Cassava leaf processing for food and feed

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Introduction

- The consumption of cassava as food throughout the world, has immense importance and is regarded as a food security crop for millions of people.
- Particularly in Ethiopia, where drought is common, cassava can be used as one of the methods to alleviate food shortage.
- Cassava leaves are an important source of essential amino acids but the consumption is very limited due to the toxicity and presence of anti-nutrients.
- With the development of suitable technology to eliminate anti-nutrients during protein extraction, cassava leaves can be opted as one of the possible source of high protein to contribute to the global protein demand.

Material and Methods

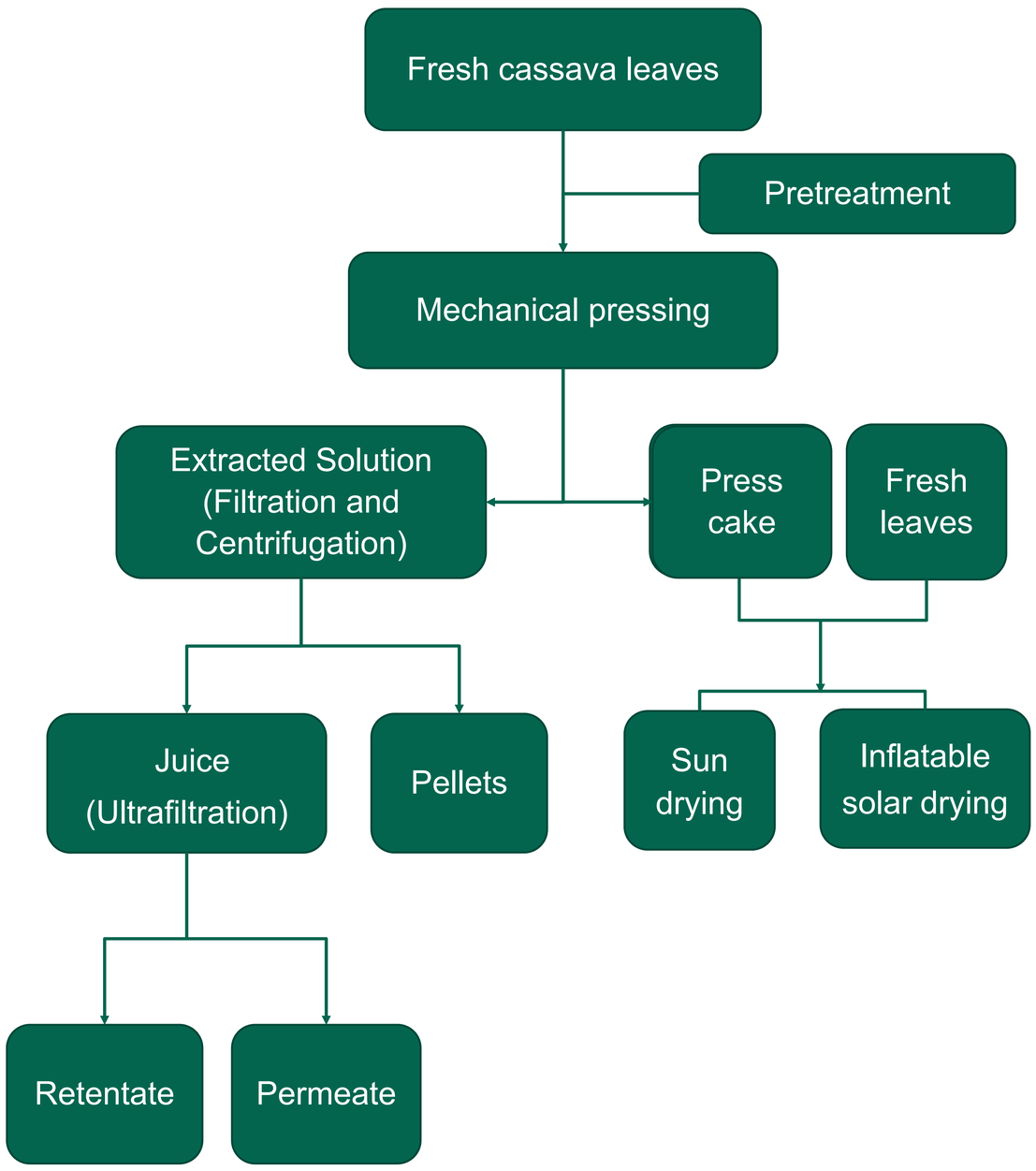
Cassava leaves will be collected from cultivar available in Southern Nations, Nationalities, and Peoples' Region (SNNPR-Hawassa) of Ethiopia. Laboratory work will be done at both Hawassa University, Ethiopia and the University of Hohenheim, Germany.

Optimization will be done in three steps:

- Pretreatment of fresh cassava leaves
- Ultrafiltration process (transmembrane pressure, temperature, and pH) of cassava juice
- Drying process for press cake using inflatable solar dryer

Both green juice and the press cake will be analyzed for cyanogenic glucosides, protein, amino acids and vitamins in order to assure that these products are safe to be used.

Design Expert Software will be used to generate the experimental designs. The influences of pretreatment and ultrafiltration process on juice recovery and quality will be evaluated through the employment of a Response surface methodology (RSM).



Expected results

- The limiting factors for consumption of cassava leaves will be reduced to a safe level through the process of pressing and protein extraction
- Optimum ultrafiltration process for cassava leaf protein extraction will be established
- Appropriate and effective drying methods for cassava leaves and the press cake will be attained

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