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Analysis Of Profitability And Feasibility Of A Patchouli Oil Distillation Business (Case Study Of Utari Nilam In Putemata Village, Ladongi Subdistrict, East Kolaka Regency)

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Abstract

This study aims to analyze the profitability and business feasibility of Utari Nilam's patchouli oil distillation business in Putemata Village. The research location was selected purposively. The population used as respondents in this study consisted of one person. The technique used to select the respondent was purposive sampling. The data collection methods used to obtain the information needed to achieve the research objectives included observation, interviews, and documentation/recording. The analysis method used was quantitative descriptive analysis, which involved calculating profits and assessing the feasibility of the patchouli oil distillation business in Putemata Village over a single period. The results of the study indicate that the patchouli oil distillation business (Utari Nilam) is profitable and viable. The profit generated by the patchouli oil distillation business was calculated based on total expenses of Rp 178,716,785 and total revenue of Rp 256,000,000, resulting in a profit of Rp 77,283,215 in November. The patchouli oil distillation business (Utari Nilam) in Putemata Village has a R/C ratio of 1.43, which means that the patchouli oil distillation business (Utari Nilam) is viable and profitable.

Keywords: Patchouli Oil, Profit, Business Feasibility

INTRODUCTION

The agricultural sector plays a crucial role in supporting regional economic growth because the majority of the rural population still relies on this sector for their income (Isah et al., 2023). One agricultural subsector with significant development potential is plantations

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(Suryani, 2024). Patchouli is an essential oil-producing plant widely used in the perfume, cosmetics, soap, and pharmaceutical industries. Indonesia is one of the leading producers and exporters of patchouli oil due to its climate and soil fertility, which are well-suited to the plant's growth requirements (Irmawati et al., 2023). In addition to its economic value, patchouli oil possesses distinctive *woody* and *earthy* aromatic characteristics and a long-lasting scent, making it widely used as a raw material for various industrial products (Wamy & Sinniah, 2015).

The development of patchouli oil in Indonesia still faces various challenges, particularly regarding processing and production efficiency. At the farmer level, essential oil processing is still largely carried out using rudimentary methods, which can affect both the quantity and consistency of the oil's quality. This situation has the potential to reduce the competitiveness of Indonesian essential oil compared to that of other producing countries (Lutony & Rahmayati, 2002). In fact, the patchouli oil distillation industry has significant potential for development because it can utilize local resources, is market-oriented, creates jobs, and increases the value added of plantation products. The quality and quantity of the oil produced are also influenced by distillation technology, purification methods, as well as environmental conditions and the storage of raw materials (Mangun, 2011).

The potential for patchouli oil is also evident in Southeast Sulawesi Province. Patchouli oil production increased from 544.00 metric tons in 2020 to 1,199.35 metric tons in 2021. However, production declined in 2022 to 660.35 metric tons (Southeast Sulawesi BPS, 2022). This situation indicates that patchouli oil production remains volatile, necessitating more effective and efficient business management to ensure its sustainability.

East Kolaka Regency is one of the regions in Southeast Sulawesi that relies on the agricultural sector, particularly food crops and plantations. The region's favorable conditions give this sector the potential to support the local economy. One of the plantation commodities cultivated by the local community is patchouli. According to data from the East Kolaka Regency BPS, patchouli production in the region declined from 4,308.50 metric tons in 2022 to 2,309.00 metric tons in 2023. In 2022, the highest production came from Tinondo Subdistrict at 961.00 metric tons, while in 2023, the highest production came from Mowewe Subdistrict at 520.00 metric tons (East Kolaka BPS, 2024). This decline in production indicates conditions that require attention in the development of patchouli in East Kolaka Regency.

One area where the community engages in patchouli cultivation and distillation is Putemata Village. The patchouli oil distillation business in Putemata Village still faces a number of challenges, including production costs, raw material prices, the selling price of patchouli oil, and distillation process efficiency. The price of patchouli oil received by business operators also

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fluctuates because the purchase price set by collectors adjusts to the price determined by buyers. This situation results in inconsistent income for business operators and can affect their profit margins.

