

# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Results</b>	<b>1</b>
2.1	BeerDecoded beer variety diagram	1
2.2	Heatmap of the number of reads per ITS per beer	3
2.3	Distribution of fungal Phylum in Sesotho	5
2.4	Distribution of fungal Family in Sesotho	8
2.5	Distribution of fungal Genus in Sesotho	11
2.6	A Culture-Independent Comparison of Microbial Communities of Two Maturing Craft Beers Styles	14

## Comparison of Results

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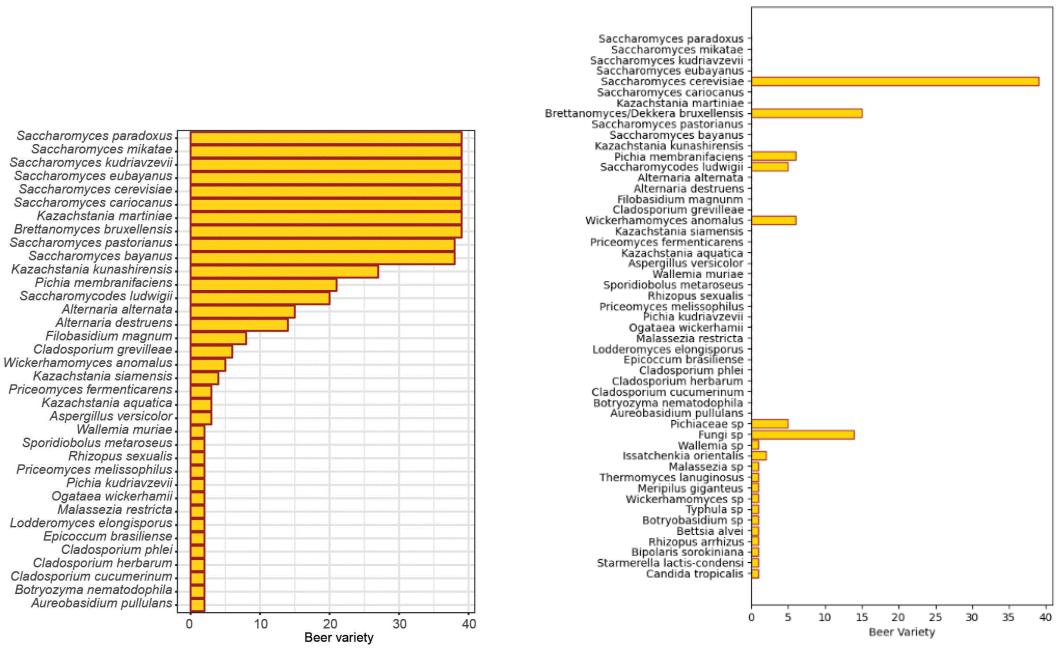
# 1 Introduction

This document compares the results from Yedil's Master's thesis with the newly analyzed results. The goal is to assess the reproducibility and consistency of the results.

# 2 Results

## 2.1 BeerDecoded beer variety diagram

Comparison of BeerDecoded beer variety diagram between the original thesis, reproduced results, and the new results.



(a) Thesis Original Results

(b) Thesis Reproduced Results

Figure 1: BeerDecoded beer variety diagram

The figures present data regarding the quantity of beers associated with each species identified in both the original and reproduced results. For clarity, the figure depicting the reproduced results on the right retains the species order as presented in the original figure. This arrangement aids in a more transparent comparison between the two sets of results.

## Comparison of Results

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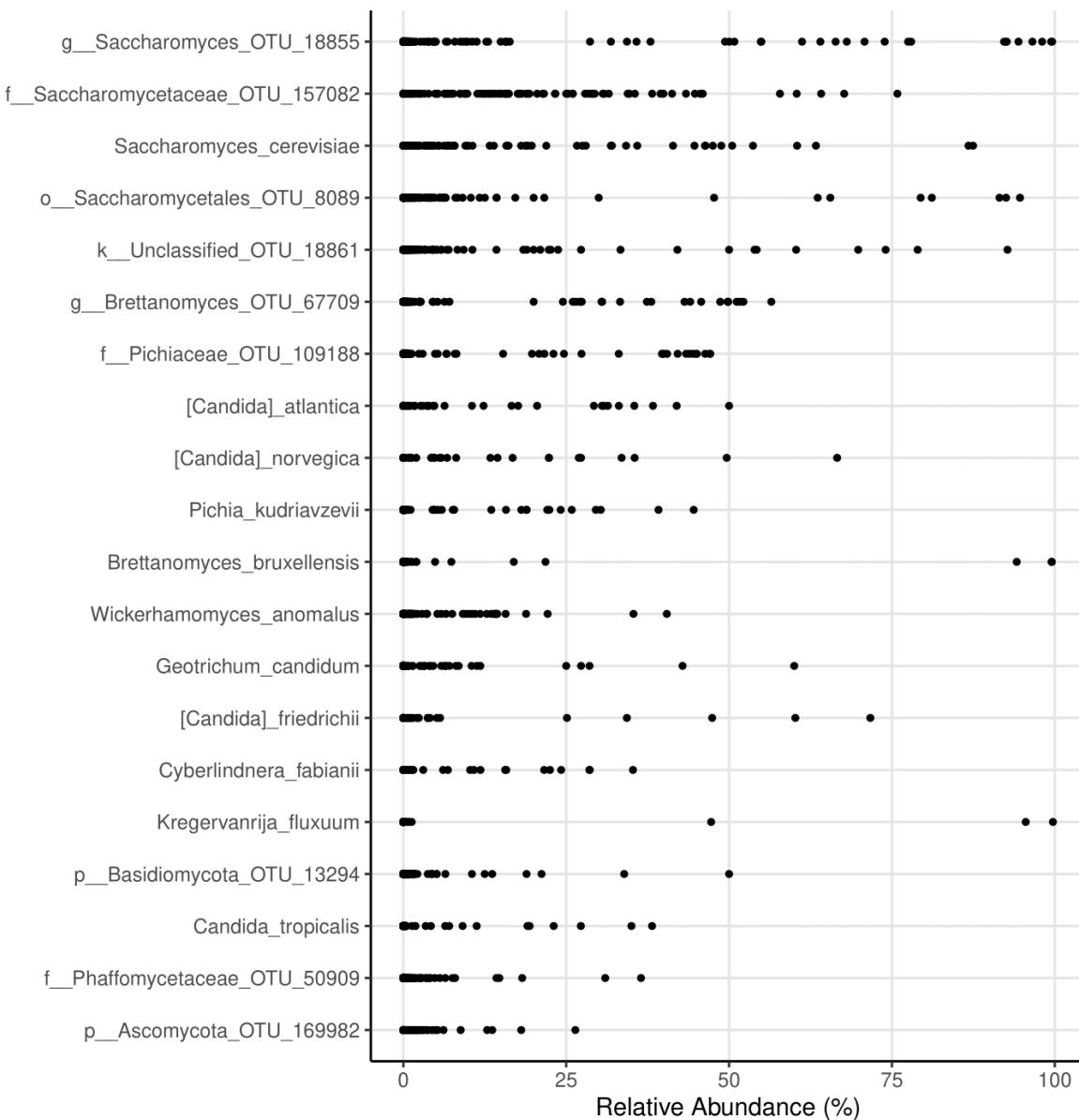


