

According to the EDXRF spectral data, there are nine mineral elements are present in the sample. Among them, potassium was found to be highest amount (0.677 %) in the rinds of pomegranate. In addition, there is no toxic heavy metal in the sample. Thus, natural dye extracted from the rinds of pomegranate can be considered as eco- friendly and safe to the wearer.

3.2 Determination of Physical Properties of Dye Solution

3.2.1 The pH of Dye Solution and Mordant Solution

The pH of the dye and mordant solutions were determined by using pH meter and the recorded data are described in the tables (2) and (3).

Table (2) pH of Dye Solution

Solvent system	Sample	pH	
Distilled Water	Rinds of pomegranate	4.9	5 ± 0.12
		4.9	
		5.1	

Table (3) pH of Mordant Solution

No.	Mordant solution	pH	
1.	Common salt	6.5	6.5 ± 0.10
		6.6	
		6.4	
2.	Ash	12.6	12.5 ± 0.12
		12.6	
		12.4	

3.2.2 Specific Gravity of Dye Solution

The specific gravity of dye solution was determined by using specific gravity bottle and the recorded data are described in Table (4).

Table (4) Specific Gravity of Dye Solution

Solvent system	Sample	Specific gravity	
Distilled water only	Rinds of pomegranate	1.148	1.148 ± 0.002
		1.150	
		1.146	

3.2.3 Viscosity of Dye Solution

The viscosity of dye solution was determined by using viscometer and the recorded data are described in Table (5).

Table (5) Viscosity of Dye Solution

Solvent system	Sample	Viscosity	
D/W only	Rinds of pomegranate	2.06	2.07 ± 0.031
		2.08	
		2.07	

3.3 Dyeing Process of Wool Yarn, Cotton Cloth and Silk Cloth

In the dyeing process, two types of mordant solutions were used. The different colors of Wool Yarn with two different mordants are tabulated in the table (6).

