

How to Dye Linen Fabric with Marigold flowers

Materials needed:

- 3 pieces of linen fabric (135 g each) or 3 linen pillowcases (45 x 45 cm)
- Fresh or dried plant material (45 marigold flowers or 20 g dried marigold flowers)
- Mordants : 8 g of potassium alum ($KAl(SO_4)_2$), 8 g of copper sulphate ($CuSO_4$), 4 g of ferrous sulphate ($FeSO_4$)
- Water (H_2O)

1. Preparing a dye bath

Begin with making a marigold dye bath. Bring about 6 litres of water to a boil. Add 45 marigold flowers and simmer at around 80° C for at least 40 minutes. Once the marigold dye bath is ready, remove the plant material from the bath water.

2. Dyeing in a natural dye bath

Place the linen fabric (or pillowcases) into water and leave it to soak for 10-15 min. or strongly squeeze in water with hands until it is evenly wet. Once thoroughly wetted, add the fabric to the dye bath and simmer at around 80° C for some 40 minutes. Stir regularly to keep the fabric submerged.

3. Colour binding and modification reactions in mordant solutions

The following mordants are used to achieve colour fixation and modification reactions: alum ($KAl(SO_4)_2$), copper sulphate ($CuSO_4$) and/or ferrous sulphate ($FeSO_4$). Each shade needs an individual solution with a different mordant. Use one of the three friendly mordants for each pillowcase to achieve different colour effects.

4. Mordanting with potassium alum solution

Prepare the first mordant solution using Aluminium Potassium Sulphate ($KAl(SO_4)_2$). Measure fabric weight. You will need 7-8 g of mordant salts for one pillowcase (135 g of fabric). Dissolve the salt in a small quantity of warm water and then pour the dissolved salt into a dye pot with pre-heated water. Stir well and add one pillowcase to the pot. Bring the temperature to around 80° C and simmer for at least 30 min. Keep stirring to make sure the fabric is submerged. Shade depth slightly increases and the colour is a deeper yellow than that obtained using the plant dye bath.

5. Mordanting with copper sulphate solution

The second mordant solution is prepared using Copper Sulphate ($CuSO_4$). You will need 7-8 g of mordant salts for one pillowcase (135 g of fabric). Dissolve the salt in a small quantity of warm water and then pour the dissolved salt into a dye pot with pre-heated water. Stir well and add one pillowcase to the pot. Bring the temperature to around 80° C and simmer for at least 30 min. Keep stirring to make sure the fabric is submerged. Shade depth is enhanced and the colour takes a deeper brownish hue.

6. Mordanting with ferrous sulphate solution

Use ferrous sulphate (FeSO_4) to prepare the third mordant solution. Measure fabric weight. You will need some 4 g of mordant salts for one pillowcase (135 g of fabric). Dissolve the salt in a small quantity of warm water and then pour it into a dye pot with pre-heated water. Stir well and add one pillowcase to the pot. Bring the temperature to around 80° C and simmer for at least 30 min. Keep stirring to make sure the fabric is submerged. Shade depth increases markedly and the colour becomes a deeper gray than that obtained using the plant dye bath.

7. Rinsing and further care of linen items

Rinse well dyed linen textiles several times until the water is clean. Let it dry. For further care, use mild detergents, hand or machine wash at 30° C.