Figure 2: New Results (OTU\_ITs\_UNITE)

Relative abundance of fungal taxa in different beer samples. Each dot represents the relative abundance of a specific taxon in a particular sample. The x-axis shows the percentage of relative abundance, while the y-axis lists the identified fungal taxa. This plot highlights the diversity and distribution of fungi across the beer samples

## Comparison of Results

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### 2.2 Heatmap of the number of reads per ITS per beer

Comparison of heatmap of the number of reads per ITS per beer between the original thesis, reproduced results, and the new results

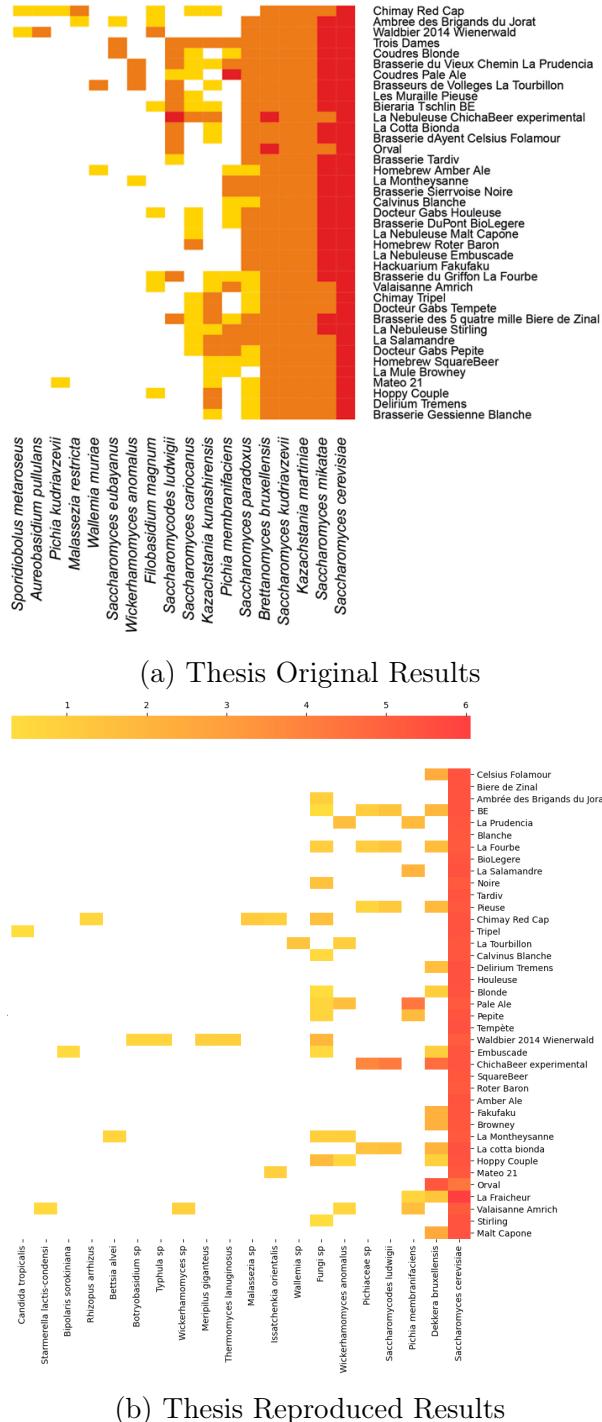


Figure 3: Heatmap of the number of reads per ITS per beer

Beer names are shown on the right and species names are shown at the bottom.

## Comparison of Results

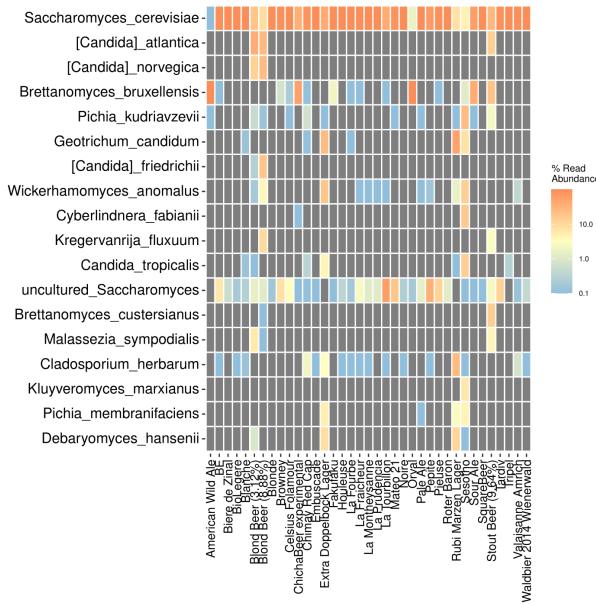


Figure 4: New Results (OTU\_ITS\_UNITE)

Heatmap of the relative abundance of fungal species across different beer samples. The x-axis represents various beer samples, while the y-axis lists the fungal species identified.

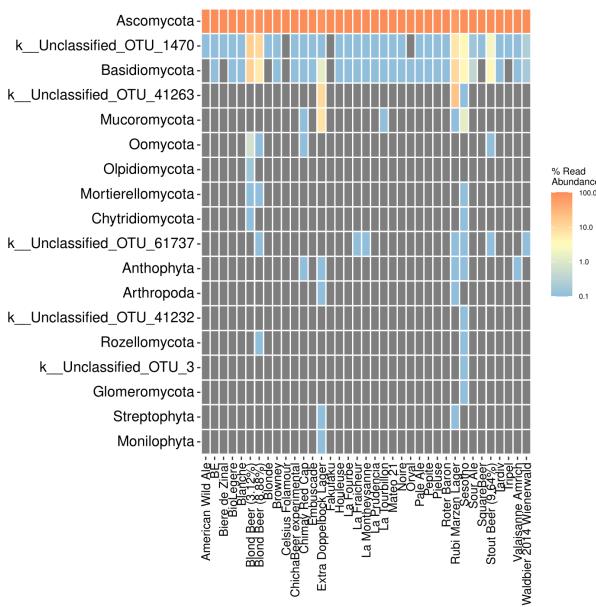


Figure 5: New Results (OTU\_ITSonedb)

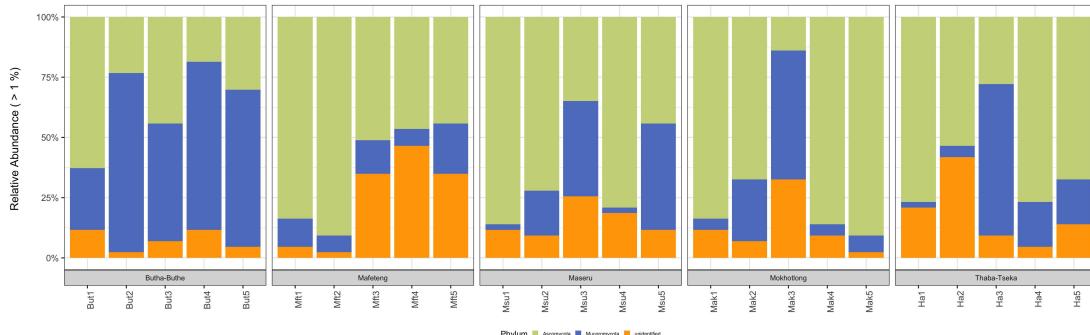
Heatmap of the relative abundance of fungal species across different beer samples. The x-axis represents various beer samples, while the y-axis lists the fungal species identified.

