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HANDEYE

Natural Dyes, Wild Silk

BY RASHMI BHARTI | JUNE 24, 2010



COURTESY OF AVANI

India's Avani shares natural dye recipes

Avani is a voluntary agency that has been working in the Central Himalayan region of Uttarakhand, India for the past twelve years. Avani's philosophy of conservation and preservation is inherent in all its activities. The primary focus of the agency's work has been to create sustainable livelihood options through appropriate technology, farm-based activities, traditional craft—including natural dyeing using indigenous plants and other raw materials.

We have managed to create two self-sustained rural businesses—one based on solar technology and the other on the traditional craft of spinning, weaving and natural dyeing. Both these businesses are managed by a team of rural managers trained at Avani and provide livelihood to rural youth.

More than 450 artisans in 40 villages are involved in our textile enterprise that preserves the traditional craft of hand spinning, hand weaving and natural dyeing in these remote villages.

Many of the artisans belong to the Bora Kuthalia community who traditionally worked with hemp, but are now forced to abandon this craft as the legality with the use of the fiber is ambiguous. Silk and wool are currently used.

The core of the textile enterprise is the use of natural dyes that has led to the conservation of many plants and trees in the area. The use of natural dyes causes minimum impact on the environment while using locally available raw materials judiciously. Fixers like alum and plant-based mordants ensure that there is a minimum of residual waste, and the effluent waste water from the dyeing can be treated and reused for irrigation. Additionally, we harvest rainwater that is collected in underground storage tanks and that used for dyeing. Afterwards the water goes through a recycling system to be reused for irrigation.

We use only natural dyes and the raw materials for all the colors given below. They are either collected in the wild or are grown by the local

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women's groups that have been organized in the villages. Only two dye materials for red and blue have to be imported from other states of India.

After the dye materials are collected, dried, hand pounded by the women's groups, they are sold to Avani. A total of 76 women were involved in the collection of dye material last year. The natural dyeing is done by the dyeing unit at Avani. All the dyers, who live in the nearby villages, are trained by senior dyers at Avani. Compensation for dyers was a total of Rs 41,691 (or \$896.00) during the year 2008-09; between April 2009 to September 2009, dyers earned Rs 26,000 (or \$55) through the collection. The dyers are compensated with a salary or a stipend and earn between Rs 1750 to Rs 3,000 per month (\$38.00 to \$65.00).

Below are the plants and recipes to make the dyes. Indigenous plants collected by the women's groups include:

Common Name	Latin Name	Color
Marigold flowers	Calendula officinalis	Yellow
Pomegranate	Pucina granatum	Yellow
Turmeric	Curcuma longa	Yellow
Myrobolan	Terminalia belerica	Black & Grey
Eupatorium	Euaptorium odorata	Green, Mustard
Walnut Hulls	Juglans regia	Brown

Dyes imported from other parts of India include:

Common Name	Latin Name	Color
Lac	Shellac	Red,Pink,Purple
Sappan Wood	Caesalpinia	Red,Rust,Purple
Tropical Indigo	Indigofera tinctoria	Blue

Dye Recipes

1. Yellow

Yellow is an easily obtainable dye from commonly available local plants. We can get different grades of yellow from different kinds of plants.

Marigold Flowers yield a fluorescent yellow.

Turmeric Root gives a very strong yellow but it is light sensitive.

Pomegranate Rind gives a very warm yellow.

The dye extraction is done by boiling the pre soaked raw material (marigold flowers, pomegranate rind) for 1- 2 hours.

The solution is then filtered and used to dye premordanted fibre.

Yellow with marigold flowers

Ingredients

1. Tussar Silk
2. Marigold Flowers 70% of the weight of the fibre
3. Alum 20 % of the weight of the fibre
4. Water 1:20

Mordanting

Soak the tussar silk in water for 24 hours.

Grind the alum to a fine texture and dissolve it in water separately

Take out the silk and squeeze the water out.



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Heat the alum solution and enter the silk to be dyed at 60 deg Celsius. Roll the silk every five minutes for one hour. The temperature should be raised from 60°C – 90°C, gradually, and then maintained for one hour.
Take the silk out of the mordant solution and keep it aside.

