TahinaPlus Project 1 – Traditional Process

By: Ivan Polyakov

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01 Soaking

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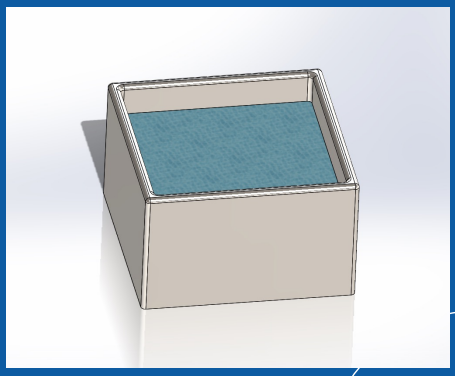
Importance of Soaking

- The weight of natural sesame seeds from Ethiopia contains 10-12% of their weight from their skins.
- They are soaked overnight in freshwater.
- The seeds absorb water, which softens the skin to prepare them for the dehulling process.



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02

Dehulling

Information on Batch Processing for Dehulling

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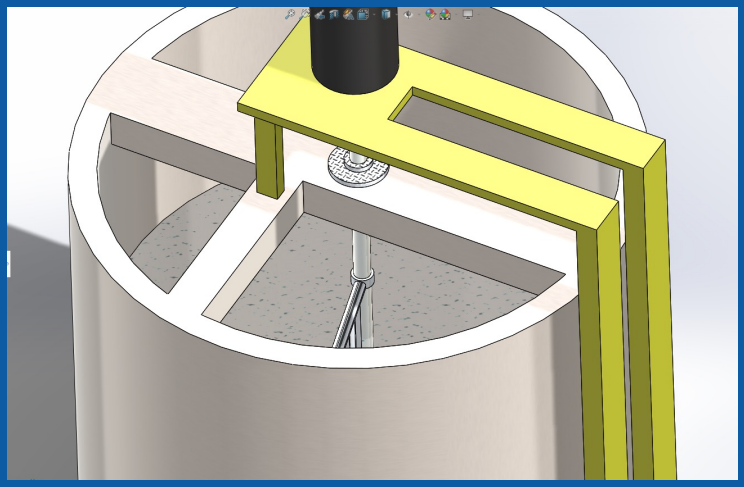
Batch System

- A batch system processes 75 kg of sesame seeds at a time.
- The machine runs at 75 RPM (Revolutions Per Minute) for 15 minutes to loosen and remove the skin.
- Use of friction to help separate the seeds from their outer layer.



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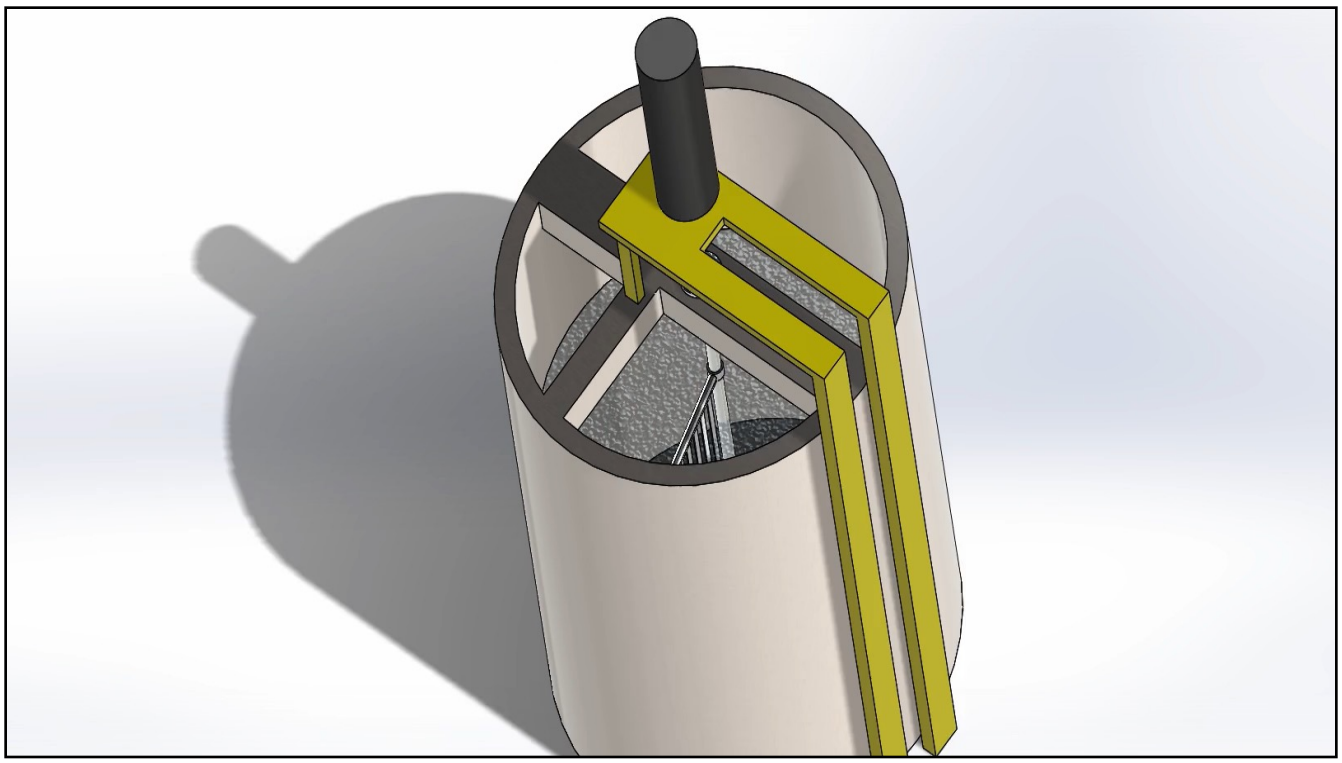