## Comparison of Results

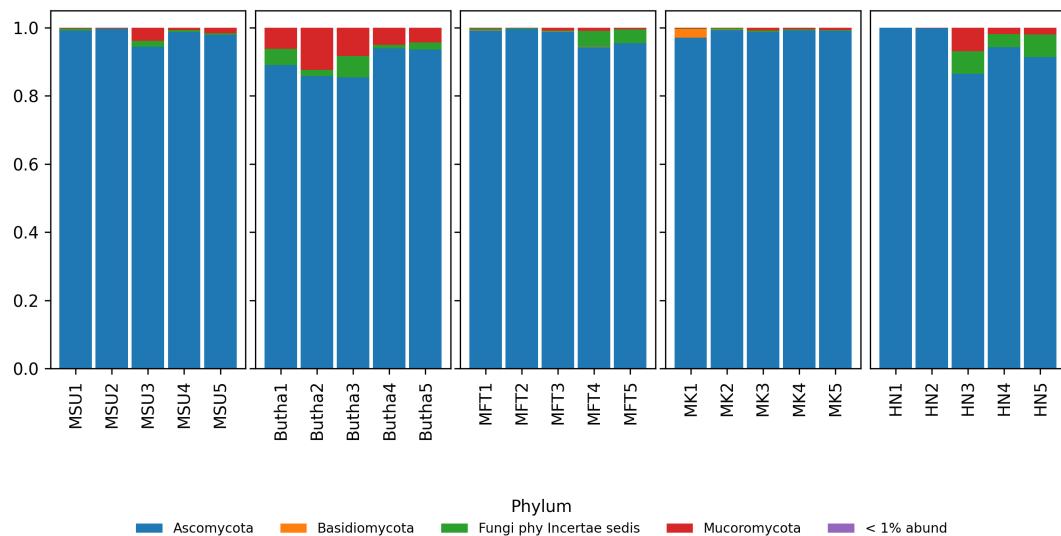
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### 2.3 Distribution of fungal Phylum in Sesotho

Comparison of the distribution of fungal Phylum in Sesotho between the original thesis, reproduced results, and the new results.



(a) Thesis Original Results



(b) Thesis Reproduced Results

Figure 6: Distribution of fungal Phylum in Sesotho

In the graphical representation, the x-axis delineates the various breweries, labeled as Maseru (MSU), Mafeteng (MFT), Thaba-Tseka (HN), Butha-Buthe (Butha), and Mokhotlong (MK). To illustrate, the label "MK1" denotes a sample sourced from Mokhotlong during the first stage of fermentation. The fungal phyla Ascomycota and Mucoromycota emerged as the predominant groups in the study. Notably, Ascomycota displayed a higher dominance in the reproduced results compared to the original findings.

## Comparison of Results

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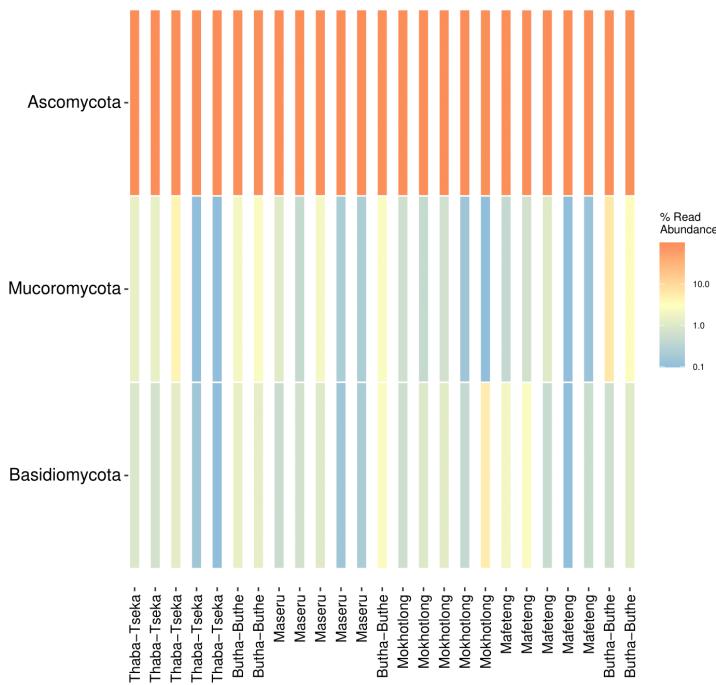


Figure 7: New Results (OTU\_ITS\_UNITE)

Heatmap of the relative abundance of fungal phyla across different locations. The x-axis represents various locations, while the y-axis lists the fungal phyla identified.

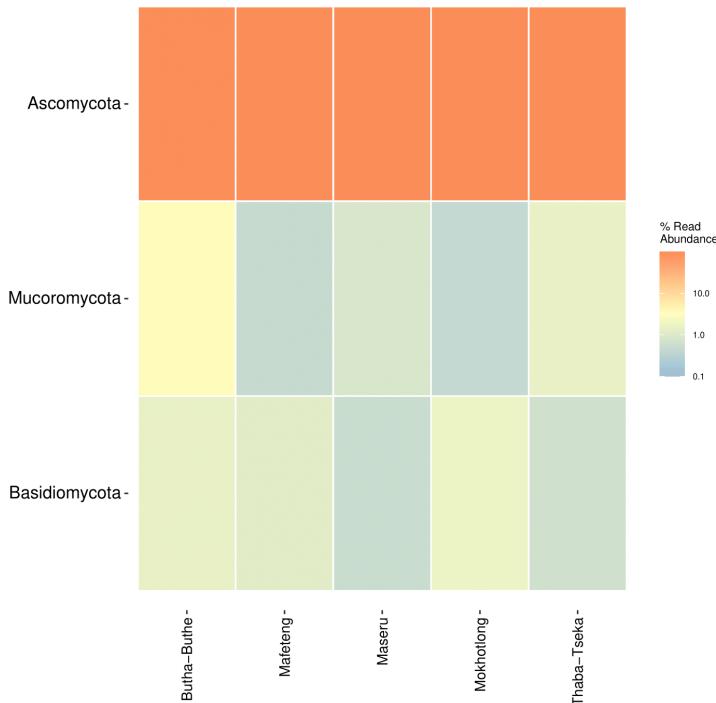


Figure 8: New Results v2 (OTU\_ITS\_UNITE)  
samples of the respective breweries summarized

