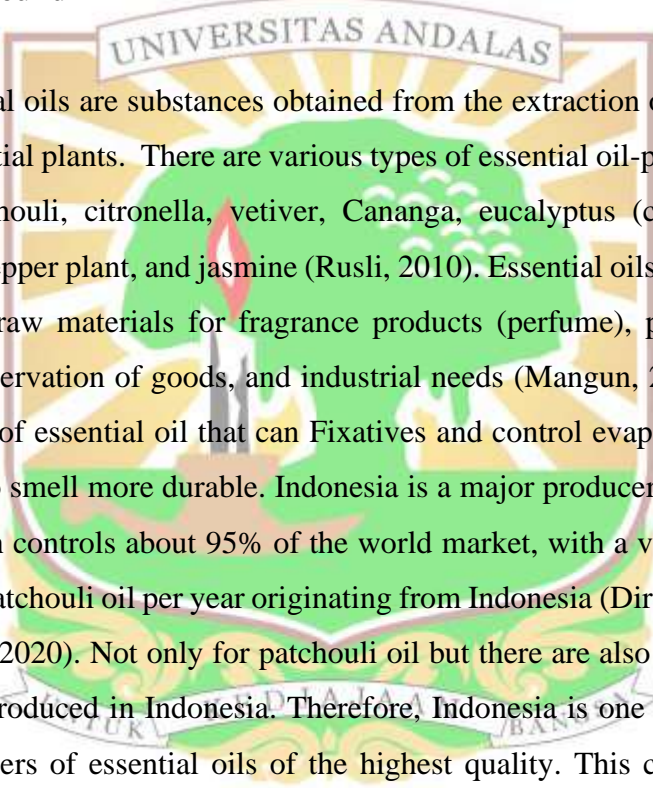


CHAPTER I

INTRODUCTION

This chapter consists of background, problem formulation, research objectives, research scopes, and outline of the proposal.

1.1 Background



Essential oils are substances obtained from the extraction of the stems and leaves of essential plants. There are various types of essential oil-producing plants, including patchouli, citronella, vetiver, Cananga, eucalyptus (cajuput), cloves, sandalwood, pepper plant, and jasmine (Rusli, 2010). Essential oils are widely used as one of the raw materials for fragrance products (perfume), pharmaceuticals, cosmetics, preservation of goods, and industrial needs (Mangun, 2012). Patchouli oil is one type of essential oil that can fixatives and control evaporation (etheric) for perfumes to smell more durable. Indonesia is a major producer of patchouli oil globally, which controls about 95% of the world market, with a volume of 1,200-1,500 tons of patchouli oil per year originating from Indonesia (Directorate General of Plantations, 2020). Not only for patchouli oil but there are also several types of essential oils produced in Indonesia. Therefore, Indonesia is one of the large and reliable producers of essential oils of the highest quality. This condition is also influenced by climatic conditions and the level of soil fertility owned by the geographical structure of Indonesia.

Patchouli oil is produced in several regions in Indonesia. One of the areas that produce patchouli oil in Indonesia is West Sumatera Province. Statistical data shows that West Sumatera in 2019 produced 487.20 tons. The distribution of patchouli production in the province of West Sumatera can be seen in **Table 1.1**. Based on these data, it is known that West Pasaman Regency is the district with the most significant patchouli production in West Sumatera. As of 2019, the patchouli

harvested area of West Pasaman Regency is 2397.00 Ha. Because of that, West Pasaman becomes a potential regency to produce patchouli oil. Patchouli oil, which is classified as an essential oil, has become a leading industry for the province of West Sumatera which should develop based on the Regional Regulation of the Province of West Sumatera No. 13 of 2012 concerning Spatial Planning for the Region of West Sumatera in 2012-2032 Article 55 Section 9 (Sumatera Barat Government, 2012).

Table 1. 1 West Sumatera Patchouli Production

| Name of Regency in West Sumatera | Total Production (Tons) |
|---|--------------------------------|
| Kepulauan Mentawai Regency | 0,8 |
| Solok Regency | 1,8 |
| Tanah Datar Regency | 2,0 |
| Padang Pariaman Regency | 2,6 |
| Pasaman Regency | 28,0 |
| Pasaman Barat Regency | 450,0 |
| Padang City | 0,5 |
| Sawahlunto City | 1,5 |
| Total Production | 487,2 |

(Source : Statistics of Sumatera Barat Province, 2019)

West Pasaman Regency is the main patchouli production area in West Sumatera, where more than 50% of West Sumatera patchouli is produced in this area. Therefore, the West Pasaman Regency becomes a potential regency to produce patchouli oil. It is recorded that there are approximately 100 business groups that produce patchouli oil (Industry and trade service Sumatera Barat Province, 2015). This advantage is not in line with the quality of patchouli oil produced. In the 90s, West Pasaman was known as a patchouli producing area with the best quality globally, but currently, the best quality patchouli oil is produced by the Bangko area. The quality of patchouli oil produced by West Pasaman is less than the minimum standard and does not qualify the standard so a lot of patchouli

oil is rejected by exporters (Rahmayanti et al., 2017). So that many farmers switch to planting other crops to make money faster and only a tiny group survives cultivating the patchouli plant

Patchouli oil quality standards in terms of trade quality have been set by the Indonesian National Standard at SNI-96-22385-2006 (National Standardization Agency of Indonesia, 2006). **Table 1.2** shows the patchouli oil quality standards testing according to the Indonesian National Standard. One of the most common quality standard criteria for testing the quality of patchouli oil is the level of patchouli alcohol (PA). Good quality oil has a PA content greater than 30. PA levels are tested by collectors when buying patchouli oil from farmers. There is a different price of patchouli oil with a PA above and below 30, Rp30,000.