In operating a patchouli oil distillation business, calculating production costs is a critical aspect for determining profit margins and the business's sustainability. Identifying fixed costs, variable costs, total production costs, revenue, and income is necessary to assess the business's financial condition. In addition, the selling price and production volume are factors that directly influence business revenue. Therefore, a financial feasibility analysis is necessary to determine whether the patchouli oil distillation business in Putemata Village is profitable and worth developing.

A study on the feasibility of the patchouli oil business was conducted by Ahmad et al. (2023) in Kluet Tengah Subdistrict, South Aceh Regency. The results showed that the patchouli oil business is viable, with *an R/C ratio* of 1.40 and an average annual revenue of Rp4,140,614. Research by Destria et al. (2022) in Tampak Kurra Village, Tabulahan Subdistrict, Mamasa Regency also showed that the patchouli farming business is viable for development, with a *R/C ratio* of 1.3, average total production costs of Rp2,473,555, revenue of Rp3,426,000, and net income of Rp952,445.

Although previous studies have shown that patchouli businesses hold promising prospects, conditions in each region vary in terms of production costs, raw material prices, production volume, and selling prices. Therefore, the findings of the study by from other regions cannot directly reflect the conditions of the patchouli oil distillation business in Putemata Village, East Kolaka Regency. Given these conditions, it is important to conduct a study analyzing the revenue and feasibility of the patchouli oil distillation business in Putemata Village to determine the production costs, receipts, revenue, and the business's financial viability. The study's findings are expected to serve as a basis for business operators to develop the patchouli oil distillation business sustainably and to provide information for farmers and relevant parties regarding the development of the patchouli commodity in East Kolaka Regency.

METHOD

This study was conducted in Putemata Village, Ladongi Subdistrict, East Kolaka Regency, in November 2025. The research location was selected through *purposive* sampling, considering that there is a patchouli oil distillation business that is still actively producing and has been operating for more than four years.

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The study population consisted of all patchouli oil distillation businesses in Putemata Village, totaling one business unit. Since the population consisted of only one business unit, the entire population served as the respondents. The respondents in this study were owners of patchouli oil distillation businesses who met the criteria: the business was still active, located in Putemata Village, operated a patchouli oil distillation facility, and had been in operation for more than four years.

The data used consists of primary and secondary data. Primary data was obtained through direct interviews with business owners using a questionnaire, covering production data, selling prices, fixed costs, variable costs, and business revenue. Secondary data was obtained from the East Kolaka Regency Central Statistics Agency, the East Kolaka Regency Agriculture Office, as well as relevant literature and previous research. Data collection was conducted through observation, interviews, and documentation.

Quantitative descriptive analysis was performed to determine the profitability and feasibility of the patchouli oil distillation business. Business profit was calculated based on the difference between total revenue and total production costs (Ina & Hutar, 2022), using the formula:

$$\pi = TR - TC$$

Explanation:

π = business profit (Rp/month);

TR = total revenue (Rp/month);

TC = total production costs (Rp/month).

Total revenue is calculated based on the quantity produced multiplied by the selling price (Boediono, 2002), namely:

$$TR = Y \times Py$$

Explanation:

Y = quantity of patchouli oil produced (kg/month);

Py = selling price of patchouli oil (Rp/kg).

Total production costs are the sum of fixed costs and variable costs (Suratiyah, 2015), calculated using the formula:

$$TC = TFC + TVC$$

Explanation:

TFC = total fixed costs (Rp/month);

TVC = total variable costs (Rp/month).

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Equipment depreciation is calculated using the straight-line method (Carter, 2009), as follows:

Depreciation = (Initial Value − Residual Value) / Economic Life

Next, the feasibility of the business is analyzed using *the Revenue-to-Cost Ratio* (R/C Ratio), which is the ratio of total revenue to total production costs. The formula used is:

R/C = TR / TC

The criteria for business feasibility are: (1) R/C > 1 means the business is feasible and profitable; (2) R/C = 1 means the business is at the break-even point; and (3) R/C < 1 means the business is not feasible.

RESULTS AND DISCUSSION

The patchouli oil distillation business in Putemata Village, Ladongi Subdistrict, East Kolaka Regency is a sole proprietorship engaged in processing patchouli plants into patchouli oil. The business, named Utari Nilam, was founded by I Made Kariyana in 2018 and remains in operation to this day. The business is situated on a 625 m² plot of land behind the owner's house, located in the center of the Putemata Village residential area. The business location is accessible by both two-wheeled and four-wheeled vehicles via a village road.