## Comparison of Results

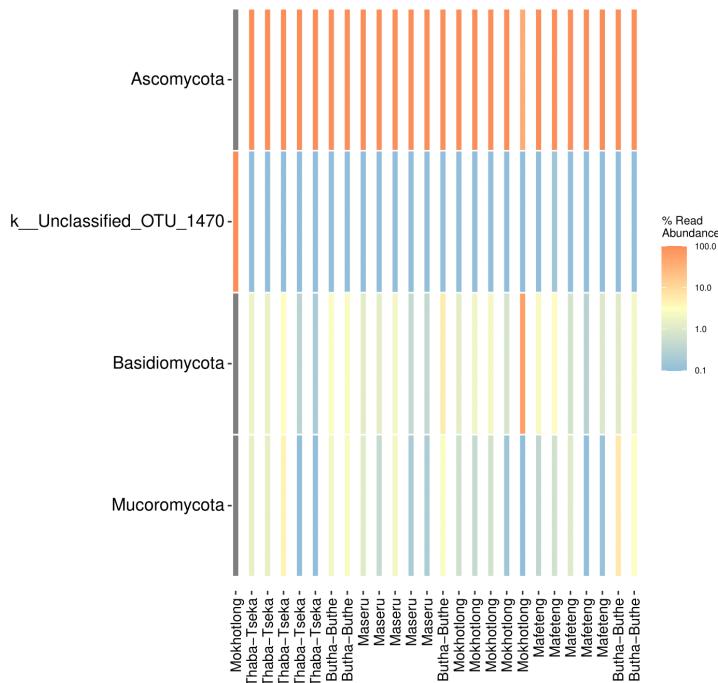


Figure 9: New Results (OTU\_ITSonedb)

Heatmap of the relative abundance of fungal phyla across different locations. The x-axis represents various locations, while the y-axis lists the fungal phyla identified.

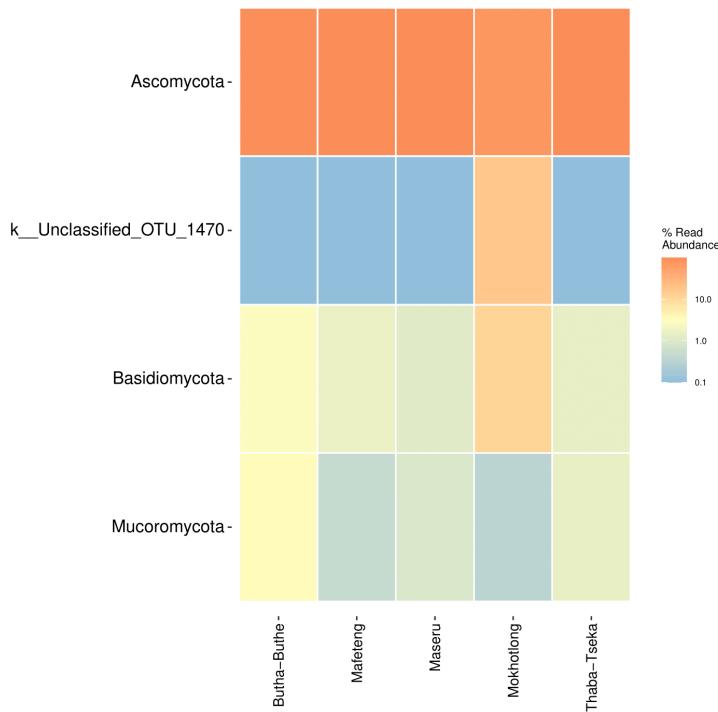


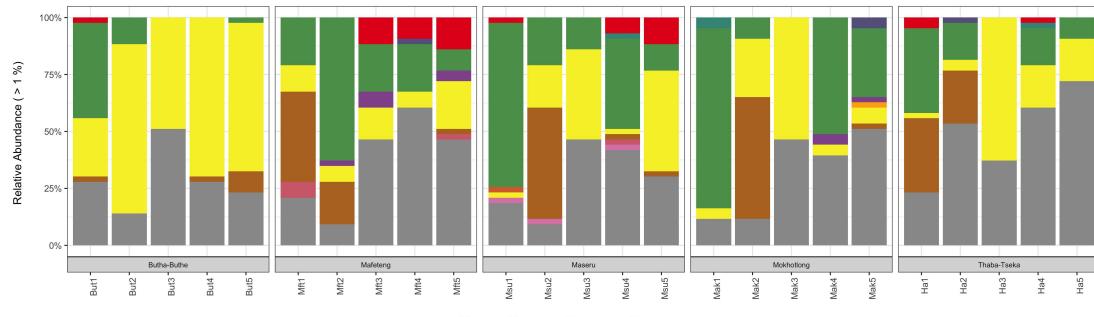
Figure 10: New Results v2 (OTU\_ITSonedb) samples of the respective breweries summarized

## Comparison of Results

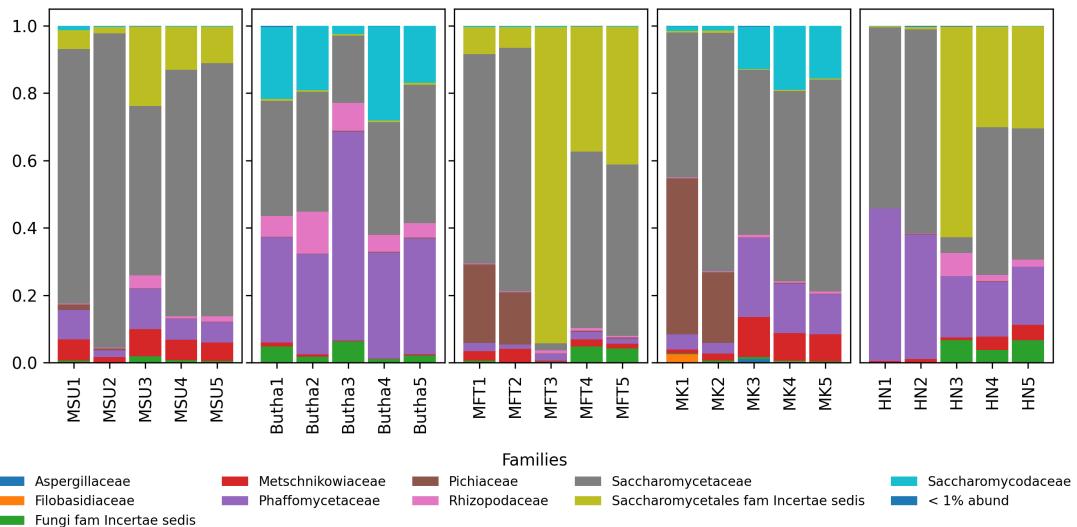
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### 2.4 Distribution of fungal Family in Sesotho

Comparison of the distribution of fungal Family in Sesotho between the original thesis, reproduced results, and the new results.



(a) Thesis Original Results



(b) Thesis Reproduced Results

Figure 11: Distribution of fungal Family in Sesotho

In alignment with the original findings, the reproduced data also identified the presence of Phaffomycetaceae and Pichiaceae.

