

Liberica Coffee Exploration: A Promising Coffee for The Future?

Wenny Bektı Sunarharum¹, Tunjung Mahatmanto¹, Luchman Hakim², Agnes Da Lourdes¹, Inessa Salsabila Barlian¹, Annisa Aurora Kartika¹
¹Department of Food Science and Biotechnology, Universitas Brawijaya, Indonesia, ²Department of Biology, Universitas Brawijaya, Indonesia

Introduction

Global coffee production is declining, mostly due to the environmental pressures that arise from climate change. This decline has led to a significant increase in coffee prices, particularly arabica (*Coffea arabica*) and robusta (*Coffea canephora*), in the last decade [1] and has prompted efforts to seek for alternative species such as *Coffea liberica* [2]. From an ecological perspective, liberica coffee plants are attractive because they are more resistant to climate change and can support agroforestry systems [3]. In Indonesia, this coffee is cultivated in several areas, including the Ijen Banyuwangi Geopark Area, East Java, Indonesia. We seek to explore the potential of liberica coffee for supporting the production of high quality coffee as an alternative to arabica and robusta.

Method

This study explored liberica coffee farms in the Banyuwangi Geopark Area, East Java, through field observation and laboratory analyses. Green liberica coffee beans (naturally processed, harvested in 2021) from six farms were sampled, medium-roasted, and analysed to determine their physical and chemical properties. The sensory profiles of the roasted beans were analysed using the Specialty Coffee Association (SCA) cupping test and the descriptive method.

Conclusion

Liberica coffee has the potential to be developed not only because of its higher resistance to climate change but also because of its unique properties. Although liberica coffee might not as flavorful as that of arabica, its quality can be improved to meet the standards of specialty coffee. We are currently developing processing techniques to unleash the unique sensory profiles of liberica coffee. We believe that liberica coffee holds promise for the future of the coffee industry. Further research and collaboration will be crucial to unlock its full potential.

References:

1. ICO, 2022. Coffee Market Report October 2022. [www.ico.org](https://www.ico.org/documents/cy2022-23/cmr-1022-e.pdf). <https://www.ico.org/documents/cy2022-23/cmr-1022-e.pdf>
2. Davis, et al. 2022. The re-emergence of Liberica coffee as a major crop plant. *Nature Plants*, vol 8: Dec 2022, pp.1322-1328.
3. Hakim, L. 2021. *Coffee Agroforestry: Encouraging Biological Parks and Coffee Tourism* (in Bahasa Indonesia), MNC Publisher. Indonesia



Figure 1: Liberica coffee farm



Figure 2: Liberica cherries

Results

Liberica coffee farms in Banyuwangi employ an inter-cropping system (non mono-culture) where coffee plants are planted under the shade of trees and shrubs so that they have fairly high biodiversity. The liberica coffee plants are characterised by wide leaves, with large, thick, and fleshy cherries. The green beans have an oval almond-like shape. Roasted liberica coffee beans contain ~2% moisture, 12% fat, 13% protein, 68% carbohydrates, 1.35% caffeine, and have a pH of 5. The highest cupping score was 77.5, slightly below the score for specialty coffee. However, it had remarkably complex notes: smoky, roasty, nutty, chocolate, caramel, spicy, dried fruit, jack fruit, black tea, and bitter.