

### *Textile Resistance Under Sonication and Dyeing*

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Polyester and Rayon are both synthetic fibers and as such, their physical properties can be customized to match the needs of the user in the textile industry. For instance, they are more resistant than most natural fibers and will easily be able to absorb different dyes. Polyester are made using chemical reaction that traditionally obtained from the petroleum industry. Its hydrophobicity does not make for a breathable fabric, meaning that it does not absorb water molecules when exposed to a high humidity environment. Rayon is a semi-synthetic fabric because it starts from a natural fiber that is then chemically modified. It is made from cellulose obtain from wood pulp or cotton. This project focus on studying the effects of ultrasounds, both from a sonication probe and a sonication bath, on the structure of these two types of fibers. We will show microscopic images before and after sonication. Eventually, the fibers will be dyed using sonication to enhance the process.