## Comparison of Results

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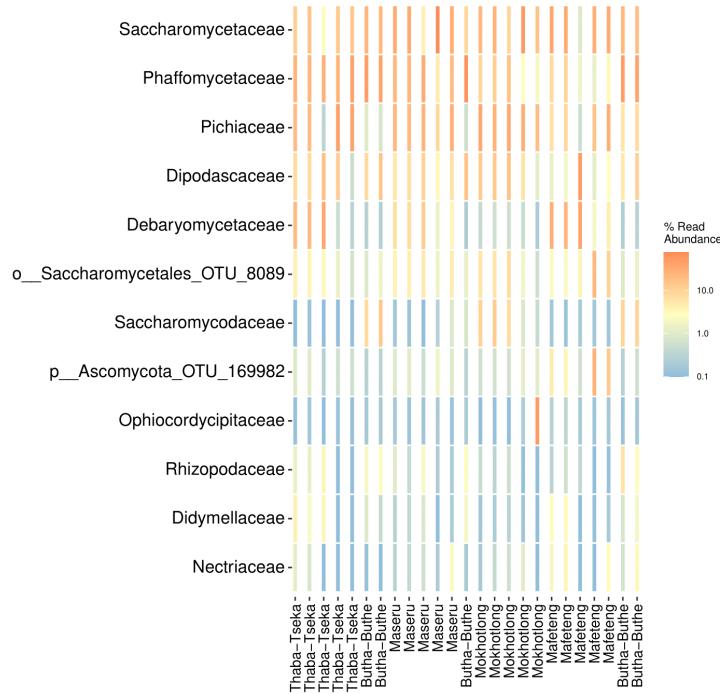


Figure 12: New Results (OTU\_ITS\_UNITE)

Heatmap of the relative abundance of fungal families across different locations. The x-axis represents various locations, while the y-axis lists the fungal families identified.

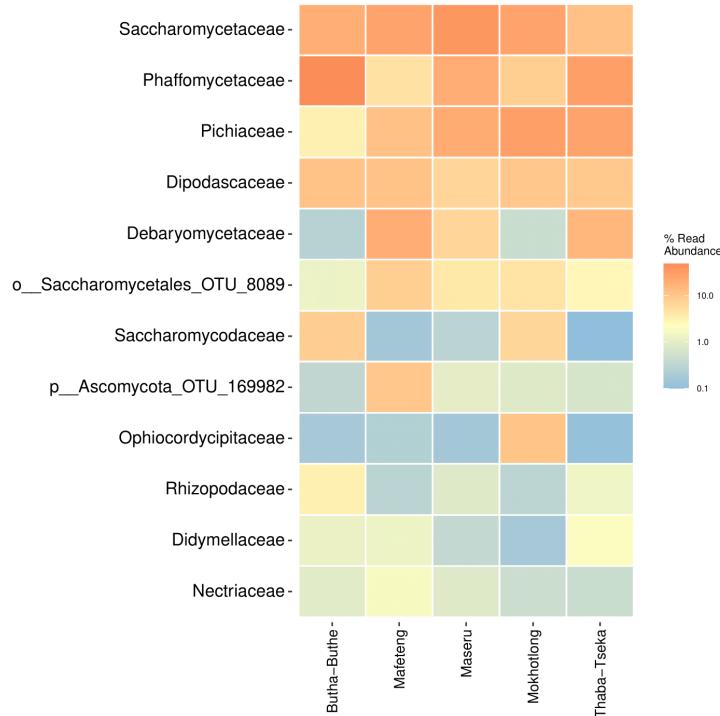


Figure 13: New Results v2 (OTU\_ITS\_UNITE)  
samples of the respective breweries summarized

## Comparison of Results

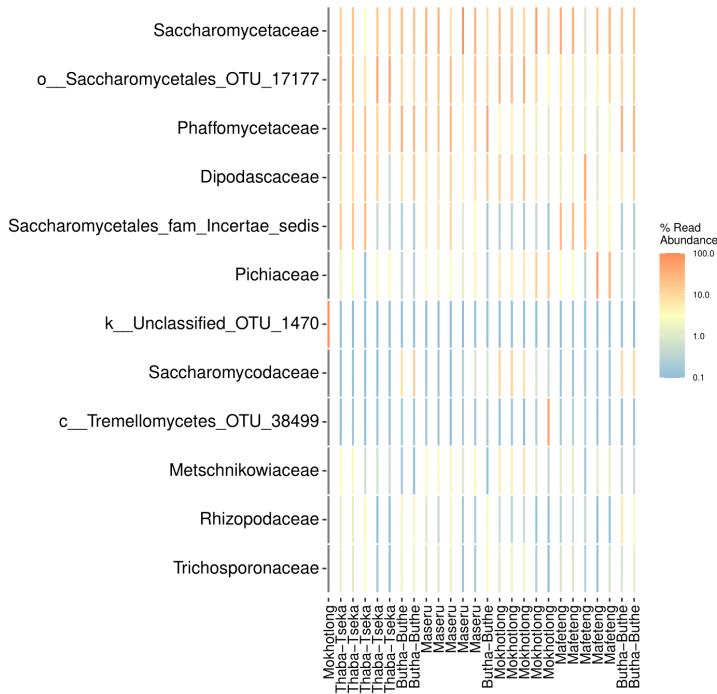


Figure 14: New Results (OTU\_ITSonedb)

Heatmap of the relative abundance of fungal families across different locations. The x-axis represents various locations, while the y-axis lists the fungal families identified.