Utari Nilam employs four workers in its production activities. The production process takes place twice a day—in the morning and at night—using a shift system. The business's main product is patchouli oil, which is then sold to PT Van Aroma in Kolaka Regency. The sustainability of the business and these production activities form the basis for analyzing production costs, revenue, income, and the feasibility of the patchouli oil distillation business in Putemata Village.

Patchouli Oil Production

Patchouli oil production involves processing dried patchouli raw materials through a distillation process. Based on the research findings, the patchouli oil distillation business in Putemata Village conducted 40 production runs during November 2025. Each process used 630 kg of dried patchouli and produced between 12 and 14 kg of patchouli oil. In total, 25,200 kg of raw material was used, yielding 512 kg of patchouli oil in one month.

Table 1. Patchouli Oil Production in Putemata Village, November 2025

Description	Amount
Production Frequency	40 times/month
Raw Material	25,200 kg/month

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Average raw materials per process	630 kg
Total patchouli oil production	512 kg/month
Average production per process	12.8 kg

The distillation process is carried out by two workers per batch, with each distillation lasting approximately 8–12 hours. With four workers operating in shifts, production can be carried out up to twice within a 24-hour period. Some of the equipment used consists of conventional distillation stills. The use of this equipment results in a relatively long distillation process, particularly during the heating and cooling stages. This condition is one of the aspects that needs to be addressed in efforts to improve production efficiency.

Production Costs

Production costs consist of all expenditures incurred to produce patchouli oil during a single production period. In this study, production costs comprise fixed costs and variable costs. Fixed costs consist of equipment depreciation, while variable costs include raw materials, labor, firewood, electricity, cigarette paper, and gasoline.

1. **Fixed Costs**

Fixed costs in the patchouli oil distillation business primarily stem from the depreciation of equipment used in the production process. Based on the study's findings, the investment value of the equipment used is Rp252,450,000, with a total monthly depreciation cost of Rp3,076,785.

Table 2. Fixed Costs of the Patchouli Oil Distillation Business

Component	Amount (Rp/month)
Distillation boiler	1,071,428
Furnace	89,285
Scale	29,761
Cars	1,785,714
Water pumps	8,928
Oil hydrometer	8,333
Nylon Filter Mesh	83,333
Total Depreciation	3,076,785

Table 2 shows that the largest depreciation comes from the car, at Rp1,785,714 per month, while the smallest depreciation comes from *the* oil *hydrometer*, at Rp8,333 per month.

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The high depreciation of the car is due to its relatively high investment value compared to other equipment. The total fixed costs of Rp3,076,785 per month are then used in the calculation of total production costs.

2. Variable Costs

Variable costs are costs that change in accordance with production activity. In the patchouli oil distillation business, variable costs consist of raw materials, labor wages, firewood, electricity, cigarette paper, and gasoline.

Table 3. Variable Costs of a Patchouli Oil Distillation Business

Cost Components	Cost (Rp/month)
Patchouli Raw Materials	151,200,000
Labor wages	10,000,000
Firewood	12,000,000
Electricity	428,000
Cigarette paper	12,000
Gasoline	2,000,000
Total	175,640,000

Total variable costs incurred during November 2025 amounted to Rp175,640,000. The largest component was the cost of patchouli raw materials, totaling Rp151,200,000, or approximately 86.1% of total variable costs. The significant proportion of raw material costs indicates that the business's sustainability is heavily influenced by the price and availability of patchouli as the primary production material. The next largest variable costs were firewood at Rp12,000,000 and labor wages at Rp10,000,000.

3. Total Production Costs

Total production costs are the sum of fixed and variable costs incurred over the course of one month. The results of the study show that the total production costs for the patchouli oil distillation business in Putemata Village amount to Rp178,716,785 per month.