Dyeing Process

Soak the marigold flowers in water for 3 days.
Boil the flowers in a steel utensil for 2 hours to extract the color in the water. Filter the solution with a fine cloth.
Heat water in a steel utensil and add the dye solution to it.
Take the mordanted silk (Do not squeeze it!) and dip it in the above solution. Roll for one hour. The temperature should be raised from 60°C to 90°C, gradually and maintained during rolling.
Take the silk out.
Let it drip to cool and then squeeze it to dry. Wash the dyed silk in water to remove excess dye and let it dry in shade.

Yellow with Pomegranate Powder

Ingredients

1. Tussar Silk
2. Pomegranate powder 30 % of weight of fibre
3. Alum 20 % of the weight of fibre
4. Water 1 : 20

Mordanting

Soak the tussar silk in water for 24 hours.
Grind the alum to a fine texture and dissolve it in water separately
Take out the silk and squeeze the water out.
Heat the alum solution and enter the silk to be dyed at 60 deg Celsius. Roll the silk every five minutes for one hour. The temperature should be raised from 60°C – 90°C, gradually, and then maintained for one hour.
Take the silk out of the mordant solution and keep it aside.

Dyeing Process

Soak the pomegranate rind powder in water for 3 days.
Boil this powder in a steel utensil for 2 hours to extract the color in the water. Filter the solution with a fine cloth. Heat water in a steel utensil and add the dye solution to it.
Take the mordanted silk (Do not squeeze it!) and dip it in the above solution. Roll for one hour. The temperature should be raised from 60°C to 90°C, gradually and maintained during rolling.
Take the silk out.
Let it drip to cool and then squeeze it to dry. Wash the dyed silk in water to remove excess dye and let it dry in shade.

Yellow with Turmeric Powder

The process is the same as above.

2. Red

Natural red color can be extracted from three plants: madder, sappan wood, and lac. Shellac and sappan wood is mostly used.

Ingredients

1. Tussar Silk
2. Sappan Wood powder 100% of weight of fibre
3. Alum 20% of weight of fibre
4. Water 1:20

Mordanting

Soak the tussar silk in water for 24 hours.
Grind the alum to a fine texture and dissolve it in water separately
Take out the silk and squeeze the water out.
Heat the alum solution and enter the silk to be dyed at 60 deg Celsius. Roll the silk every five minutes for one hour. The temperature should be raised from 60°C – 90°C, gradually, and then maintained for one hour.
Take the silk out of the mordant solution and keep it aside.

Dyeing Process

Soak the Sappan wood powder in water for 3 days.
Boil this powder in a steel utensil for 2 hours to extract the color in the water. Filter the solution with a fine cloth. Heat water in a steel utensil and add the dye solution to it.
Take the mordanted silk (Do not squeeze it!) and dip it in the above solution. Roll for one hour. The temperature should be raised from 60°C to 90°C, gradually and maintained during rolling.
Take the silk out.
Let it drip to cool and then squeeze it to dry. Wash the dyed silk in water to remove excess dye and let it dry in shade.

Red with Shellac

Ingredients

1. Tussar Silk
2. Lac 7% of fibre weight
3. Water 1:20
4. Citric Acid(for pH 2)
5. Alum 15% of fibre weight

Mordanting

Soak the tussar silk in water for 24 hours.
Grind the alum to a fine texture and dissolve it in water separately
Take out the silk and squeeze the water out.
Heat the alum solution and enter the silk to be dyed at 60 deg Celsius. Roll the silk every five minutes for one hour. The temperature should be raised from 60°C – 90°C, gradually, and then maintained for one hour.
Take the silk out of the mordant solution and keep it aside.

Dyeing Process

Take some water in a steel utensil and add lac powder in it. Boil it for an hour and slowly add citric acid till a pH 2 level is attained. Now sieve the solution with a fine cloth.
Heat water in a utensil to 60°C. Add the Lac solution it.
Take the soaked silk, squeeze it and dip it in the above solution. Roll for one hour and turn the yarn every five minutes. The temperature should be raised from 60°C to 90°C, gradually, during this rolling process. You should keep checking the pH as it should be 2 to give a good red.
Take the Silk out and let it drip before hanging it in the shade to dry.

Rashmi Bharti is a founding member of the organization in Uttaranchal called AVANI, a UNESCO award winning organization, and also one of the founding members of the WMPA. For more information, please visit www.avani-kumaon.org.

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Rashmi Bharti's blog