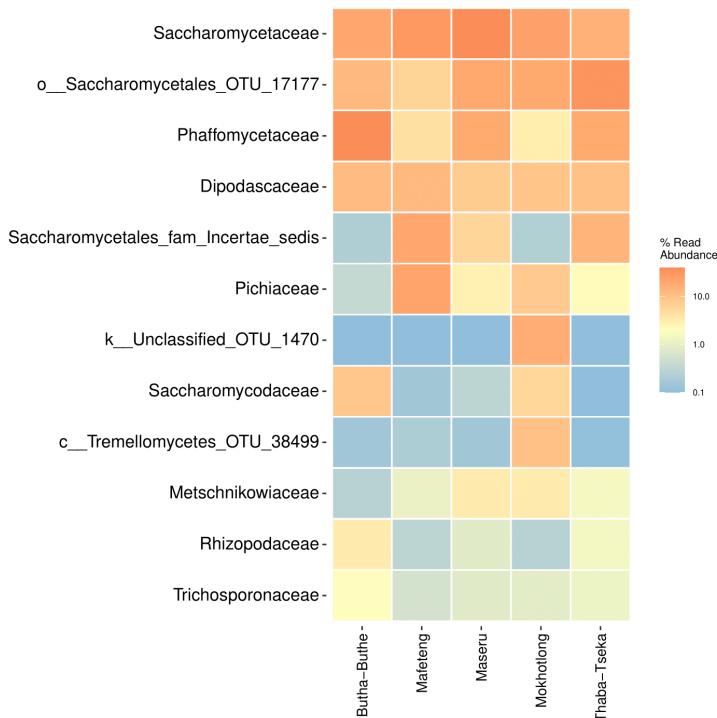


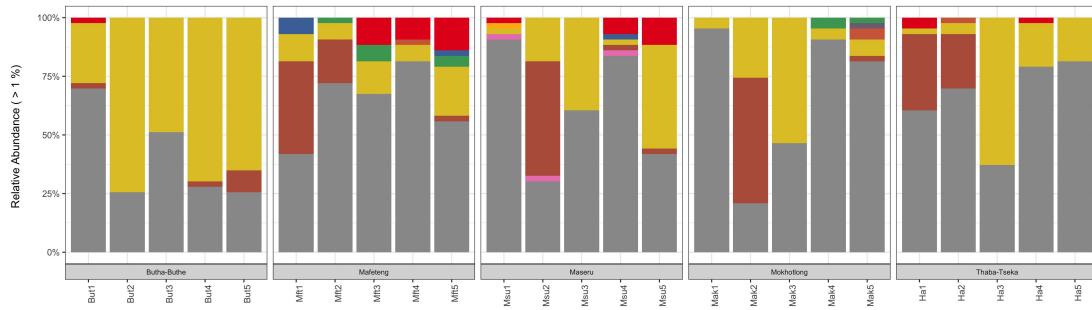
Figure 15: New Results v2 (OTU\_ITSonedb) samples of the respective breweries summarized

## Comparison of Results

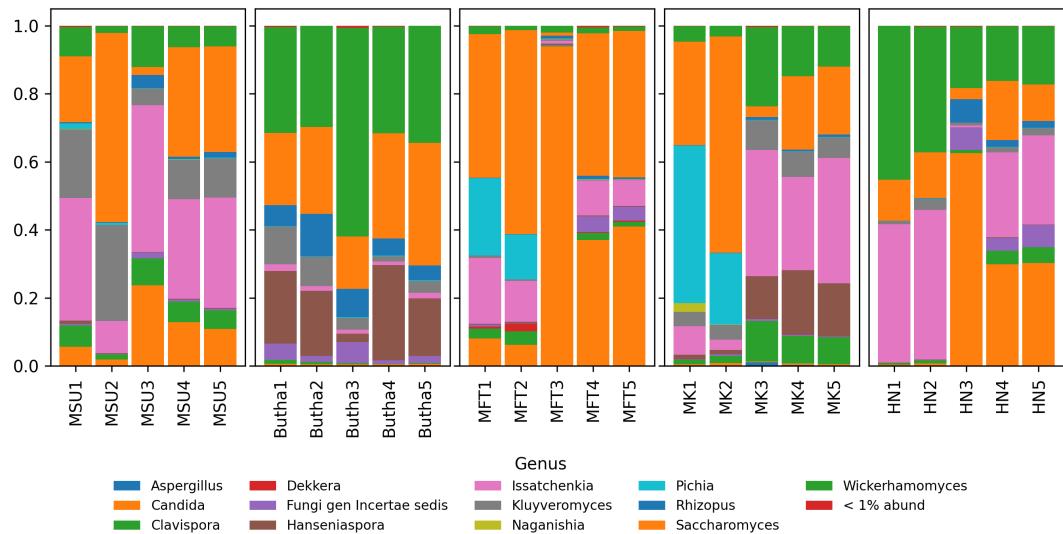
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### 2.5 Distribution of fungal Genus in Sesotho

Comparison of the distribution of fungal Genus in Sesotho between the original thesis, reproduced results, and the new results.



(a) Thesis Original Results



(b) Thesis Reproduced Results

Figure 16: Distribution of fungal Genus in Sesotho

Based on the analysis of the distribution of fungal genera in Sesotho, Rhizopus emerges as the dominant genus in the original findings. In contrast, Saccharomyces is more prevalent in the reproduced data.

## Comparison of Results

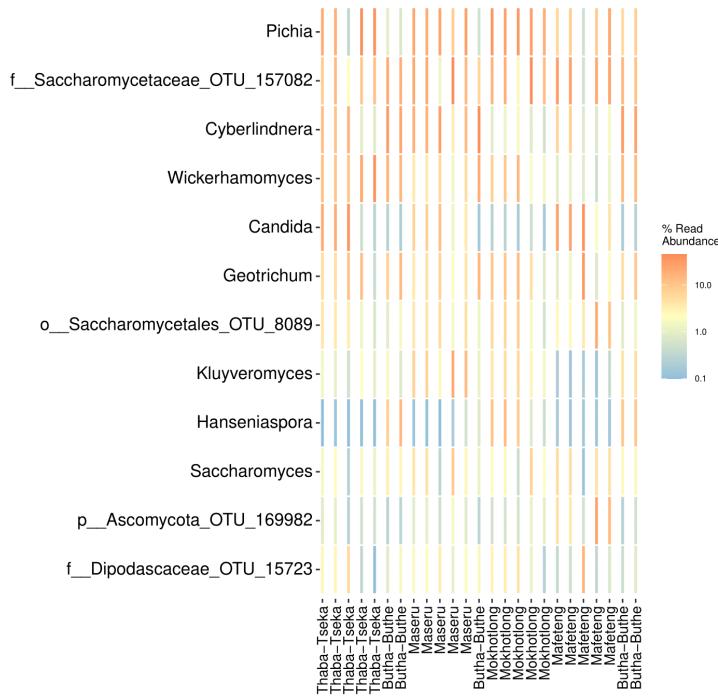


Figure 17: New Results (OTU\_ITS\_UNITE)

Heatmap of the relative abundance of fungal genera across different locations. The x-axis represents various locations, while the y-axis lists the fungal genera identified.

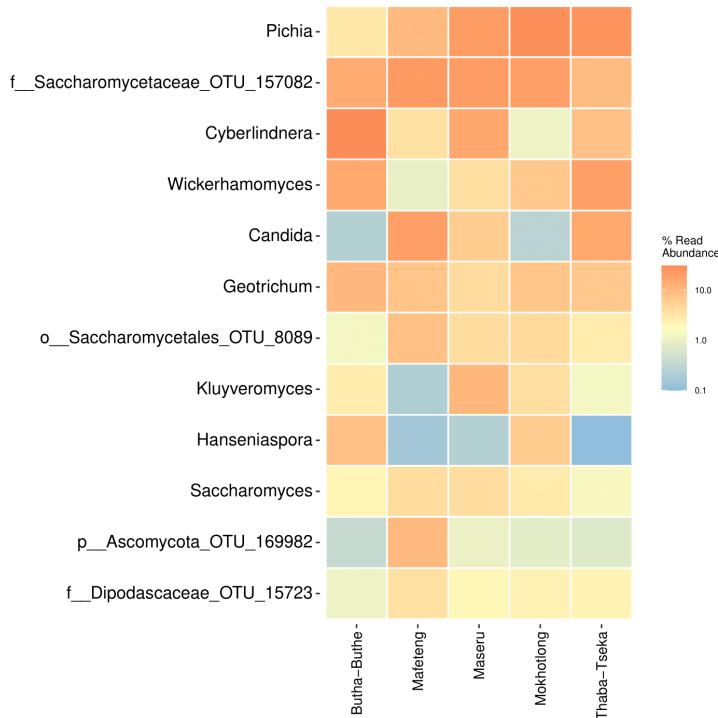


Figure 18: New Results v2 (OTU\_ITS\_UNITE) samples of the respective breweries summarized