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03

Salt Brine Process

Salt Brine Solution & Reverse Osmosis

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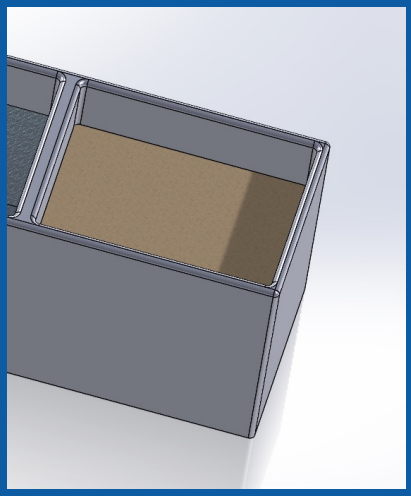
Salt Brine Solution

- The dehulled seeds are placed at room temperature of 19% salt brine solution.
- The density difference between sesame oil and water helps separate the remaining skin from the seeds.
- The lighter, dehulled sesame seeds float while the hulls sink.



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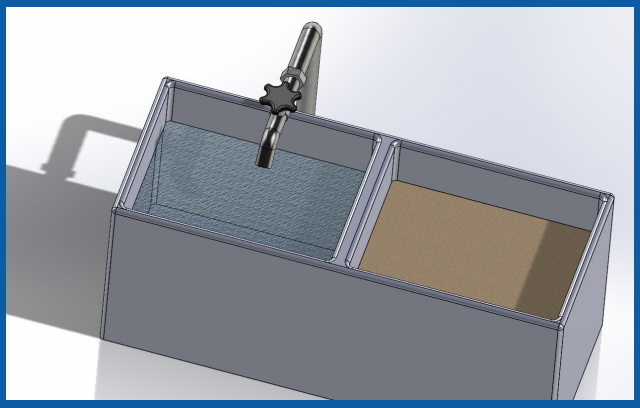
Reverse Osmosis Washing

- The seeds undergo reverse osmosis to remove the excess salt from the salt solution.
- Fresh water is used to rinse away the salt residue, ensuring the natural richness of the flavour.



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04

Kettle-Based Drying and Grinding

The Steel Kettle Method is the Most Crucial Step to the Process

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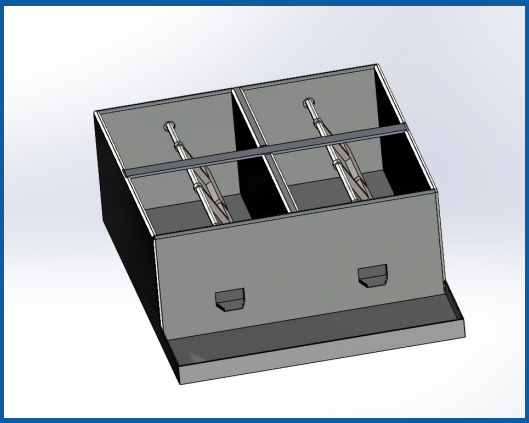
Kettle-Based Drying & Roasting

- The kettle is made of stainless steel and operates under 5 bar (89 psi) of steam pressure.
- Steam acts as a heat source by transferring energy from the kettle to the sesame seeds.
- The residual water evaporates and leaves the seeds dry and ready for the grinding process.