Table 1. 2 Patchouli Oil Quality Requirements by SNI

| No | Test Type | Unit | Requirement |
|----|--|-------|--|
| 1 | Colour | - | Light yellow-reddish brown |
| 2 | Specific Gravity 25°C/25°C | - | 0,950 - 0,975 |
| 3 | Refractive index (nD ²⁰) | - | 1,507 - 1,515 |
| 4 | Solubility in ethanol 90% at 20°C ±3°C | - | Clear solution or light opalescence in volume ratio 1:10 |
| 5 | Acid number | - | Max. 8 |
| 6 | Ester number | - | Max. 20 |
| 7 | Optical loop | - | (-)48° - (-)65° |
| 8 | Patchouli alcohol (C ₁₅ H ₂₆ O) | % | Min. 30 |
| 9 | Alpha copaene (C ₁₅ H ₂₄) | % | Max. 0,5 |
| 10 | Iron (Fe) content | mg/kg | Max. 25 |

(Source: National Standardization Agency of Indonesia, 2006)

Exporters buy patchouli oil from collectors according to the quality of patchouli oil that has been determined. Collectors are parties who collect patchouli oil from several farmers. In addition, farmers can also sell patchouli oil directly to exporters with a minimum amount of 30 kg following established quality standards. Conditions that occur are farmers' patchouli oil sold directly to exporters, often purchased at a price below the market price, even experiencing rejection. Based on

interviews conducted by Rahmayanti et al. (2021) at one of the exporters of West Sumatera patchouli oil, namely PT Mitra Ayu, it is known that the price of West Pasaman Regency patchouli oil continues to decrease in line with the quality of patchouli oil. Therefore, it is necessary to improve the quality of patchouli oil in West Pasaman Regency so that the selling price of patchouli oil in farmers has increased.

Based on several previous studies, it is known that the quality of patchouli oil is influenced by many factors, including good seeds, appropriate cultivation techniques, sufficient harvest age, proper handling of materials before distillation (Hayani, 2005), patchouli oil refining method (Nurjanah, 2016), refining time, and composition of raw materials (Syauqiah et al., 2008). These factors, if managed optimally, will affect the quality of patchouli oil better. Patchouli oil's supply chain actors consisting of farmers, intermediary, collectors, and exporters have different standards for patchouli oil quality, making it challenging to improve West Pasaman Regency patchouli oil quality.

Patchouli oil quality is an essential point of increasing patchouli oil sales. Based on the current problems, it is necessary to improve West Sumatera patchouli oil quality, especially in West Pasaman Regency, and restore West Sumatera as the world's best patchouli oil producer. The initial effort is to socialize patchouli oil quality standards based on SNI to patchouli oil's supply chain actors. Furthermore, it is also necessary to conduct laboratory research with the concept of experimental design to determine the factors that affect the quality of patchouli oil. This study aims to provide initial recommendations regarding factors that significantly influence the quality of patchouli oil based on experts who have experience in handling and processing patchouli oil.

1.2 Problem Formulation

Based on the above background, the formulation of this research is how the quality standard of patchouli oil is according to the exporters. According to the exporter, the exporter's quality standard determines whether patchouli oil's quality standard follows the SNI. This quality standard will also serve as a guide to identify the factors that affect the quality of patchouli oil according to each actor in the patchouli oil supply chain. Based on the known factors, critical factors or determinants that affect the quality of patchouli oil will be obtained. The critical factors obtained to serve as a guide for determining the direction of quality recommendation for improving the quality of patchouli oil in West Pasaman Regency based on significant factors that affect the quality of patchouli oil.

1.3 Research Objectives

The aims of the research are described as follows:

1. Identification of patchouli oil quality standards according to exporters.
2. Identify the factors that affect the quality of patchouli oil in each of the actors in the patchouli oil supply chain.
3. Determine the critical quality factors of patchouli oil
4. Determine the recommendation of quality improvement based on critical factors that affect the quality of patchouli oil

1.4 Research Scopes

The scopes of this research are described as follow:

1. The research conduct in Jorong Bukik Nilam, Nagari Aua Kuniang, West Pasaman Regency.

2. Determination of factors affecting the quality of patchouli oil is carried out along the supply chain consisting of farmers, intermediary, collectors, and exporters.
3. The factors affecting the quality of patchouli oil is observed from harvest and post-harvest

1.5 Outline of Proposal

The outline of this research consists of three chapters: introduction, literature review, and research methodology

CHAPTER I

INTRODUCTION

This chapter consists of research background, problem formulation, research objectives, research scopes, and report outline.

CHAPTER II

LITERATURE REVIEW

This chapter contains a description of the theories related to problem-solving in this research.

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the stages in research consist of preliminary studies, literature studies, problem identification, problem formulation, method selection, data collection, data processing, research stages, analysis, conclusions, and suggestions.

CHAPTER IV

RESULT AND DISCUSSION

This chapter contains data collection and data processing of critical factors of patchouli oil quality. The data will be analyzed to know the recommendation for quality improvement of patchouli oil in the West Pasaman Regency.

CHAPTER V

CONCLUSIONS AND SUGGESTIONS

This chapter contains a summary of the research and suggestions for further research.