## Comparison of Results

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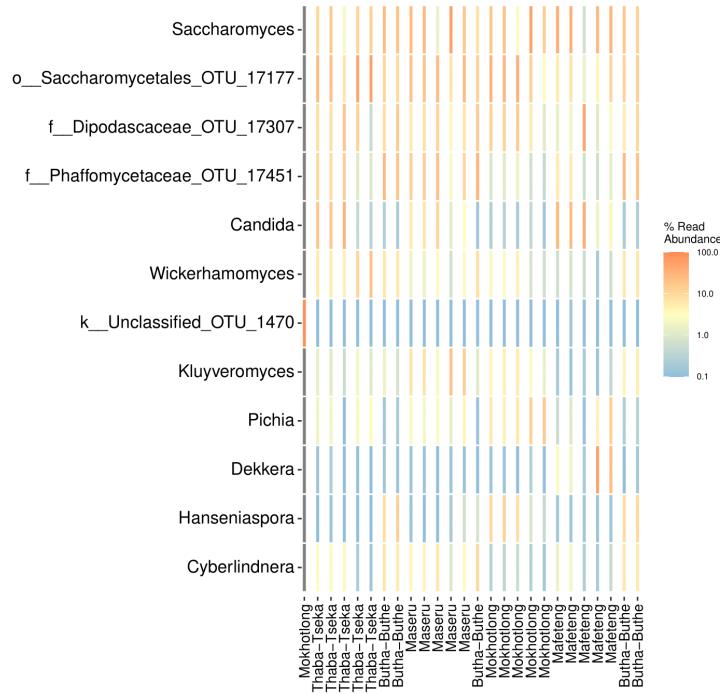


Figure 19: New Results (OTU\_ITSonedb)

Heatmap of the relative abundance of fungal genera across different locations. The x-axis represents various locations, while the y-axis lists the fungal genera identified.

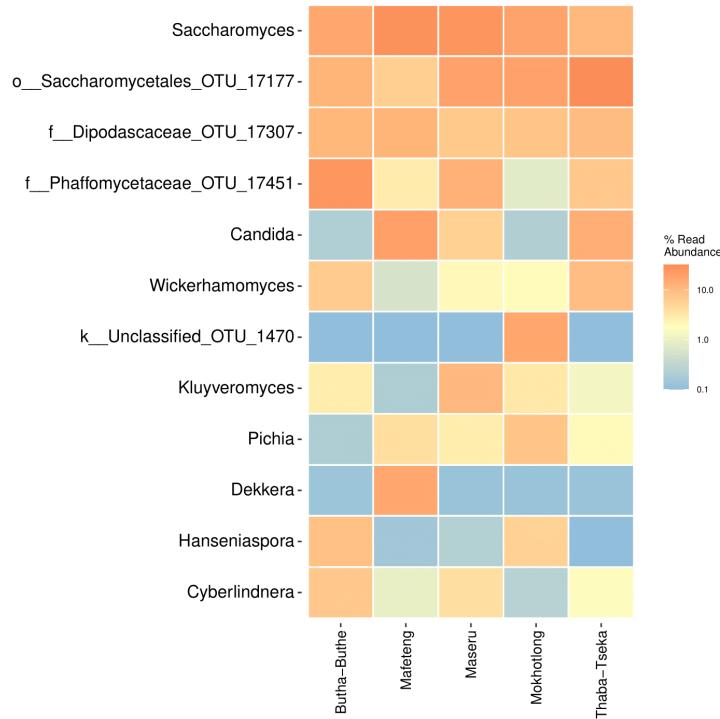


Figure 20: New Results v2 (OTU\_ITSonedb)  
samples of the respective breweries summarized

### 2.6 A Culture-Independent Comparison of Microbial Communities of Two Maturating Craft Beers Styles

Fungal diversity

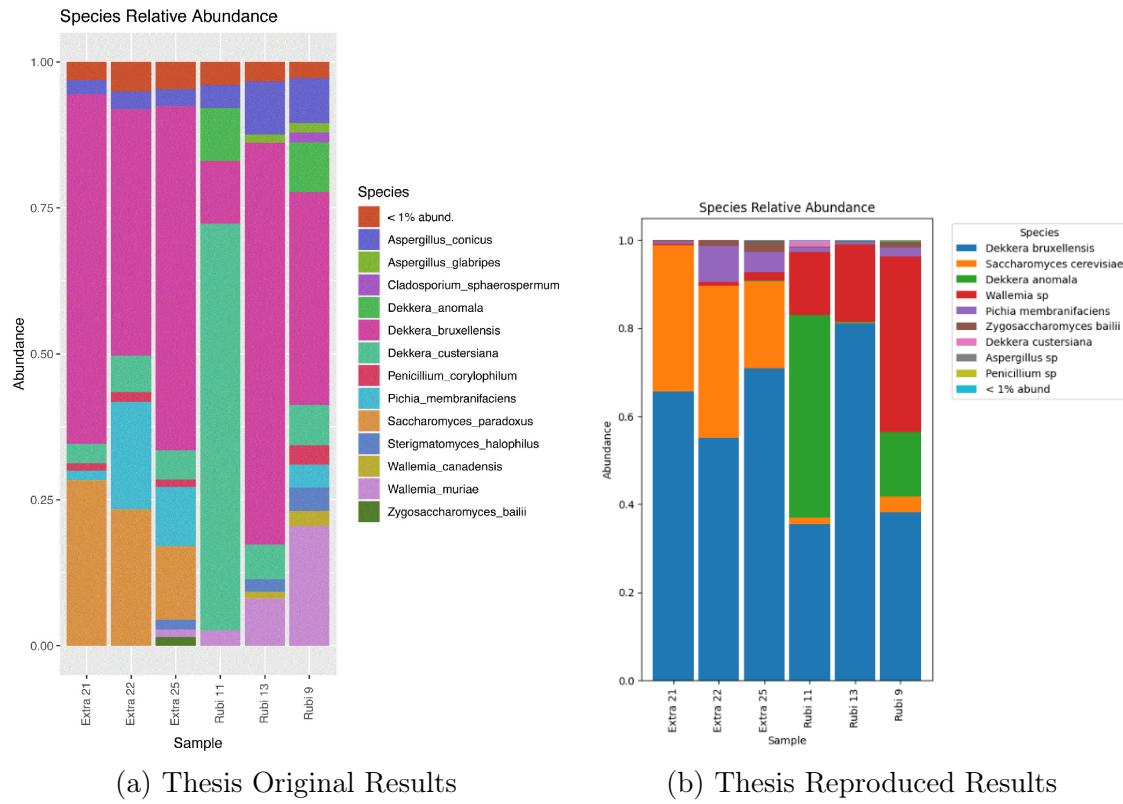


Figure 21: Fungal species relative abundance

The relative abundance of fungal taxa at the species level across various beer styles is depicted. Notably, Dekkera stands out as the most abundant genus in both beer styles examined

