

The Uniqueness and Diversity of Plants Used as Medicine in Puncak Alam UCS Forest, Selangor

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Structured Abstract

Background: Humans have looked to natural medicinal plants for their health benefits throughout history. When using medicinal herbs, people relied mostly on intuition and experience. With the recognition of these plants' medicinal properties over time, a more comprehensive empirical framework was developed. In addition to current healthcare practices, medicinal herbs are essential for preventing disease. A study to investigate the roles and contributions of these medicinal plants in addressing public health issues was conducted. The benefit of traditional knowledge that requires its proper identification and incorporation into contemporary activities were maximised.

Methods: This study used a systematic approach to investigate the properties and diversity of medicinal plants in Puncak Alam UCS Forest, Selangor. Five transects covered 1.25 ha, each measuring 50 m × 50 m, that were thoroughly surveyed. The identification process was aided by using advanced tools including machine learning algorithms, Google Images, and applications for plant identification. Cross-referencing with reference books and botanical experts verified the accuracy of these tools. The distribution and abundance of species were assessed using biodiversity indices, such as the Shannon-Wiener index (H'), Simpson's diversity index (SDI), and Evenness (E).

Results: Several medicinal plants were identified during the study using cutting-edge identification technology. The study identified 16 kinds of medicinal plants in the Puncak Alam UCS Forest, with *Melastoma malabathricum* and *Miconia crenata* emerging as the most common species, highlighting their adaptability and significance in traditional medicine. Significant diversity was indicated by the biodiversity indices, which ranged from 0.334 to 1.470 for H', from 0.139 to 0.740 for D, and from 0.241 to 0.914 for E. The reliability of the identification instruments was validated through cross-validation with botanists, establishing essential baseline data for the next research.

Conclusion: In conclusion, the study highlights how cutting-edge technology may improve botanical knowledge efficiently by identifying important medicinal plants found in the Puncak Alam UCS Forest, Selangor. It emphasises the possibility of combining modern technology with traditional botanical knowledge and the importance of preserving ethical principles and cultural heritage when incorporating traditional knowledge into contemporary practices.

Keywords: Medicinal plants, Plant identification technologies, Biodiversity assessment, Puncak Alam UCS Forest

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