

Traditional Dyeing Techniques in Moroccan Amazigh Textiles: Ancestral Knowledge and Regional Practices

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Abstract

This paper examines the dyeing techniques in Moroccan Amazigh textiles. Amazigh women have developed ancestral and traditional methods for painting carpets and other textiles like veils. Passed down from mothers to daughters, traditional painting requires extensive knowledge of colour mixing, painting, and the correct plants to use. The colours are naturally extracted from henna (brown), indigo (blue), pomegranate peels (orange), weld (yellow), and other sources. The decoration often features geometric patterns inspired by nature and domestic animals; each motif holds a specific meaning known only to the women who interpret them. This study focuses on the use of these techniques in rural regions, particularly in the Anti-Atlas and Middle Atlas Mountains.

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Traditional dyeing of wool in Moroccan carpets

Carpets dyeing in Morocco is deeply rooted in a centuries-old expertise passed down through generations. Dyeing techniques vary from one region to another, with each region having its specific methods and ancestral knowledge. These traditions contribute to creating unique and characteristic carpets that reflect the country's cultural and geographical diversity.

For instance, the Haouz region is known for its predominance of red hues, resulting from the use of madder roots in the dyeing process. This technique gives the carpets of this region a distinctive appearance and a specific colour palette. In contrast, carpets from the High Atlas utilise different materials for dyeing, including henna, pomegranate bark, and saffron. These

natural substances provide the High Atlas carpets with dominant shades of yellow and orange, creating a particular aesthetic that reflects the richness of the region and its natural resources.

This variety of dyeing techniques and choice of materials demonstrates how the production of Moroccan carpets is deeply intertwined with local culture and environment. Each carpet tells a unique story, showcasing the craftsmanship and ingenuity of Moroccan artisans.

In the late 1880s, there was a surge in the popularity of synthetic dyes due to their vibrant hues and lower costs, but their fragility and tendency to fade quickly limited their appeal. At this time, in Morocco, aniline dyes gained increasing popularity, but their incorporation into traditional carpet dyeing led to partial discolouration and deterioration of the designs' quality (Garcia 2000, 49).

According to a document from the early 20th century, locals in the Ouarzazate region nearly entirely switched from using vegetable dyes to imported mineral colours from Marrakech. Despite the presence of 500 looms, the use of aniline colours significantly degraded the quality and value of carpets produced in the region. Initial efforts focused on researching dyeing substances and documenting the vegetable dyeing method.

To preserve the nobility of these Moroccan pieces, the French protectorate established in Morocco introduced a state seal in 1919, guaranteeing their authenticity and quality; only carpets made with natural wool, or dyed using traditional methods, received it and could be exported:

The carpet presented must be a hand-knotted carpet. It must be recognized as all-wool, both in terms of the warp and the weft as well as the knotted points. It must not show any traces of dyes other than vegetable or animal dyes (indigo, weld, daphne, henna, madder, cochineal, etc.), with mordants and reagents such as alum and iron sulfate not considered as dyes. Furthermore, it must not include any decorative motif. (Ricard 1923, 9)

Moroccan carpets were thus handled with attentive care; this concern intensified with the publication of a reference book in 1934 untitled *Corpus of Moroccan Carpets*, which captured the meticulous control and inventory of motifs, dyeing materials, and traditional dyeing processes, highlighting the artisans' infinite creativity while preserving the structure of specific types.

Regional dye plants and their uses

Weavers use a variety of plants and local materials to achieve vibrant and durable colours. Selected elements include madder, henna, sumac, and oak bark for red and brown shades; indigo and woad for blues; weld, daphne, and pomegranate bark for yellows. These same plants are also used to obtain black, albeit iron is added and modified its hue. This colour palette is central to the traditional wool dyeing, meticulously chosen by artisans to create attractive and long-lasting hues (**Fig. 1**).

Garcia explains that in Morocco, colour was often intrinsically linked to the immediate environment. Unlike other places where colour may be used to represent something else, in Morocco, it is strongly anchored in the local flora. In regions like Ouarzazate, where vegetation is limited, traditional dyeing techniques involve a deep understanding of natural sites to ensure sustainable harvesting of dye plants. Whether gathered from the wild or cultivated, these plants are typical of the region and form a kind of bond between the artisans and their land (Garcia 2000, 51-52).

