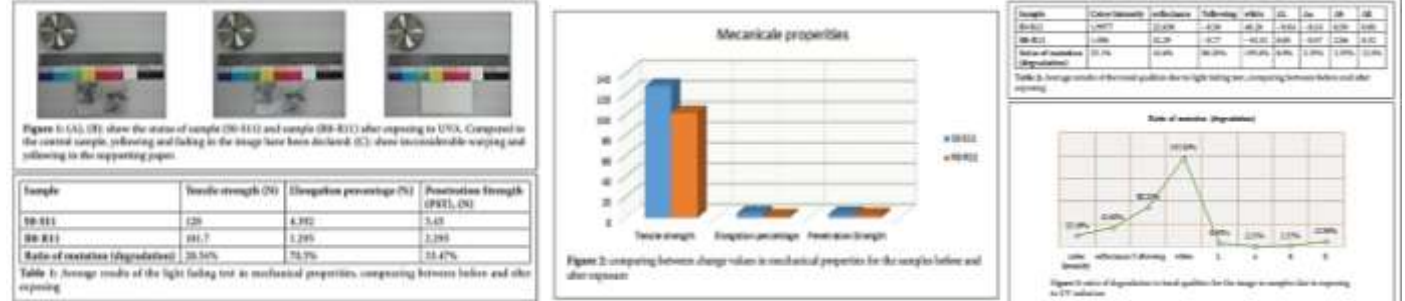


Rasha Shaheen, Mona Ali (Egypt)

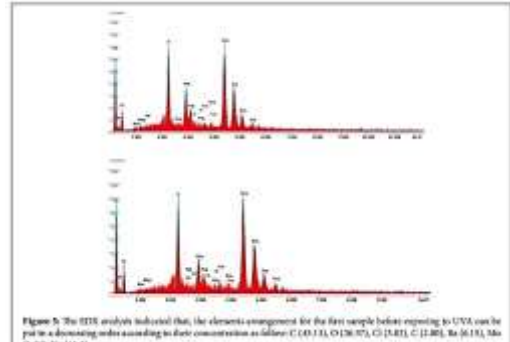
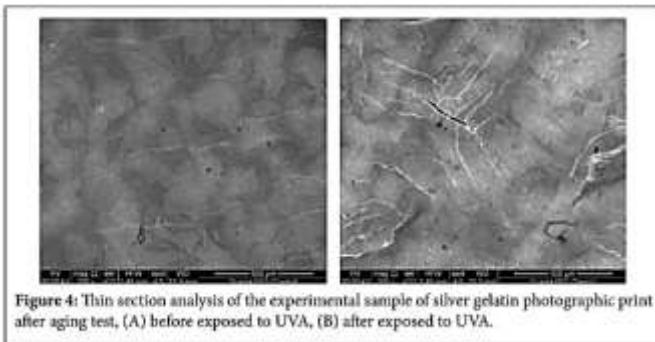
Abstract

This paper shows the experimental and analytical studies of gelatin behaviour at photographic prints during the exposition to ultraviolet radiation. The test material used is black-and-white photographic paper. Different properties and characteristics of the prints have then been measured and compared before and after the irradiation. SEM used to study the surface topology of the gelatin. FTIR-ATR XRF analysis used to modify characteristic of the surfaces. Mechanical performance used to study. Color change was studied. The obtained results indicate a strong effect of the UV radiation in the color characteristics of the silver image, a certain change in the mechanical properties of the supporting paper and only slight consequences on the chemical properties of gelatin, which may probably increase with time.

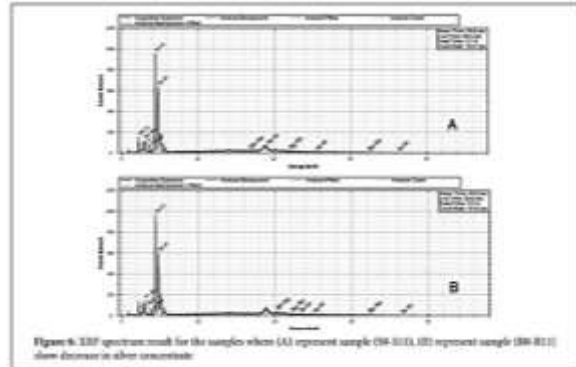
Visual inspection, Mechanical properties, and Tonal qualities (colored change)



SEM-EDX

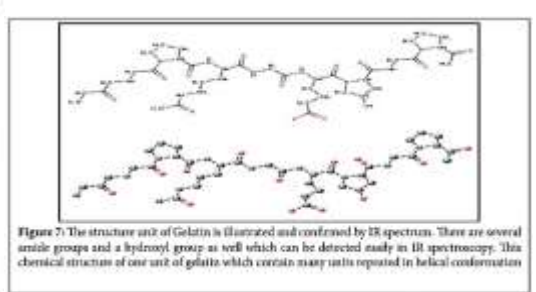


XRF analysis



FT-IR-ATR

Functional Group	Characteristic Absorp (cm⁻¹) (cm⁻¹)
Aliphatic C-H Stretch	2942.300 (s, w)
Aromatic C-H Stretch	1600.03.0100
Aromatic C-H Stretch	1603.70
Aromatic C-H Bending	969.823(s)
Alcohol/Fluorine C-H Stretch	1040.00 (broad, w)
Carboxylic Acid C-H Stretch	2600.000 (broad, w)
Aromatic N-H Stretch	3300.000 (w)
Alkyl C-H Stretch	2912.198 (s)
Spine C=O Stretch	1732.189 (s)
Linear C-O Stretch	1578.123 (s)
Carboxylic Acid C=O Stretch	1702.07 (s)
Aromatic C-O Stretch	1065.100 (s)
Aromatic N-H Stretch	3300.000 (w)



Conclusion

The enquiring and analysis methods used in this paper show that silver gelatin photographs print-out (DOP) is greatly affected by ultraviolet radiation and that effect is depend on the quantity of energy which exposing to the photographs. Various properties of the silver gelatin photographic print-out have been studied. The result proves that this energy discolouring, fading, and yellowing the image and lost its clarity, farther for weakness in the mechanical properties of the supported paper. Result also revealed that the amount of change that occurs in photographs as a result of exposure to 4.3 joule of energy released from the ultraviolet radiation for 3600 hours at a rate of 12.9%± will be in the color characteristics of the image, 25.1% in the color intensity of the image, 0.41%± in the mechanical properties of the paper supporting a picture. However, the chemical properties have been affected slightly, which may increase over time.

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