Latest Trends in Textile and Fashion Designing

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Opinion

Natural Dyes in Historical Egyptian Textiles

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Membrane for Use in the Clothing Industry

Historical Background

Ancient Egyptian people were used the plain white linen fabrics during the most Egyptian eras. However, colored textiles were found also during the different Egyptian eras to disguise the cheapness of the fabric or to add a touch of beauty for their textiles. Tentatively, the first found dyed fabrics date back to [First dynasty], via a brownish piece of linen found at Tarkhan. More confident, anther dyed fabrics (a red cloth fragment) were found dyed can be assigned to the late third or early [fourth dynasty] [1]. Generally, with the New kingdom (18th Dynasty -1550 B.C), cloth woven with colored threads was used more frequently. The international museums contain a high numbers of dyed fabric date back to ancient Egypt. Dyed and painted textiles in ancient Egypt became more and more common during later eras such as the Coptic and Islamic periods [2].

Two papyri date back to the third or fourth century A.D., which were found in Egypt, probably, describe the dyeing process and nature of the colors used at that period. These are papyrus X, now in Leyden, translated by Berthelot, and Papyrus Holm, now in Stockholm, published by Lagercrantz. These two papyri, so far they deal with dyes and dyeing, have been made the subject of a special study by Pfister [3].

Dyes Sources in Ancient Egypt

i. The ancient Egyptian blue has always been called indigo. Indigo, however, is produced from a great variety of plant. One of most famous example is Isatis tinctoria in ancient Egypt. Other common type of blue dye is Indigo plant "Indigofera tinctoria", the dyestuff extracted from the plant leaves. The source of Indigofera tinctoria is India.

ii. The madder plant's root (rubia tinctorum) is one of the red dye in ancient Egypt [4]. Textile fragment dyed with madder dye was found in in the tomb of the Pharaoh Tutankhamun. Madder dye contains different organic red components such as Alizarin Purpurin, Munjistin (Figure 1).

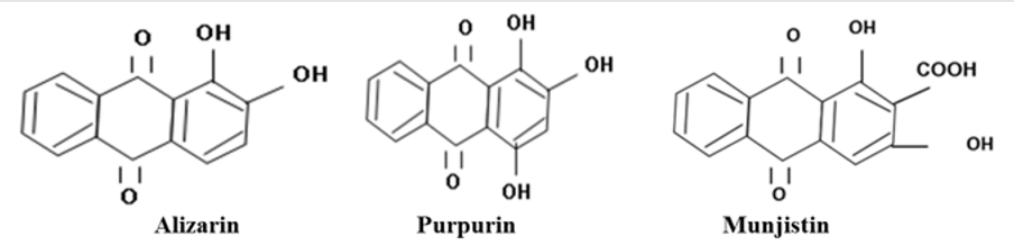

Figure 1: Madder dye contains different organic red components such as Alizarin Purpurin, Munjistin.

iii. The oldest potential records of henna dye as a red color use come from ancient Egypt. The dye components found in leaves of henna that is called Lawsonia inermis. Still now henna dye use to decoration of the human body and coloring of hair. It found in the ancient Egyptian mummy.

iv. Yellow is safflower dye that is found in central Asian to the Mediterranean region. Safflower dye is contain a two type of color yellow dye, which dissolve easy in cold water and red dye (Carthamin acid), which the molecular formula is $C_{43}H_{42}O_{22}$. Safflower dye is called (*Carthamus tinctorius L*). Researchers suggested that the safflower is a source of yellow color in ancient Egyptian textiles. Hubner found the safflower dye on fabrics of [Twelfth Dynasty date].

v. Turmeric botanical name is Curcuma longa. The name Curcuma is derived from the Arabic word kurkum. About 90% of the yellow natural dyes are flavonoids. The coloring component is Curcumin $C_{21}H_{20}O_6$.

vi. Saffron dye is one of the yellow dye. It is originally the product of saffron flower, which is characterized by small size. It is used widely in ottoman carpets. The original place of saffron is the eastern Mediterranean area, some believed that saffron originated in Iran, and it is called "Crocus cartwrightianus". The main color components is Glycoside crocin, and the molecular formula is $C_{44}H_{64}O_{24}$.

vii. The green color is mixture between blue color and yellow color. In one instance R. Pfister found a green color to be due to indigo (woad) together with a yellow color, and a similar green was also examined by Schunk.

viii. Historic Royal purple that known as Tyrian purple, or shellfish purple and it of the Ancients. This color extracted from marine shellfish, which is one of the Muricidae and Thaisidae families. The historic Royal purple dye has been known from ancient period which since pre-Roman times and there is different evidence for the industry around the 13th century B.C in the Mediterranean region especially at Sarepta, and Lebanon.

Dyes Sources in Egypt (Different Periods)

i. The main Ottoman source of blue color was indigo from (*Indigofera tinctoria*) which mostly came with the spices from India. Indigo was also important in dyeing crimson and, with lac, kermes or cochineal, could also give a range of deep purples [5].

ii. The most common yellow dye was obtained from safflower (*Carthamus tinctorius*), which was grown in Egypt and Iran as a commercial crop and which gives colors ranging from orange to a vivid golden yellow.

iii. The most widespread red color was the Kermes (*Kermococcus Vermilio, formerly Cocus ilicis*) which infests the branches of the Kermes oak (*Quercus coccifera*), a species that grows all round the Mediterranean.

iv. Cochineal dye was very probably being imported in small quantities by the later sixteenth century.

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