In Ouarzazate, *achfoud*, a type of thorny broom, grows spontaneously on the southern slopes of the Atlas and throughout the Siroua massif. This shrub reaches a height of 80 centimetres in the region and is likely the dyer's broom or dyer's gorse because of its simple leaves. Its flowering occurs in April and May, and the flowers are hand-picked, dried, and used for dyeing. Sometimes, locals uproot it to collect its blossoms. Preserving broom populations seems desirable, as does the creation of specific nurseries. Additionally, *taroubia*, also known as madder, grows wild in regions like Ait Zineb, Ait Tassa, and Ait Tamast. This plant belongs to the Rubiaceae family. In the region, its height never exceeds 30 to 40 centimetres. During plowing, the uprooted roots are collected by the plowmen, dried in the sun on a threshing floor, then sold at local markets for two to two and a half francs per kilogram. Ait Zineb had a few madder fields until 1920, but this cultivation was abandoned due to the predominance of aniline colours on the market. Promoting this cultivation could prove advantageous.

Other elements are part of local dyeing recipes, notably the use of henna, which is cultivated throughout the Draa Valley. Dried henna leaves are sold for six to eight francs per kilogram at regional markets. Additionally, to obtain quality dye, certain secondary products are added at the last moment, such as dried date pulp, turnips, dried figs, and rock salt. Wool yarns are generally dyed dark yellow using *tiferkay*, which is pounded apple bark. Pomegranate leaves, *tanik* forge slag (rust), and soot are used to produce black dyes. The cultivation of indigo is also important in the region. All these products necessary for dyeing are available in sufficient quantities in the Ouarzazate region to support the local carpet industry, except perhaps for *faila*, which has been abandoned for thirty years; its production could be encouraged both artistically and economically.

In Moroccan carpet art, colour is not merely used to visually represent something else. Moroccan carpets are often adorned with motifs, symbols, or abstractions, and the colour itself, directly obtained from plants, has a strong symbolic meaning (**Fig. 2**). This approach to colour values the hue in all its purity and intensity, using dye plants in their most authentic form; thus, it is described as modern. The deliberately limited choice of dye plants testifies to a commitment to quality and results of a long experience and accumulated know-how over time.

The above-mentioned vegetable dyes cannot effectively adhere to wool fibres without the use of a mordant, such as the commonly used alum. Purchased in its pure form, some dyers opt for raw alum *azarif* extracted from veins by the inhabitants of Ait Semgane (Siroua).

Recipes and dyeing processes

The vegetable dyeing process executed by Amazigh women in rural areas reveals a subtlety: not all plants can directly impart a colour, and dyes obtained by heating the plant juice with wool tend to lack durability, leaving artisans dissatisfied. To fix dyes into wool, various adjuvants, both mineral and vegetable, are traditionally used. Mordants are essential for anchoring the dye to wool fibres. For example, with the madder plant, wool is first soaked in a bath of natural alum—aluminum salt before being dyed with the plant's roots. Indeed, the use of oranges and ashes from a specific plant in the process demonstrates a practical understanding of mineral salts and their role in fixing colours (**Fig. 3**).

Although traditional vegetable dyeing methods in Morocco, notably the use of alum as a mordant, are highlighted, this practice is questioned by environmentalists due to concerns about its potential toxicity. Finding alternatives to alum, if concerns prove justified, would place vegetable dyeing practitioners at the forefront of modern advancements in this field (Garcia 2000, 53-54).

Henna is also used to dye wool, particularly in the Tazenakht region, by macerating wool with lemon slices. Various plants are presented as capable of producing varied colours, such as maroon with sumac root, red, yellow, or pale green with tizra, plain yellow with *garou* and alum, or black with *garou* and iron-rich marsh soil.

The method used to obtain blue with indigo consists of crushing fine powder and mixing it with hot water, figs, dates, sugar, and lye for fermentation before dyeing the wool. Another technique involves macerating figs or raisins in water for 12 days before adding indigo and wood ash water for dyeing.

The dyeing wool process involves seeking out women who still possess the knowledge to apply these techniques. In the douars of Siroua, elderly Berber women have shared their recipes:

- **To dye with indigo:** Crush a handful of indigo dye with a quarter kilo of date pulp and a quarter kilo of henna, add water and boil. Soak the wool threads in the mixture and let them dry in the sun.

