GENERAL

bab ii tinjauan pustaka 2 1 tanaman sereh wangi 2 1 1

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Introduction

In the realm of botanical research, the literature review is often the cornerstone that connects past discoveries to future innovations. It serves as a bridge between what is known and what remains to be explored. For students, scholars, and practitioners working on the **bab ii tinjauan pustaka 2 1 tanaman sereh wangi 2 1 1**—the second chapter of a thesis or dissertation focused on lemongrass (Cymbopogon citratus)—the literature review must be comprehensive, well-structured, and engaging. This article guides you through crafting a robust literature review that not only satisfies academic rigor but also reads naturally for human audiences.

Chapter II: Tinjauan Pustaka (Literature Review)

Chapter II, commonly titled “Tinjauan Pustaka” in Indonesian academic writing, is where you contextualize your research within the existing body of knowledge. It should:

- Summarize key findings from previous studies.
- Identify gaps or inconsistencies that your research intends to address.
- Establish theoretical frameworks or hypotheses.
- Provide a logical flow that leads readers to your research questions.

When writing this chapter, keep in mind that your audience may range from seasoned researchers to students new to the field. Clarity, coherence, and a conversational tone will help maintain reader engagement.

Structure of Chapter II

1. Background and Rationale – Briefly introduce the broader topic and justify why it matters.
2. Literature Themes – Organize the review around major themes or subtopics.
3. Critical Analysis – Discuss strengths, limitations, and contradictions in the literature.
4. Research Gap – Highlight what is missing and how your study will fill the void.
5. Conclusion – Summarize key insights and set the stage for the next chapter.

For a thesis focusing on lemongrass, the literature review will naturally revolve around its botanical characteristics, phytochemical profile, traditional uses, pharmacological potential, cultivation methods, and commercial applications.

Section 2.1: Tanaman Sereh Wangi (Lemongrass)

Lemongrass, locally known as “sereh wangi,” is a perennial herb widely cultivated in tropical and subtropical regions. Its aromatic leaves, rich in citral, have made it a staple in culinary, medicinal, and industrial contexts. The sub-section **2.1.1** delves into the phytochemical composition that underpins many of these applications.

2.1.1 Phytochemical Composition

The therapeutic and aromatic qualities of lemongrass are largely attributed to its essential oil, which contains a complex mixture of volatile compounds. Key constituents include:

- Citral (geranial + neral) – The dominant component, responsible for the lemon-like aroma and antimicrobial activity.
- Limonene – Contributes to the citrus scent and exhibits anti-inflammatory properties.

- Geraniol – Known for its soothing fragrance and antioxidant effects.
- Myrcene – Adds to the herb's analgesic potential.
- Other minor compounds – Such as linalool, ; × –æVæP, and ;"Ö6 yophyllene, which enhance the overall bioactivity.

Modern analytical techniques, including gas chromatography-mass spectrometry (GC-MS), have refined our understanding of these constituents, revealing variations based on geographic origin, cultivation practices, and extraction methods.

Traditional Uses of Tanaman Sereh Wangi

Historically, lemongrass has been employed across cultures for a multitude of purposes:

- Culinary Applications – Used as a flavoring agent in soups, curries, and teas.
- Medicinal Practices – Employed in traditional medicine to treat digestive disorders, fevers, and infections.
- Household Remedies – Utilized for insect repellent, cleaning agents, and aromatherapy.

These traditional uses provide a valuable starting point for modern scientific investigations, often guiding hypotheses about specific bioactive compounds.

Pharmacological Properties

Contemporary research has substantiated many of the traditional claims, highlighting lemongrass's multifaceted pharmacological profile:

1. Antimicrobial Activity – Citral exhibits strong antibacterial effects against Gram-positive and Gram-negative bacteria, including E. coli and S. aureus.
2. Antioxidant Capacity – Geraniol and other monoterpenes neutralize free radicals, reducing oxidative stress.
3. Anti-inflammatory Effects – Compounds like limonene inhibit pro-inflammatory cytokines, offering potential in treating inflammatory conditions.
4. Anticancer Potential – Preliminary studies indicate that lemongrass extracts can induce apoptosis in certain cancer cell lines.
5. Neuroprotective Actions – Some research suggests protective effects against neurodegenerative diseases.

While these findings are promising, many studies remain in vitro or involve animal models, underscoring the need for further human trials.

Agricultural Practices and Cultivation

Optimizing lemongrass yield and quality is essential for both small-scale farmers and large-scale producers. Key agronomic factors include:

- Soil Requirements – Well-drained, loamy soils with a pH of 6.0–6.5 support optimal growth.
- Planting Density – Spacing of 30–45 cm between plants balances light exposure and root competition.
- Irrigation – Adequate moisture is crucial during the early growth stage; however, excessive water can dilute essential oil concentration.
- Fertilization – Balanced NPK regimes, supplemented with micronutrients like zinc and manganese, enhance oil yield.
- Pest Management – Natural predators and organic pesticides reduce reliance on chemicals.

Research into genetic improvement and breeding programs aims to develop varieties with higher essential oil content and disease resistance.

Industrial Applications

Beyond traditional uses, lemongrass's essential oil has found a place in modern industries:

- Food Preservation – Its antimicrobial properties make it a natural preservative in processed foods.
- Pharmaceutical Formulations – Incorporated into ointments, lotions, and oral preparations for its therapeutic effects.
- Cosmetics – Used in soaps, shampoos, and fragrances for its pleasant scent and skin benefits.
- Biofuel Production – Emerging studies explore the conversion of lemongrass biomass into bioethanol.

These applications highlight the economic potential of lemongrass and justify continued investment in research and development.

Gaps in Current Research

Despite extensive literature, several critical gaps persist:

- Limited human clinical trials to confirm pharmacological efficacy.
- Insufficient data on the long-term safety of high-dose essential oil consumption.
- Variability in essential oil composition across different cultivars and environmental conditions.
- Need for standardized extraction and purification protocols to ensure reproducibility.
- Underexplored potential for sustainable cultivation practices in marginal lands.

Addressing these gaps will not only enhance scientific understanding but also improve the commercial viability of lemongrass products.

Conclusion

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