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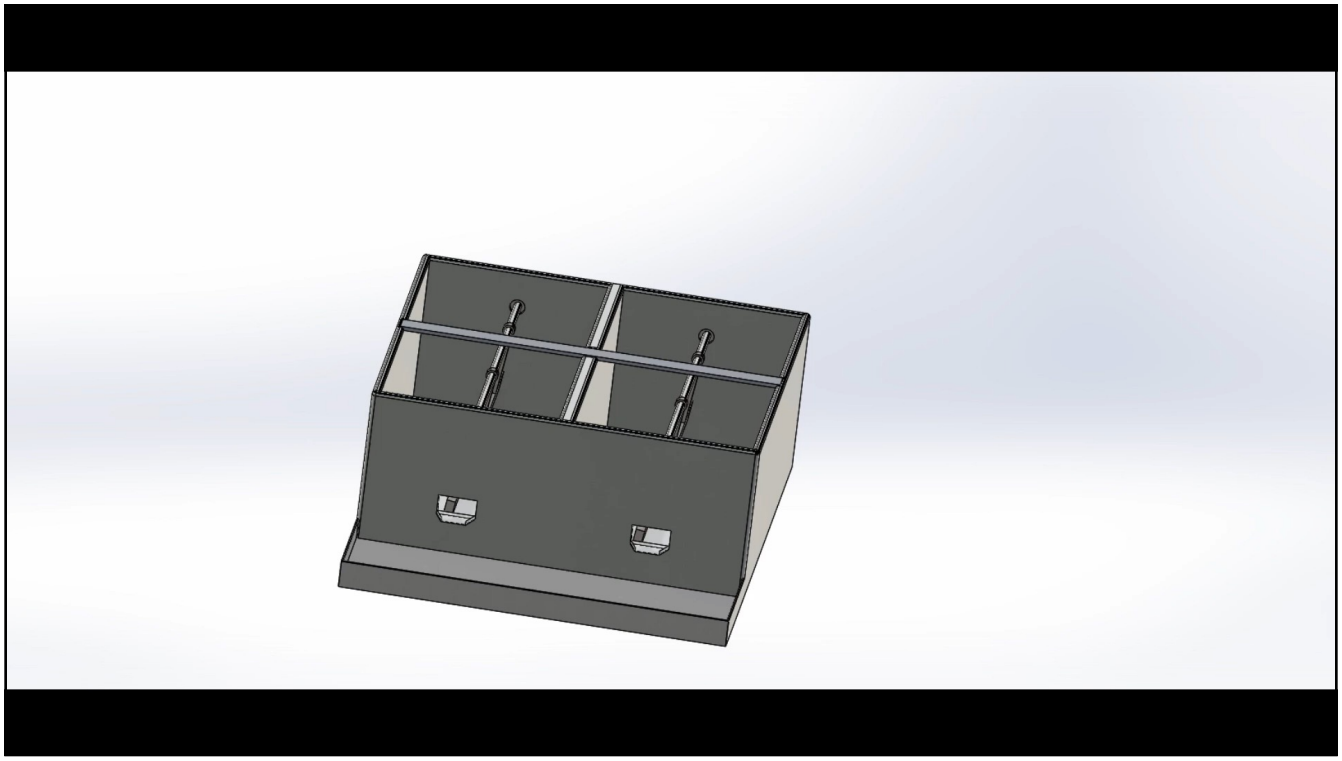

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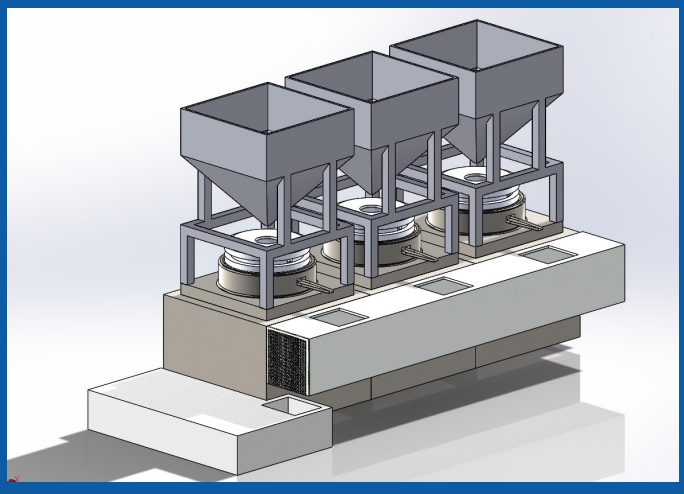
Grinding Process

- Once the moisture level is less than 1%.
- The seeds our grinded to create tahini paste.
- This paste is then packaged and ready to be mixed with water to create tahini.



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Final Product

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Final Product Results

- The steam-based roasting method enhances natural sweetness while bringing out a sweet, nutty flavour.
- Maintaining the moisture level prevents bitterness and maintains a balanced taste.
- After the process, the seeds become light beige-white in colour.
- The natural sesame oil remains in the seeds, producing a rich and thick paste.
- Higher viscosity leads to a high yield in product when mixed with water.
- Low moisture content (<1%) extends shelf life of the product.

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Challenges

Challenges During the Traditional Process

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Challenges

- High Energy Cost:
  - Evaporation of 75 kg of water per batch requires large amounts of thermal energy, increasing the cost of producing the product.
- Labour-Intensive Process:
  - Sifting, manual loading, monitoring and unloading batches requires skillful hard labour.
- Hygiene & Contamination Risks:
  - Open processing increases the risks of bacterial contamination, such as E. coli and Salmonella.
  - Many recalls have occurred due to unsafe and unsanitary handling during production.

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Thank You

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