



## EYE DISEASES IN MOROCCO AND NONSURGICAL TRADITIONAL MEDICINE

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### ABSTRACT

Ophthalmic problems afflict a substantial segment of world population. These problems are generally managed with antibiotics and steroids, but prolonged use of these drugs may have potential side effects. The Ayurvedic system of medicine has described a number of medicinal plants useful in the treatment of ocular diseases and disorders. In the present survey, we report the different drugs, of vegetal, animal or mineral origin, used in traditional medicine, for treatment and prevention of eye diseases in Morocco.

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### INTRODUCTION

An estimated 37.9 million people worldwide are blind (WHO definition as: vision less than 3/60), the diseases that most threaten vision being glaucoma and trachoma. (1, 2). Around 80% of the world population do not have access to modern medicine and rely on traditional practices (3), especially in areas where there is not many health centres available (4, 5). Traditional medicine is still a very common form of medication in Africa; however certain therapeutic procedures are more harmful than beneficial.

Damage caused through traditional medicine depends on the type of substance used, concentration, pH, temperature, sterility of the preparation and mode of application. Traditional treatment when applied to the eye may bring an infection as it can cause physical, chemical or thermal injury leading to permanent eye damage, often up to blindness. (5) Unfortunately, most healers think that only pain medications can be strong in therapy. In addition, corneal injuries remain the leading cause of monocular blindness not only in Africa but worldwide. (6, 7, 8)

Inflammation of the conjunctiva is the most common disease in the eyes; it is caused by exogenous factors such as viruses, bacteria, fungi, dust, toxic or irritating substances or by endogenous factors. All these harmful agents can lead to swelling in the epithelium, cell death and dissolution of the epithelium, granuloma formation or chemosis and follicle formation. In Zambia and India, irritation of the eyes is the most encountered complaint; conjunctivitis was revealed the most common eye disease for children under 5 years. In

Central Europe, conjunctivitis appears in 13.05% of the population with common causes being allergic or toxic ones. (9)

In a developing country such as Morocco where the population continues to keep its traditions and habits while wary of medicine and chemicals, and where the socio-economic level is still very low, it is not uncommon to find even today some remains of the ancient medicine. Despite the presence of sophisticated ophthalmology centres and the increasing number of ophthalmologists we continue to practice the ancient medicine in the countryside as well as in the cities. For people living far from modern health centres, traditional medicine refers to ancient medicine, the one practiced by local doctors who have never been to medical school. (10, 11)

Trachoma is an epidemic blinding eye disease in parts of southern Morocco where the climate is arid or semi-arid, and where conditions are favourable to develop infection. Due to Chlamydia trachomatis, trachoma is known for over 3000 years and is one of the public health priorities in Morocco, because of its epidemic appearance and its blinding complications that are expensive and more complex to treat than the initial stages of the disease. The Ministry of Public Health in collaboration with WHO and UNICEF developed a strategy to control and manage these complications. Through this strategy, the prevalence of trachoma in southern Morocco have felt in few years. (12)

Considering these observations, and the fact that traditional medicine is still widely used in Morocco, we have conducted a traditional practice assessment survey.

### Study site

We have conducted our survey in different cities of Morocco: Figuig, Oujda, Taza, Fez, Meknes, Rabat and Casablanca. The data for each individual were recorded, including name, age, sex, origin and address.

### METHODOLOGY

The investigation lasted for a year and involved 285 people (85 men and 200 women) aged 6 to 80 years, and with different socioeconomic levels (students, civil servants, businessmen, housewives ...). The survey included questions on all kinds of products used for the eyes, whether for cosmetic, preventative or therapeutic purposes, on the nature of these products, either animal, vegetal, or mineral. The questions also concerned some details such as the dosage, application and administration mode ...The results of each treatment were requested, as well as the potential side effects observed. We have also expanded our investigation with interviews of people who have started to consult ophthalmologists after practicing traditional medicine.

### RESULTS

Some home recipes are still being used in Morocco: different kinds of eye drops and products are always in the spotlight to prevent and treat various diseases of the eye. The large number of plants and methods used in the traditional treatments of ophthalmic diseases indicates the high incidence of these diseases among the population. However, information gathered on drugs and widely used products for eye diseases do not specify how these products are used, and terms of use are not specific, it always mentions eye disease or ophthalmia.

The majority of people using traditional medicine were women with an age between 20 and 40 (Tables I and II). People who do not use traditional medicine prefer synthetic cosmetics, and go to ophthalmologists if they do not feel well. According to their testimonies, the eye is the most sensitive organ of the human body and therefore we should not try traditional recipes as we are not sure of their effectiveness. 72.3% of the surveyed people use their drugs directly into the conjunctival sac (Table III), either by using eye drops, rubbing the product directly inside the eye or using wooden sticks. The different recipes collected in our survey are shown in Table IV.

