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Celestial Indigo

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Celestial Indigo

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Purpose. The dress, *Celestial Indigo*, was the result of a collaborative effort between a book author, designer, stitcher, and natural dyers. Tracey Martin (2017), author of *Sustainable in Stilettos*, is passionate about a book cover's intrinsic messages: 'The cover tells a story even before you open the book' (p. 1). *Celestial Indigo*, created for Martin's book cover, holds messages of refashioning, versatility, natural color, and collaboration.

The dress had to be versatile. As in life, things are always changing and rearranging. The overlay shredded skirt is detachable and reveals a simple ombre dyed halter gown underneath. The overlay skirt is made up of shredded pieces that are torn and sewn together to signify that each one of us individually is vital to the creation as a whole. Such is life. Life is art. (Martin, 2017, p.2)

This abstract describes the dress and skirt overlay, and then focuses on indigo dyeing in a fermentation vat and the capping process to manage color placement.

Process. The halter dress in silk georgette was designed and manufactured by Jeanne Hankerson of SJ Couture, with a silk charmeuse lining and silk petticoat with tulle. Jeanne refashioned the dress by designing a skirt overlay from silk chiffon torn into strips. Vintage denim with an ombré from creamy white to dark blue was the color vision for the dress. We created a natural indigo fermentation vat with fructose as the reducing agent and calcium hydroxide for alkalinity (Garcia & Wada, 2011). Sustainable advantages of the fructose fermentation vat compared to a chemical vat are no harsh chemicals (i.e., thiourea dioxide and lye) and elimination of heat beyond initial reduction. A challenge was maintaining vat fermentation to produce color over time. After experimenting with three brands of natural ground indigo, we found Botanical Colors (<https://botanicalcolors.com>) indigo responded well to vat pH maintenance with calcium hydroxide and oxygen reduction with fructose.

To protect undyed and dyed areas, as well as manage the gown bulk, fabric sections were capped with plastic and secured with rubber bands and string. The traditional capping method is to first stitch and pull up threads to create a defined edge prior to binding with bamboo sheaths or plastic sheeting (Wada, Rice, & Brown, 1983). As our aim was to protect and blend areas instead of creating defined edges we did not stitch prior to binding. We used food service plastic wrap, plastic bags, and strips cut from plastic sheeting for the binding and containing. The food service plastic wrap's ability to adhere to itself worked well for large areas, however, it was too 'clingy' for smaller sections. Figure 1 highlights the overskirt progression of wrapping undyed sections, dyed medium blue sections, and building color in the dark blue uncapped sections. Color depth was built through multiple dips in the vat ranging from 30 sec to 5 min.

Figure 1. Capping and Vat Dyeing Process of Overskirt



For the halter dress, the petticoat was dyed first followed by the lining, while the outer dress was protected from the vat by securing in a plastic bag. The dyed lining and petticoat were rolled into a small bundle and capped. This small bundle was difficult to hold while dipping the outer dress to create the ombré effect. As seen in Figure 2, second image, the ombré is not even between the dark and medium units. However, capping along the length of the outer dress did protect the undyed hem and medium blue dyed section while effectively managing the bulk. A final challenge was washing excess indigo from the constructed dress due to the multiple and lined layers. As seen in Figure 2, the second and third image were taken prior to washing, while the book cover photos (images 4 and 5) are lighter with color loss at the seams from washing. Fortunately, this color loss contributed to the vintage denim intention.

Figure 2. Halter Gown Original (image 1), Ombre Dyed Dress with Overskirt (images 2, 3), and Book Cover Front and Back (images 4 and 5). Permission for use by Martin (2017).



Contributions. Working with three brands of indigo to maintain fermentation fructose vats contributes to the understanding and growing interest in such vats. We found a brand that works well in our lab and will continue to explore long-term vat maintenance. Dyeing an already constructed gown versus fabric pieces created challenges with managing bulk and preserving undyed and dyed sections. Utilizing plastic wrap, bags, and sheeting secured with rubber bands and string builds upon the application of capping as a method to resist dye.

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