Leanne Suen Fa
CART360
Critical Reflection 2
Nov 5th 2022

About the biofoam making process

In 2015, the United Nations devised 17 Sustainable Development Goals (SDG) among which clean water and sanitation (SDG 6), responsible consumption and production (SDG 12), life below water (SDG 14) and life on land (SDG 17)("THE 17 GOALS | Sustainable Development") could be directly improved upon by reducing the use of petroleum-based plastics, introducing new recycling and degradation pathways and reducing the use of toxic chemicals during production processes (Rosenboom et al.). Through "Exploring biofoam as a material for tangible interaction", Lazaro Vasquez et al. successfully present the production of biomaterial, specifically biofoam in an accessible and beginner-friendly way.

In their article, Lazaro Vasquez et al. describe their step by step approach to the production and exploration of the materiality of gelatin-based biofoam. They experiment with different recipes, incorporating diverse materials like walnut hull powder, turmeric, activated charcoal, flaxseed mucilage, stainless steel fibers and pine tree sap to their basic biofoam recipe and report their findings. Each variation thus proves to possess different properties. For example, stainless steel fiber biofoam can conduct electricity while flaxseed mucilage and pine tree sap increase the water permeability of biofoam. Their densities, durability and squishiness also differ. They also found out that the finished biofoam product could be dissolved and remolded simply by adding extra water and heating the mixture. Finally, they explore fabrication techniques using biofoam and attempt to change its colour, mold, extrude, sew, fold and laser-engrave the material. Heat and UV sensitive pigments are also added to their recipes to produce colour-changing accessories (Lazaro Vasquez et al.).

The strength of Lazaro Vasquez et al.'s article is that they have successfully turned the process of making biofoam into a cooking experience. When one thinks about biomaterials, one can easily imagine materials synthesized from organic compounds inside sterile labs using processes like bioengineering genetically modified bacteria to produce polymers, cultivating fungi specimens etc…(Doveil) It is thus very difficult to imagine producing our own biomaterials to experiment building objects on a small scale with a small budget. Having tried making my own biofoam after reading Lazaro Vasquez et al.'s article, I found the process to be enjoyable and made me more aware of the materiality and the different properties of the substance I had managed to produce in my kitchen with some basic cooking and chemistry paraphernalia. Producing your own biofoam also hold the advantage of minimising waste not only because as Lazaro Vasquez et al. mention, it is possible to remelt and remold biofoam but also because it is possible to measure the exact volume of material to produce. Overall, the article of Lazaro Vasquez is empowering to craftsmen and artists working on a small scale as it opens the path towards experimentation using simple tools.

Works Cited

Doveil, Frida. “The Future Belongs to Biomaterials. How Designers Are Taking up the Challenge.” *LifeGate*, 5 Apr. 2020, https://www.lifegate.com/biomaterials-design-future.

Lazaro Vasquez, Eldy S., et al. “Exploring Biofoam as a Material for Tangible Interaction.” *Designing Interactive Systems Conference*, ACM, 2022, pp. 1525–39. *DOI.org (Crossref)*, https://doi.org/10.1145/3532106.3533494.

Rosenboom, Jan-Georg, et al. “Bioplastics for a Circular Economy.” *Nature Reviews Materials*, vol. 7, no. 2, 2, Feb. 2022, pp. 117–37. *www.nature.com*, https://doi.org/10.1038/s41578-021-00407-8.

“THE 17 GOALS | Sustainable Development.” *United Nations*, https://sdgs.un.org/goals. Accessed 4 Dec. 2022.