**Table I** Distribution by age and sex

Age (years)	Men	Women	Total (%)
0-10	17	23	40 (14.03)
11-20	15	38	53 (18.59)
21-30	8	47	55 (19.29)
31-40	23	25	48 (16.84)
41-50	6	51	57 (20.00)
51-60	5	7	12 (4.21)
61-70	3	4	7 (2.45)
71-80	8	5	12 (4.21)
total	85	200	285 (100)

**Table II** Distribution of people using traditional Medicine by age and sex

Age (years)	Men	Women	Total (%)
0-10	2	9	11 (6.62)
11-20	-	11	11 (6.62)
21-30	-	40	40 (24.09)
31-40	3	19	22 (13.25)
41-50	1	45	46 (27.71)
51-60	7	6	13 (7.83)
61-70	3	4	7 (4.21)
71-80	11	5	16 (9.63)
total	27	139	166 (100)

**Table III** Distribution by the application methods

Application method	Number of cases	Percentage
Drops into the conjunctival sac	55	33.13
Rubbing or using a stick	65	39.15
Oral administration	5	3.01
Compresses	39	23.49
Steam baths	2	1.2

➤ The « khôl » (kohl) was the most mentioned product (IVd tables).

The kohl has been used since antiquity, widespread in Morocco; it is used daily by women, sometimes men and gets the newborn to prevent ophthalmia. It is used for cosmetic purposes as well as for the prevention and treatment of trachoma and conjunctivitis. The Prophet Muhammad often mentioned the effectiveness of kohl in vision improvement. (13) The kohl is a black powder containing stibnite (antimony sulfide), but galena (lead sulfide) being cheaper and more common tends to replace stibnite in the kohl production.

There is a large number of kohl recipes in Morocco, each region has its traditional one. They generally include galena or stibnite, white pepper (*Piper nigrum* L.), burnt copper (« Hdida Hamra »), the cuttlefish (« Zabad Albahr »), olive pits or burned dates, candy (« Sukkar Kandil »), indigo carmine (« Nila Zarka ») « Mosleh Alandar » (*Verbascum sinuatum*), « Gouza » (*Myristica fragrans* Houtt), « Ward Fillali » (*Rosa centifolia* Mill.) and ginger. Everything is finely grinded and mixed.

Some formulas contain more saffron, seeds of *Cassia absus* (« Boufettach »), « Oud Sedra » (*Zizyphus lotus*), « Foula Kahla » (*Vicia faba*), turmeric, ox bile or dried hedgehog (« Lemrar »). (14) Luxury kohl used by wealthy families contains, besides the usual ingredients, a pearl or a red piece of coral.

Kohl is contained in a small wood or metal vial called « Mokehla », a small lemon tree wood stick (« Marwed ») is used to apply kohl on the edge of the eyelids and at the inner canthus.

- Rose water is the most used product in Morocco after kohl; it is used as a treatment for many diseases such as irritates conjunctivitis, eye strain, allergies, usually in form of compresses or eye drops (tables Iva, IVb).
- Green tea and chamomile come in the 3rd place of our investigations they are used in form of compresses for conjunctivitis and eye strain. Chamomile can be instilled directly into the eye (Tables Iva, IVb).
- The most common method used to eliminate foreign bodies from the eyes is salt water: applied directly into the eye until the expulsion of the foreign body. One can also put a « Boufettach seed » (*Cassia absus*) in the eye, and expects its expulsion with the foreign body. Salt water is usually used to treat « mâdfar », when you have symptoms like red eyes or spines (Table IVd).

There is enough literature on the effectiveness of traditional preparations in the treatment of ophthalmic disorders. For example, Chinese herbs and acupuncture have been reported to have an effect improving ocular blood flow abnormalities, which are the major risk factor for glaucoma. (15) However, there is no herbal preparation available for clinical uses. Besides, the plants used in traditional medicine system have not been adequately studied using experimental models. Some patients admitted that in the case of certain eye diseases, traditional treatments used had no effects; on the contrary,

using these treatments resulted in the development of complications.

## CONCLUSION

The prohibition of traditional medicine is undoubtedly difficult, because there is a strong demand in rural and some urban areas. However, a significant proportion of ocular complications is due to self-medication, its low cost makes it more attractive than modern medicine. Therefore, given the tradition of using certain plants and products through generations, it is probably worth studying their active chemical principles using experimental models. In this study we tried to summarize the traditional practices carried out today in Morocco. Used drugs seem valid and safe on the user especially when they are prescribed for external use. Internal use drugs can cause serious damage to the eyes, through the direct application of toxic or corrosive substances into the conjunctival sac, by introducing micro organisms that can lead to infections or by physical trauma resulting from the application itself.

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