

Ce que nous ne voyons pas, qui est immense

Team: Roman Ishchenko, Mariia Iaranova, Thomas Darley, Yassine Lamri

Materials and methods

The dyes were sourced from Sigma-Aldrich and used as received, potato starch was sourced from a food store and was sieved through a 230 mesh sieve retaining the passing fraction.

The methods are based on the Autochrome Guide by Jon Hilty [1].

Preparation of starch grains

General procedure

To the solution of dyes potato starch was added, stirred for 1 hour, filtered on Buchner funnel and dried *in vacuo* at 50 degrees. Dried starch was lightly ground in mortar to break lumps, stirred for 1 hour in 300 ml of ethanol to remove the excess of the dyes, filtered and dried *in vacuo* at 50 degrees.

Synthesis of dibenzylideneacetone (dba)

DbA was prepared from acetone and benzaldehyde following the reported procedure [2].

Orange

The dyes' solution was prepared from 11.2 g of erythrosine, 2 g of rose bengal, and 15.2 g of tartrazine in 150 ml of water.

Green

The dyes' solution was prepared from 12 g of tartrazine and 7.5 g of patent blue v in 150 ml of water.

Blue

The dyes' solution was prepared from 6.4 g of crystal violet and 0.9 g of malachite green in 150 ml of water.

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UV treatment

Particles of colored starch were mixed with ZnO powder.

Varnishes

First varnish

32 g of rubber cement was dissolved in 200 ml of xylene (toluene), filtered and kept in a sealed bottle.

Preparation of color raster plates

First varnishing

To a polycarbonate plate the solution of the first varnish was applied by pouring some amount of the solution onto the plate, carefully rotating the plate to cover the entire surface, and draining the excess. Then the plates were left to dry in a fume hood for 30-60 minutes.

Application of starch

Dyed starch of different colors was mixed in roughly equal proportions, sprinkled onto the plate covered with the first varnish and spread with a brush.

Pressing

The starch adhered to the varnish was pressed down using the back of a spoon or a press.

References

1. <https://www.jonhilty.com/autochromeguide>
2. *Org. Synth.* **1932**, 12, 22