

Causes of yellowing of pages of the Lobab Al'Akhbar manuscript related to the 13th century A.H. and providing a conservation plan

Abstract

The remained historical objects from the past represent life styles, cultures and customs. Manuscripts, among these objects, have offered these customs more tangible due to their natures. Thus, conserving these objects could help us to protect the information. On the other hand, because of their ingredients, that generally are organic and vulnerable to the environmental factors, they precede a deterioration trend. All objects need to be known as the accurate characterization and construction techniques. Regarding to this, conservator should consider the best method.

The lobabal'Akhbar manuscript is a religious book (related to Thirteenth Century A.H. /Nineteenth Century) and contains the Muslim Prophet Muhammad sayings. It was written by Mohamed Mubarak Ebne Noor e Zaman with the Sols calligraphy. The papers of this manuscript are thick and have a yellow to brown color. The aim of this project is to investigate the causes of the yellowing in this paper manuscript based on structural studies of historical paper, prototyping and accelerated aging. The process is based on the laboratory and library studies. For identification of yellowing causes of this manuscript papers, The laboratory studies were done on the extraction of the dye and the fibers from the papers of lobabAl'akhbar manuscript. They were followed on the dye extracted of the papers by infrared spectroscopy and visible spectroscopy methods and the identification of fibers by reagents and microscope. After the identification of Henna in matrix of paper, and hemp fiber and textile rags in the paper the preparation of samples were done according to the identified paper's structure. Then, the samples, contain handmade paper with hemp fiber and textile rags and the same samples with henna dye, were gone under the light, relative humidity and temperature accelerated aging and the degradation of them were measured by Fourier Transform Infrared Spectroscopy, pH meteri and Colorimetric studies.

In the end, it was clear that after accelerated aging the most color changes in associated samples happened where only hemp fiber and textile rags were used and it showed that Henna dye used in the samples prevent hemp fiber from the oxidation.

Keywords: LobabAl'akhbar, yellowing, henna, accelerated aging.