

**Scientists discover the key to healthier coffee crops**

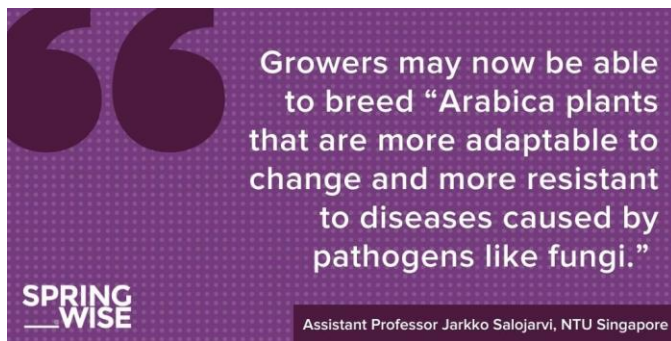
*New research could lead to coffee plants that are more resistant to fungal diseases*



*Photo source NTU Singapore*

**Spotted:** Arabica coffee dominates global markets, representing 75 per cent of coffee production worldwide. But the plant it comes from is vulnerable to coffee leaf rust, a fungal disease that is considered to be its most devastating threat. An international team, co-led by scientists at Nanyang Technological University (NTU Singapore), has made a breakthrough in safeguarding Arabica coffee by mapping its genes.

The scientists unravelled the complete genetic makeup, or genomes, of Arabica and two closely related coffee plants. This mapping enabled the team to pinpoint a novel combination of genes shared by these plants that are resistant to the disease. Advanced techniques were employed, ensuring precise DNA sequencing and detailed 3D mapping of DNA segment interactions.



The research could play a key role in cultivating more resilient coffee plants in future. Assistant Professor Jarkko Salojarvi, the research team co-leader from NTU’s School of Biological Sciences, [explained](#): “The high-quality genome sequences of the three plant species, together with the candidate genetic sequences for coffee leaf rust resistance, form the cornerstone for breeding new varieties of Arabica plants that are more adaptable to change and more resistant to diseases caused by pathogens like fungi.”

The team, including the other co-leads at Nestlé, the University of Montpellier in France and the University at Buffalo in the United States, have successfully created the most complete and advanced mapping of Arabica to date.

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**Takeaway:**

The International Coffee Organization reports that 125 million people worldwide depend on coffee for their livelihoods. However, coffee leaf rust has consistently wreaked havoc on coffee growers throughout history. From the collapse of Sri Lanka's coffee empire in the 1800s to inflicting \$1 billion (around €932 million) in economic damages in Latin America and the Caribbean between 2012 and 2014, the impact has been severe. The development of new Arabica coffee plant varieties is crucial for the industry to overcome this threat, with the recent breakthrough in gene mapping playing a pivotal role.

Written By: Georgia King

<https://springwise.com/innovation/food-drink/scientists-discover-genes-that-can-defend-coffee-plants-from-disease/>