## Comparison of Results

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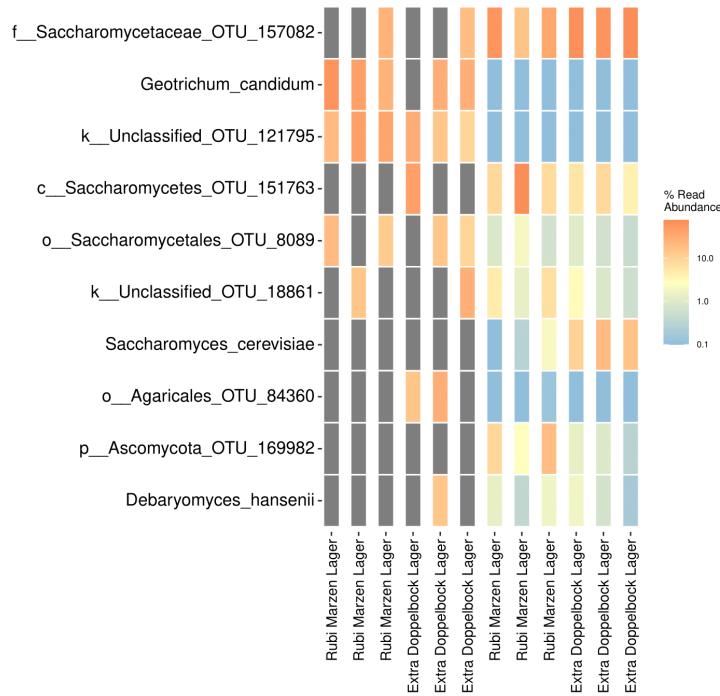


Figure 22: New Results (OTU\_ITs\_UNITE)  
Relative abundance of various yeast and fungal operational taxonomic units (OTUs) in different beer samples.

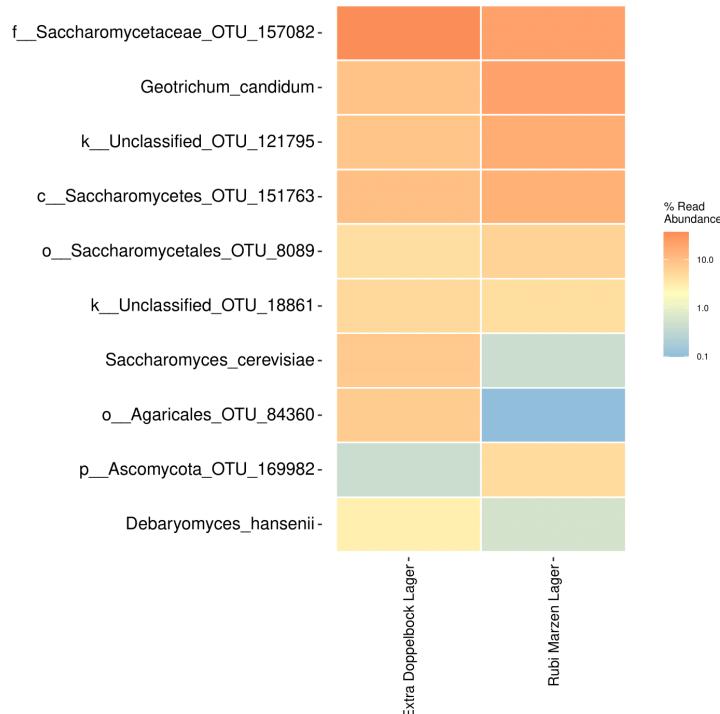


Figure 23: New Results v2 (OTU\_ITs\_UNITE)  
samples of the respective beers summarized

## Comparison of Results

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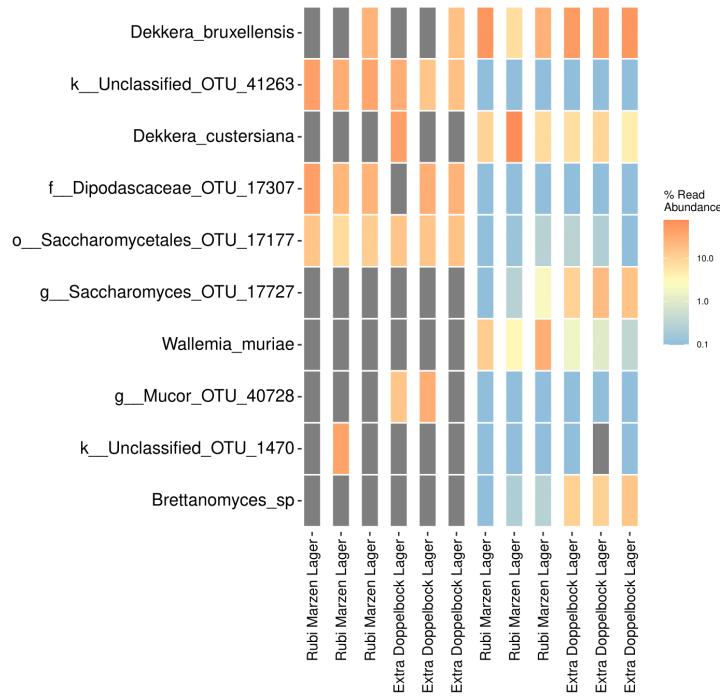


Figure 24: New Results (OTU\_ITSonedb)  
Relative abundance of various yeast and fungal operational taxonomic units (OTUs) in different beer samples.

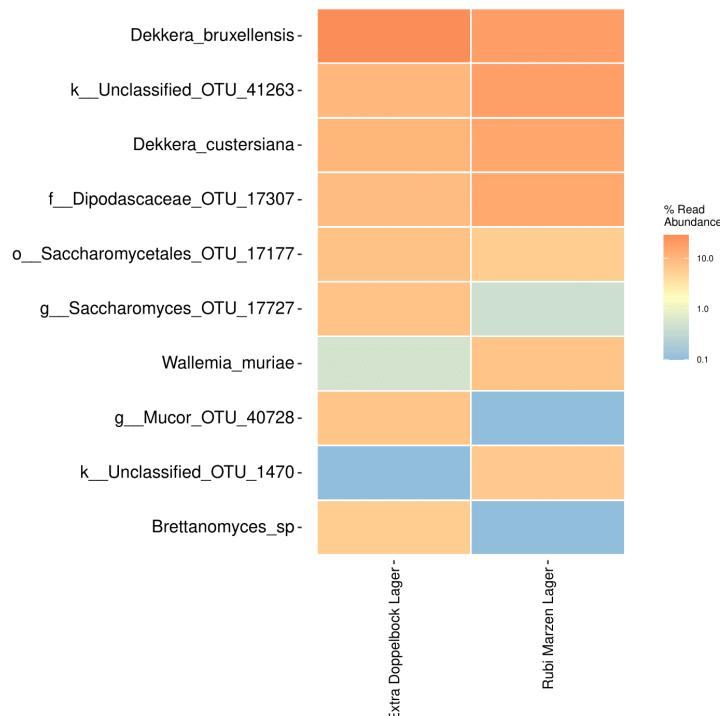


Figure 25: New Results v2 (OTU\_ITSonedb)  
samples of the respective beers summarized