Tie Dyeing - How to Do It

CHM 108 Lab
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BEFORE LAB:

1. **Choose the right fabric**, first. Fabrics that are at least 80% cellulose fiber--cotton, rayon, linen, tencel, or hemp--are best for dyeing. 100% is better. 50% cotton/50% polyester makes nice pastels. Cotton clothing is often sewn with non-cotton thread, which stays white, but this is not usually a problem. Avoid 100% polyester or nylon. Silk is the only protein (animal) fiber that can be dyed with this recipe. Select your piece of clothing with this in mind.

2. Next, **wash your fabric at least once before lab**. This can be done days in advance. Unwashed fabric may not dye well.

3. Bring the piece of clothing, a hanger and a plastic grocery bag with you to lab.

IN LAB:

4. To start, **tie the dry garments**. It's easiest to tie them before we pre soak them so you can tie without gloves on.

   *Why Tie?* The whole point of tie dyeing is to prevent the dye from reaching the fabric evenly. Any place that the dye can't reach will stay white, or a lighter color, of course. The gradations of color from intense to light can be beautiful. You can accomplish this by folding the fabric, tying it with string, using rubber bands, etc.

   *Ways to Tie* Fold a piece of clothing in vertical pleats, and you'll end up with horizontal stripes. Horizontal pleats result in vertical stripes (more slimming, you know). Diagonal pleats make a nice effect. For concentric circles, grab the cloth where you want the center to be, and pull, until you've more or less made a long tube of the garment, then apply rubber bands at intervals along the fabric. The "scrunch" pattern is made by crumpling the fabric very evenly, so that ultimately it makes a nice flat disk when held with rubber bands.

   For the now-traditional spiral, see you lay the garment on a flat smooth surface, smooth out all the wrinkles, then make a small pleat right across where you want the center to be. Grab the very center of that pleat with a clothes pin, and begin to twist. As you twist, pleats appear farther and farther away from the center; as these pleats get too large, split the pleats with your hands, keeping each fold the same height above the table, no more than one to two inches in height.

   You should not really need pictures to fold, because it is all trial and error, anyway. You can't know what works best for you until you try it. However, **if you want to see pictures of how to do the ties, there will be handouts in lab.**

5. TAs have made up the soaking solution solution (one cup of sodium carbonate, mixed per gallon of water) that will help the dyes stick to the fibers. Just before dyeing, pre-soak the fabric for 10 minutes in the soaking solution. You can fit at least 4 t-shirts per bucket of soaking solution. (If you try this at home, make sure you use sodium carbonate, not sodium bicarbonate, or baking soda!)

6. **Mixing the dyes** may be done up to one week in advance. **Your TA’s have done this for you.**

   You’ll find the dyes in squirt bottles.
   1. Dissolve 2 Tsp (15 ml) urea in 8 oz water.
   2. Next, dissolve dye in urea solution. The best dye to use on cotton is a good fiber reactive dye such as Procion MX. ***(Do not use all-purpose dye such as Rit® brand dye in this type of dyeing)!*** Use about 2 tsp of dye per 8 oz urea solution...unless the dye is or contains turquoise
MX-G, in which case you should double the amount for similar brightness, or black, in which
case you must use 2 to 4 times as much. Put the dye solutions into spray bottles for applying
the dye - buy plastic bottles specifically for this purpose.

7. **Applying the dye.** Lay the fabric nearly flat, or pleated loosely, and drip with squeeze bottles directly
onto the fabric. Be sure to wear gloves! The sodium carbonate is slightly caustic and must be washed
or at least wiped off of your skin immediately after contact. (Not to mention that the dyes themselves
look very odd on your hands for a couple of days afterwards. Also, no fabric dye has been fully tested
for safety when spilled on the skin.)

**Color Choice**

The two most obvious differences between a wonderful tie-dye and a so-so one are color choice and
color saturation. You'll find that you really have to work to squirt enough dye into the folds to avoid a
large amount of white on the finished garment. In choosing colors to place adjacent to each other,
remember the color wheel. Do not place "opposite" colors next to each other, such as red near green,
or blue near orange, or yellow near purple: the results would be a muddy mess. If you really like bright
colors, as I do, avoid placing a color with red mixed *in* it, such as purple, near green.

A good basic rule is to apply two colors next to each other only if they appear next to each other in the
following short list: fuchsia...yellow...turquoise...purple...fuschia

...or, for a more detailed color scheme, choose adjacent colors from the following expanded list:

fuchsia... red... orange... yellow... green... turquoise... blue... purple...fuschia

It really does help to place fuchsia between red and purple.

**The Challenge - Use Enough Dye!**

The hard part, for a beginner, is getting enough dye into the tied garment. It's common for an
individual's first shirt to be mostly white with just a few colored streaks, although before the shirt was
untied, it appeared to be solidly impregnated with dye. **You really have to squirt that dye right in
between the folds of the cloth.** If it's not dripping out at the bottom, you're not using enough dye
(unless the mostly white look is your goal). Work the dye solution into the shirt or fabric with your
gloved fingers to insure thorough saturation. Blend the colors by carefully squeezing, mashing and
kneading the shirt or fabric. Check the folds of the fabric to make sure the dye has soaked through.
Carefully turn the shirt or fabric over and apply the dye solution to the other side. Rinse your hands
between color changes.

8. **Reaction time.** Make sure that the fabric stays wet, for the reaction to take place, no less than two
hours, but preferably eight to twenty-four hours. We'll leave them in a bag overnight.

9. **Rinse the fabric.** *(We will do this on Friday)* Untie and unfold the fabric. Rinse the fabric thoroughly
in a bucket of room temperature 75° to 95°F (24° to 35°C) water. Change the rinse water 3 to 4 times.
Then wash in HOT 140°F (60°C) water, adding ½ tsp (2.5 ml) Synthrapol per pound (454 gm) of
fabric. Do not stack the rinsed shirts on top of themselves before the HOT Synthrapol wash, because
the dye frequently transfers and stains other fabric it touches. Rinse well and dry on a hanger .You
may need to wash the clothes separately the first few wearings, but pretty soon they are 100%
colorfast and safe to wash with anything.

Adapted from Pro Chemical & Dye, 2006