- **To dye red:** Mix the wool with white or raw alum, boil the water, let it cool, then wash the wool and let it dry. Soak the wool in a mixture of water and pounded madder, boil, let it cool, then wash the wool thoroughly.

- **To dye yellow:** Mix the wool with pounded white alum, pounded apple bark, and sieved *achfoud* flowers, boil, let cool, and wash with cold water.

- **To dye black:** Crush pomegranate leaves and mix them with water and other ingredients such as *tanikt* stones (forge slag), turnips, pounded dates or figs, and some henna in boil, let cool, and wash the wool.

As with all previous stages of the preparation, dyeing wool is also accompanied by specific beliefs and rituals. For instance, on the eve of dyeing the wool fibres, the weaver fumigates the wool ready to be dyed, hides it, and purifies herself as if preparing to pray. The next morning, at dawn, she returns to the dye bath exposed to the stars without looking back. Then, after saying a prayer, she starts the dyeing process (Chtatou 2020).

All these processes illustrate the knowledge and expertise of illiterate Amazigh women. Without formal education or any academic training, they have developed an artistic field by creating painted textiles, especially carpets, using various techniques. The precise amounts of each ingredient needed to obtain colours show the finesse and skills of Amazigh people in natural dyeing techniques in Morocco.

***Tadghart/adghar*, a wedding veil painted with henna**

Tadghart is an Amazigh (Berber) veil worn exclusively by brides during weddings. Woven by the brides' mothers using traditional techniques, this textile is made of wool and decorated with cotton (Viola 2007, 11). It stands as a vibrant expression of Amazigh cultural heritage in Morocco. These textiles often showcase intricate designs and symbols, such as the sun and the *khamssa* (the hand, symbol of protection) or a square *aquemlil* (**Fig. 4**), which hold deep significance within the Amazigh community. Beyond their visual appeal, these textiles serve as a means of storytelling, reflecting the Amazigh people's history, beliefs, and traditions.

These symbolic textiles are particularly noteworthy for their use of henna, a natural dye derived from the henna plant (**Fig. 5**), known for its protective and magical properties. It results in intricate patterns and motifs, often in shades of red, brown, or orange. Among the Amazigh from the Anti-Atlas region, henna's 'blessing power' elevates its use in dyeing and painting textiles, particularly in the creation of wedding coverlets and women's accessories. The Ida and Nadif sub-groups were renowned for their exquisite weavings and painted scarves, characterised by a distinctive U-shaped format and a rich palette of deep henna, red, and gold.

The use of henna is typical of this region. The process involves drying and pulverising the leaves, mixing them with water and lemon juice (or kerosene), and letting them macerate until the formation of a liquid paste. The latter is then applied with a stick or finger on the area where cotton motifs have previously been placed. Similar to the stencil technique, since cotton does not absorb henna, the decoration appears as a geometric motif on a henna background.

Alternatively, geometric motifs are directly applied to the fabric, especially along the edges. The henna is left to dry for several days, and after the dried crust is removed, the process is repeated several times until the desired colour intensity is achieved. Finally, the colour is fixed with a liquid made from the alkaline ashes of the central stem of palm leaves, mixed with water before being applied to the henna.

The Ait-Abdellah tribe, in the western Anti-Atlas, uses a distinct method to decorate their bridal veils. These rectangular veils, adorned with four large pompoms, are half-woven with motifs in darker wool compared to the rest of the fabric, which is a natural ecru colour (Viola 2007, 12). The woven section is dyed by the men using a mixture of dark dyes, creating darker areas where the wool is darker; this frequently forms peaks that might represent the surrounding mountains (**Fig. 6**). After washing and drying the veil, women perform a ritual ceremony to protect the bride by drawing a narrow band of henna along the seam separating the dyed and ecru parts. Both men and women participate in making these veils. During ceremonies, the four corners and pompoms are tied up, creating a picturesque effect as the bride moves.

In the northeast of Morocco, the Beni-Ouarain confederation of the Middle Atlas, known for their carpets, also crafts bridal veils known as *tarredat* (Viola 2007, 12). These veils are woven with exceptionally silky wool and sometimes decorated with stripes of linen or cotton. Generally square, they are adorned with fringes and dyed using a resist dyeing technique. After tying and dipping certain parts of the fabric in black dye and after drying, henna is repeatedly applied to the same areas to cover the black contours. Women use sticks to draw a network of long lines with henna, finishing with small touches applied with their fingers. They sometimes add sequins, known as *mozouna*, to reflect light and ward off the evil eye. The graphic effect of these veils forms patterns resemble the number 8 (**Fig. 7**).

