

# Seed Funding Global South 2023 – Project report

## Optimization of fermentation processes in local Ecuadorian products

- **Chair at the TU Berlin:** Brewing and Beverage Technology
- **Partner country/countries:** Ecuador
- **Partner institution (s):** Universidad Técnica del Norte (UTN Ecuador)
- **Development Goals (SDGs):**



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**SDG 4:** Quality Education

**SDG 12:** Responsible Consumption and Production

The northern region of Ecuador supports a number of food and beverage industries involving fermentation. Specifically, coffee, chocolate and *chicha* are produced in the region. The fermentations that are essential for the production of these products are typically spontaneous and uncontrolled. There is considerable potential to improve the efficiency of these processes, thereby increasing sustainability, consistency, and stability. The cooperation involved UTN Ecuador and TU Berlin and combined local knowledge and expertise with TU Berlin's experience and facilities.

The visit to UTN began with a warm welcome from the President of the university as well as the Biotechnology Faculty.

The subsequent day revolved around UTN Student Presentations and discussions, featuring Nubia Grijalva's research group in the Biotechnology Faculty dedicated to traditional fermented foods from Ecuador. Their work involved isolating and characterizing microorganisms from different fermented foods, evaluating their fermentative potential. Notably, they isolated around 100 strains from sugar cane, coffee, and coca-sunfo infusions.

A workshop on Industrial Microbiology included presentations by Brian Gibson and Natalia Svedlund, discussing new yeasts for beers and ongoing research on cider and the TU Berlin unit to aromatize beer or beverages with hop aromatic components, and highlighting hop-saving opportunities with such technologies.

Field trips highlighted visits to Chicha de Jora Production in Cotacachi and a Coffee Plantation in the Buenos Aires region. These excursions offered insights into traditional Chicha production processes involving corn steeping, germination, fermentation, and bottling. The visit to the

coffee plantation showcased various stages of coffee production, including harvesting, fermentation, and drying.

The discussions during the visit emphasized student mobility between TU Berlin and UTN, underscoring the ease of TU Berlin students visiting Ecuador due to minimal fees and affordable accommodation in Ibarra. Planning for a Memorandum of Understanding between the universities and agreeing on research budget allocation were identified as crucial steps.

The Chair of Brewing and Beverage Technology at TU Berlin has already contributed to research at UTN by helping to genetically identify yeast strains isolated from traditional Andean beverages. Based on this work, two collaborative research articles are being prepared for submission during 2024.

Future project proposals aim to seek funding from diverse sources. For student mobility, DAAD scholarships are targeted, while 3-year projects involving two PhD students (from Germany and Ecuador) will be proposed to DFG. These initiatives signify a commitment to fostering ongoing collaborations and advancing research endeavours between TU Berlin and UTN.