

# Alternative Process

## Schematic Diagram

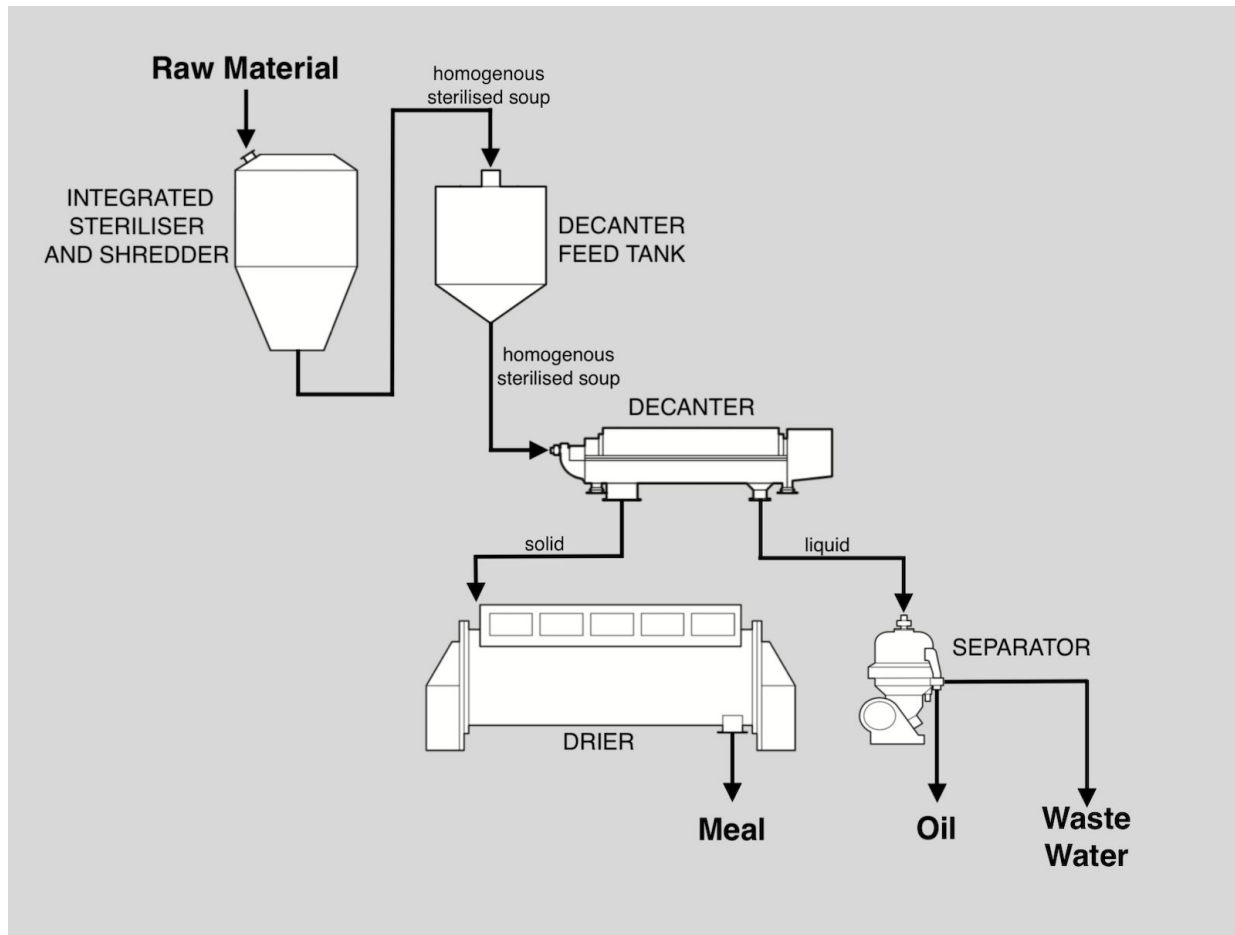


Figure 1, Schematic diagram of the alternative process

This diagram is based on the design of the ISS AGRI facility produced by Celitron.  
A video demonstration is available on <https://youtu.be/yabpYFAT6sk>



Figure 2, 3D drawing of the components (Celitron, 2017)

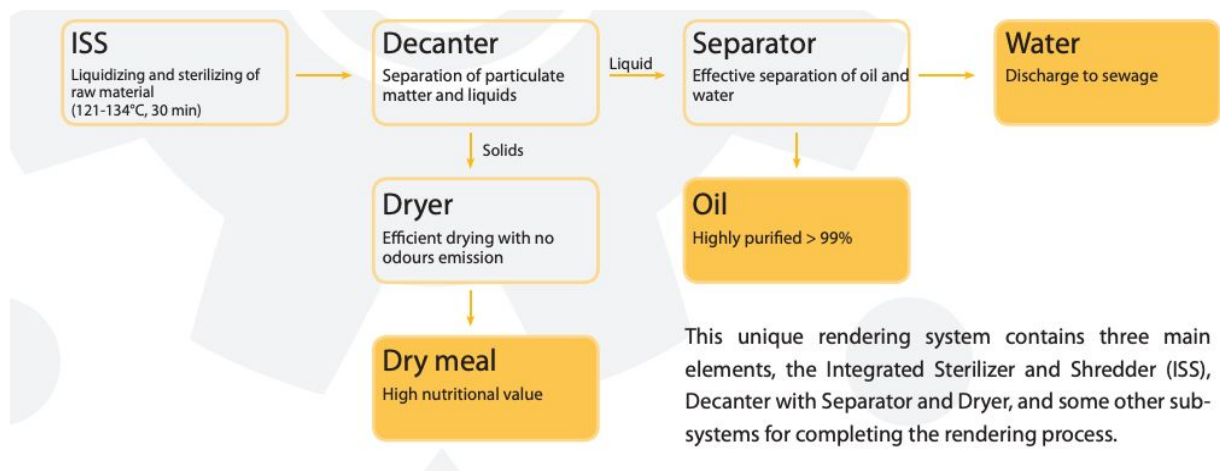


Figure 3, components and their functionalities (Celitron, 2017)

## Main reasons that our team chose this design

1. The company has tested rendering black soldier fly larvae using this system and it works.



Figure 4, the outcome of insect rendering (Celitron, 2018)

2. The first component (Integrated Sterilizer and Shredder) replaces the breaker that we used before, as it is capable of both breaking and sterilising the raw material by using low-temperature steam (121°C). This is exactly what our client GoTerra is after and makes it one step closer toward serving human insect protein. After the treatment in the ISS, the processed material become sterile, non-hazardous and free from bacteria, viruses and prions (Celitron, 2017).
3. The company already build a Mobile ISS AGRI facility and the components are enclosed in the containers (Celitron, 2018).



Figure 5, the rendering plant in two containers

4. Patent for the key component (integrated steriliser and shredder) is available online, which can help us understand the component better.



Figure 6, patent of the ISS design (Celitron Medical Technologies, 2013)

5. The whole process is relatively simple (only five key components), which will make it easier for us to design and easier for the customers to maintain.

## Reference:

Celitron (2017). *ISS AGRI Facility. The New Rendering Process*. 1st ed. [ebook] Vác, Hungary: Celitron, p.4. Available at: <https://celitron.com/download/agri-facility-en.pdf> [Accessed 26 Sep. 2019].

Celitron (2018). *Insect protein production facility for insect and bsf farming*. [online] celitron.com. Available at: <https://celitron.com/en/products/agri-waste-solution/insects> [Accessed 26 Sep. 2019].

Celitron Medical Technologies (2013). *System and methods for conversion of biohazard to municipal waste*. US20130306763A1.