

# Open Master Thesis

## Investigation of the genetic diversity of cider pear varieties

The proposed master thesis aims to investigate the genetic diversity of cider pear varieties using a genotyping system called SSR-GBAS, which was developed by our institute. This genotyping system uses both microsatellites and SNPs to improve the accuracy and efficiency of traditional microsatellite analyses. The genetic diversity of cider pear varieties is of significant importance in the breeding and conservation of these valuable crops, and this study seeks to advance our understanding of this diversity.



The research will include a literature review, sample collection, standard laboratory processing of the samples (such as DNA isolation, PCR,...) and data analysis.

### Work Packages:

1. Literature Review: Conduct a thorough review of existing literature on genetic diversity in cider pear varieties and genotyping techniques.
2. Sample Collection and DNA Extraction: Collect tissue samples from a diverse range of cider pear varieties and extract DNA using standard laboratory techniques.
3. Genotyping: Use the SSR-GBAS system to genotype the DNA samples.
4. Data Analysis: Analyze the genotyping data to investigate the genetic diversity of cider pear varieties and identify any relationships or patterns.
5. Interpretation and Conclusion

### Possible Research Questions:

1. What is the genetic diversity of cider pear varieties?
2. Are there any relationships or patterns in the genetic diversity of cider pear varieties?
3. How does the SSR-GBAS genotyping system compare to traditional microsatellite analyses in terms of accuracy and efficiency?

### Timeframe:

The samples should be collected throughout summer-autumn 2023 but can also be provided if the thesis is started later on. Subsequently, the samples will be processed in the laboratory January 2024. Data analysis, interpretation and thesis writing until autumn 2024.

### Requirements:

Applicants for this master thesis should have a background in (molecular) biology, agricultural sciences, ecology or related fields. Experience in laboratory techniques is preferred but not mandatory.

### Interested candidates, please contact:

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