

Coffee – and what else? Are we ready for alternatives?

Alexia N. Gloess – alexia.gloess@gmx.ch

Introduction

A perfect cup of coffee, that is why we are all investing our heart and mind in research and technology.

Today, climate change is challenging our world of coffee

Predictions: rising coffee demand of 2.5%/year¹
yield losses 0.25%/year, land area losses 0.46%/year due to climate change¹
A total of 50% reduction in suitable coffee-growing areas²



Will we be able to meet the global coffee demand?

- Shifting cultivation to higher altitudes / different places <-> EUDR³
- Sustainable coffee production / shade trees / intercropping
- Development of climate-resilient coffee varieties <-> time intensive

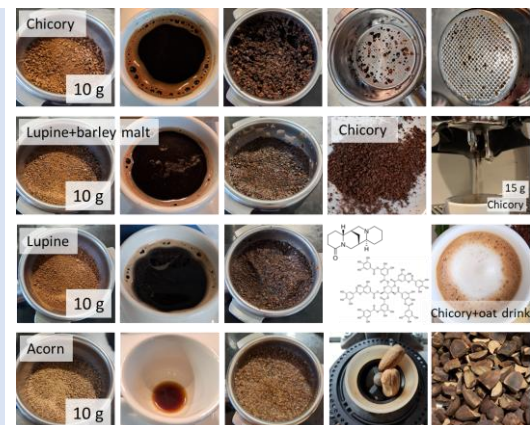
If not, what else do we drink?

Coffee alternatives and substitutes

- Expected market growth USD 17 billion/2025 to USD 23 billion/2030^{4,5}
- Fruits, seeds, cereals, roots, other plant materials; ± caffeine
- processing similar to coffee: harvest, clean, sort, dry, roast, grind, extract

Handling coffee alternatives and substitutes in household devices

- Grinding: acorns are too big
- Extraction: coarser grind size required; smaller amount of powder; swelling; pulsed extraction reduces sieve clogging
- Sensory: acorn+coffee promising; chicory with oat milk yummy; lupines with barley malt: coffee like, sweet, nutty, chocolate, well balanced
- Quality: freshness, origin, processing
- Crema: very little and not stable (due to freshness?)
- Health: might contain toxins; acorns tannic acid; lupines alkaloides



Are we ready for alternatives?

- Are we ready for a journey to innovative products of coffee substitutes and alternatives, be it ready-to-drink, encapsulated or freshly ground and freshly prepared?
- Are we ready to expand our technology, our research, towards coffee alternatives and substitutes?
- Are we ready for a specialty sector in coffee substitutes and alternatives?

References:

¹ CoffeesInnovationCrisis_WhitePaper_2023.pdf <https://worldcoffeeresearch.org/resources/coffees-innovation-crisis>

² <https://www.intracen.org/coffee-guide-resource-hub/the-world-of-coffee> ³ EUDR: Regulation (EU) 2023/1115 on deforestation-free products

⁴ Coffee Substitute Market 2025 www.360iresearch.com, Functional Coffee Market 2025 www.mordorintelligence.com

⁵ Tahmouzi, et al. 2024 Comp. Rev. Food Science & Safety, 23, e70041, Adi, et al. 2025 Trends Food Sci. & Techn., Vol 162, 105083, Salamonik 2025 International Journal of Gastronomy and Food Science 41, 101212