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## **Antimicrobial Activity of *Pandanus Amaryllifolius* (Roxb.) Methanol Extract and Its Phytochemical Properties.**

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### **Structured Abstract**

**Background:** This study investigates the antimicrobial and phytochemical attributes of *Pandanus amaryllifolius* methanol extract. Beginning with leaf processing and methanol extraction, it undergoes phytochemical screening and antimicrobial testing. Gas chromatography-mass spectrometry analyses constituents. Anticipated outcomes involve confirming antimicrobial efficacy, discovering potential agents, and identifying active compounds for novel antimicrobial development. Validating traditional uses supports traditional medicine, promoting sustainable healthcare practices. The research aims to fill scientific knowledge gaps for future medicinal applications of *P. amaryllifolius*.

### **Methods:**

The study on *Pandanus amaryllifolius* follows a systematic approach, commencing with meticulous plant collection and thorough preparation. Extraction yields *Pandanus amaryllifolius* methanol extract (PAME), followed by partitioning to isolate specific components. Comprehensive phytochemical screening and identification precede antimicrobial activity assessment, incorporating the Kirby-Bauer method and biochemical tests. Statistical analysis ensures meaningful conclusions, enabling a comprehensive exploration of *Pandanus amaryllifolius*'s botanical, chemical, and therapeutic aspects.

**Results:** The phytochemical screening of *Pandanus amaryllifolius* methanol extract (PAME) indicates the presence of phenolic compounds and saponins, aligned with potential antioxidant and antimicrobial properties. GC-MS analysis identifies Phytol and n-Hexadecanoic acid as major compounds. Bacteria identification reveals gram-positive characteristics. Catalase tests confirm positive results for all tested bacteria. However, the disc diffusion assay suggests limited antimicrobial activity at lower concentrations, possibly influenced by suboptimal levels or inherent bacterial resistance.

**Conclusion.** The methanol extract of *Pandanus amaryllifolius* demonstrated limited antimicrobial activity against pathogenic bacteria, with no dose-dependent inhibition observed. Phytochemical profiling identified 34 compounds, none proven to be key antimicrobial agents, requiring further research to understand their mechanisms and effectiveness.

**Keywords:** *Pandanus amaryllifolius*, phytochemical, *Pandanus amaryllifolius* methanol extract (PAME)

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