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Fig. 1

Natural colors used in dying carpets.
Permanent exhibition at the National Museum of Weaving and Carpets, Marrakech.

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Fig. 2

Symbolic motifs on Amazigh carpets from the Haouz of Marrakech, 20th century.

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Fig. 3

Traditional process of dyeing wool with natural plants.

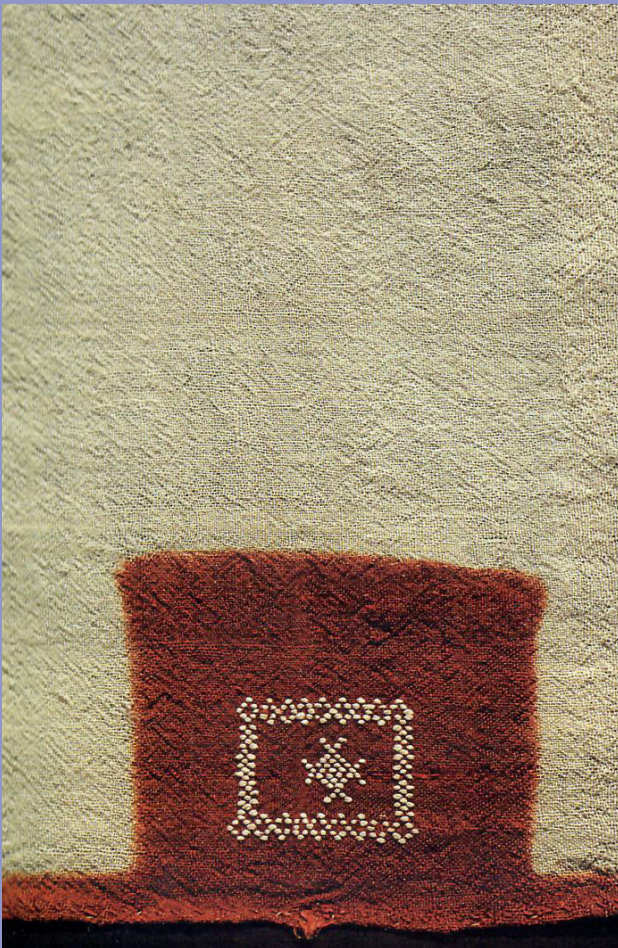
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Fig. 4

Henna-painted imprint on a ceremonial veil (Adghar), Anti-Atlas (Ida ou Nadif tribe), before the 20th century.

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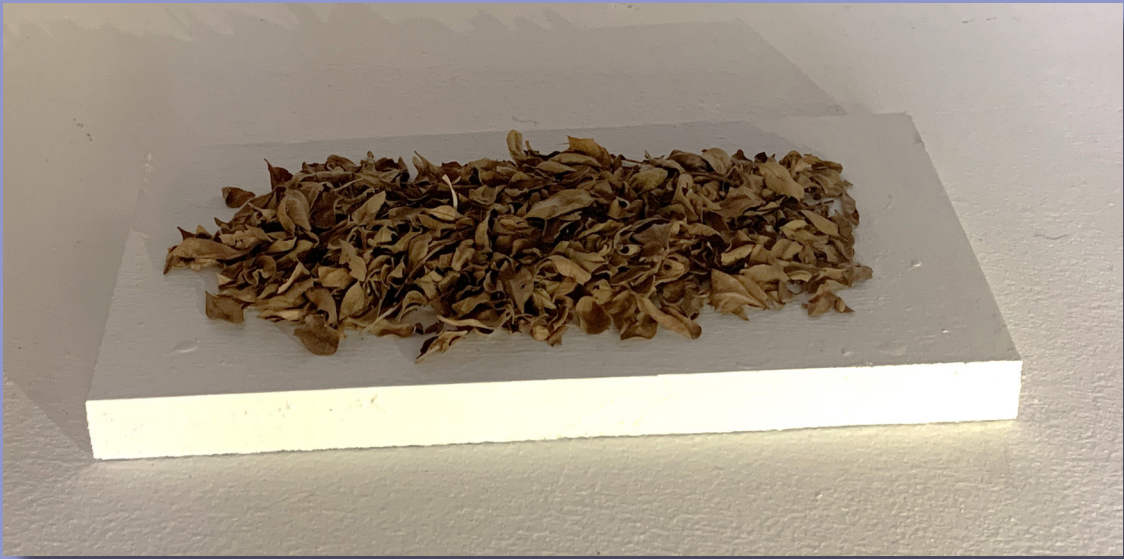


Fig. 5

Dyed henna plant, permanent exhibition at the National Museum of Weaving and Carpets, Marrakech.

