

The Unseen Art of Flowers: A Value-Added Application for Floral Waste

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Background: Flowers are an important part of worship in many countries. Yet their disposal is posing to be a phenomenal ecological hazard (Azad, 2019). Even though flowers and plants biodegrade, it usually takes several months for them to break down into compost (Wijayapala, 2014). Such flower waste creates land and water pollution, invertebrate influx, and foul odor (Whelan, 2009). Floral wastes, however, have a tremendous, and largely unexploited potential of being converted into dyes and prints by using simple and inexpensive technologies (Azad, 2019). In recent years eco-printing (Flint, 2008) and plant pounding have gained popularity as sustainable methods to color and print textiles (WGSN, 2020). Pounding plants is the transfer of plant pigment onto textiles through the mechanical force of hammering, where the resulting image can mimic the original petal or leaf (Haar & Doty, 2017). Even though plant pounding is a popular technique that has been studied for its colorfastness (Haar & Doty, 2017), research shows many artists and natural dyers use this technique mainly for home goods and as a DIY craft (Martin, 2001).

Significance and Purpose: Based on the research, plant pounding has a largely unexploited potential of being used as a sustainable alternative to printmaking with synthetic dyes to produce fashionable garments. Therefore, the purposes of this project were to explore various techniques of pounding flora onto fabric to produce prints as a value-added use for floral waste and design a zero-waste garment from the printed textile.

Method: Before beginning the project, hammering techniques, print quality, and colorfastness were explored by pounding various flowers and plants onto a range of fabrics such as silk satin, silk habotai, silk noil, bamboo challis, bamboo poplin, and cotton print cloth. Flowers and leaves produced a defined and realistic print on the tightly woven bamboo poplin, with less definition on the looser woven challis fabric. Hence, two kinds of bamboo fabrics were selected and scoured in a neutral detergent and soda ash bath before pre-treating with an aluminum acetate mordant at 5% on the weight of fiber to improve colorfastness. Based on prior experimentation, flower parts were separated and arranged for the best pigment transfer. Plant materials were directly hammered onto the pre-cut fabric pieces using a curved edge rubber mechanics hammer and a ball-peen hammer to transfer the colors. The plant pounded fabric was left to oxidize for

five days, then steamed and washed. Zero waste garment designs were developed through draping and patternmaking techniques to create an organic silhouette.



Results: There were distinct color changes on the prints after heat setting such as red sumac leaves turned to green and bright green leaves became a dull greenish brown. The lightening of purple flowers was another significant change. However yellow

flowers brightened its colors. Some of the leaves were pre-soaked in an iron water solution before hammering as a method to vary color which resulted in bright prints compared to the leaves that were directly pounded without iron water. A few different kinds of prints such as placement print (purposeful positioning of flora onto a particular area of fabric), allover print (evenly spaced across the fabric), and tone on tone (overprinting with the same or a similar colored plant to build and vary color) prints were created for versatility and for the final garment to be cohesive. However, the tone-on-tone approach did not maintain a hue change but did create value changes.

Recommendation: Although plant pounding can be easily done on any fabric, print transfers vary in unique ways and will offer distinct variations that will challenge the final outcome depending on the weave structure of the fabric, maturity of the flowers and leaves, fabric pretreatment, hammering techniques, and the type of hammer being used. Therefore, prior experimentation is recommended with the selected flowers and plants to achieve the best results. A ball-peen hammer was most effective for pounding fine petal veins and edges.

Conclusion: Based on the exploration process and outcomes, flower pounding is an inexpensive, easily taught, and eco-friendly alternative to printmaking with synthetic dyes while also being a value-added application for the worldwide problem of floral waste. The technique also offers many creative possibilities to printmaking. There is more than enough floral waste in the world to suffice if this technique was to be adopted by designers and fashion brands.

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