Table 4. Total Production Costs of the Patchouli Oil Distillation Business

Cost Type	Amount (Rp/month)
Fixed Costs	3,076,785
Variable Costs	175,640,000
Total production costs	178,716,785

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This total cost is derived from the sum of fixed costs of Rp3,076,785 and variable costs of Rp175,640,000. Variable costs account for the largest portion of total production costs, at approximately 98.3%. This indicates that the business's cost structure is largely influenced by expenses directly related to production activities, particularly the purchase of patchouli raw materials.

Revenue from the Patchouli Oil Distillation Business

Business revenue is calculated by multiplying the production volume by the selling price of patchouli oil. In November 2025, the patchouli oil distillation business produced 512 kg of patchouli oil at a selling price of Rp500,000/kg. Consequently, the revenue generated amounted to Rp256,000,000 per month.

Table 5. Revenue from the Patchouli Oil Distillation Business

Description	Value
Patchouli oil production	512 kg/month
Selling price	Rp500,000/kg
Total revenue	Rp256,000,000/month

These revenues indicate that production volume and selling price are the primary factors determining business revenue. The price of patchouli oil received by business operators fluctuates as it adjusts to the prices offered by buyers. This situation means that business revenue may vary from one production period to the next. The patchouli oil produced is sold to PT Van Aroma in Kolaka Regency.

Revenue from Patchouli Oil Distillation

Business revenue or profit is derived from the difference between total revenue and total production costs. Based on the research findings, business revenue for November 2025 amounted to Rp256,000,000, while total production costs amounted to Rp178,716,785. Thus, the profit earned was Rp77,283,215 per month.

Table 6. Revenue from the Patchouli Oil Distillation Business

Description	Amount (Rp/month)
Total Revenue	256,000,000
Total production costs	178,716,785
Profit	77,283,215

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A profit of Rp77,283,215 indicates that the business's revenue is sufficient to cover all production costs incurred. The amount of profit is also influenced by the production level and the selling price of patchouli oil. With a production of 512 kg and a selling price of Rp500,000/kg, the business generates revenue that exceeds its total production costs.

Feasibility of the Patchouli Oil Distillation Business

Business feasibility was analyzed using *the Revenue-to-Cost Ratio* (R/C Ratio), which is the ratio of total revenue to total production costs. Based on the calculations, the R/C Ratio for the patchouli oil distillation business in Putemata Village is 1.43.

Table 7. Feasibility Analysis of the Patchouli Oil Distillation Business

Description	Value
Total Revenue (Rp)	256,000,000
Total costs (Rp)	178,716,785
R/C Ratio	1.43

An R/C ratio of 1.43 indicates that the patchouli oil distillation business in Putemata Village **is viable** because it has an R/C ratio greater than 1. This means that for every Rp1.00 in costs incurred, revenue of Rp1.43 is generated, resulting in a revenue surplus of Rp0.43. These results show that the business is capable of generating a financial profit under the prevailing production and price conditions during the study period.

The results of this study are consistent with the research by Ahmad et al. (2023) in Kluet Tengah Subdistrict, South Aceh Regency, which yielded an R/C ratio of 1.40, as well as the research by Destria et al. (2022) in Tampak Kurra Village, Mamasa Regency, with an R/C ratio of 1.30. These similar results indicate that the patchouli business has economic potential and can be profitable if production costs and sales revenue are managed efficiently. The R/C ratio for the business in Putemata Village, which is slightly higher than in the two aforementioned studies, indicates that the distillation business under study was able to generate relatively higher revenue compared to the costs incurred during the study period.

CONCLUSION

Based on the research results, the Utari Nilam patchouli oil distillation business in Putemata Village, Ladongi Subdistrict, East Kolaka Regency, generated revenue of

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Rp256,000,000 with total production costs of Rp178,716,785, resulting in a profit of Rp77,283,215 in November 2025.

An R/C ratio of 1.43 indicates that this patchouli oil distillation business is viable and worth developing, as the R/C ratio is greater than 1. This means that for every Rp1.00 in costs incurred, revenue of Rp1.43 is generated.

Business owners are advised to strengthen their cooperation with patchouli farmers or collectors to ensure the availability of raw materials and secure more stable raw material prices. The government is expected to support business development by improving facilities and infrastructure that support patchouli oil production and distribution. Future researchers can expand this study by analyzing business profits and feasibility on an annual basis and covering a broader research area.

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