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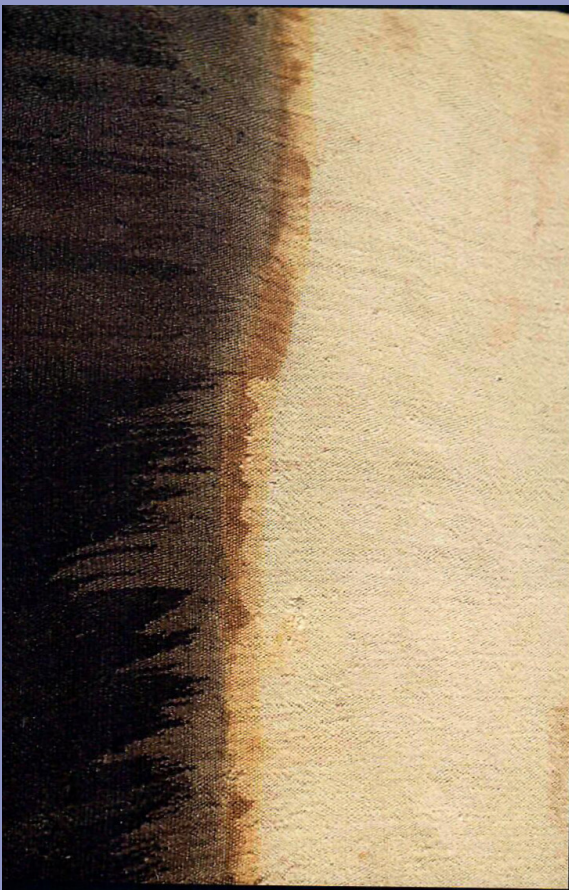


Fig. 6

Examples of nuanced henna colors on an Amazigh veil, Ait-Abdellah tribe.

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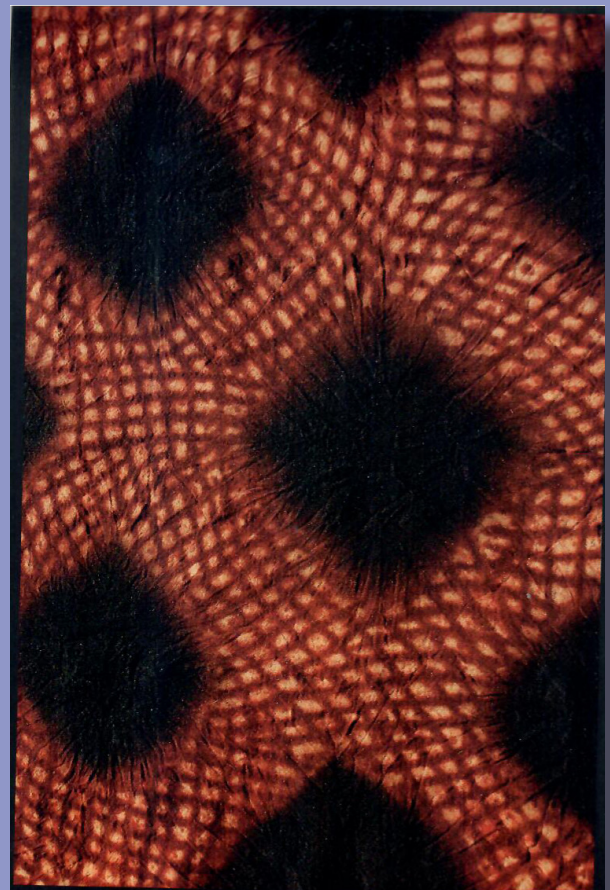


Fig. 7

Tarredat veil with an eight-shaped motif, dyed in black and painted with henna, Beni-Ourain (Ahl Telt/Taida tribe).

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