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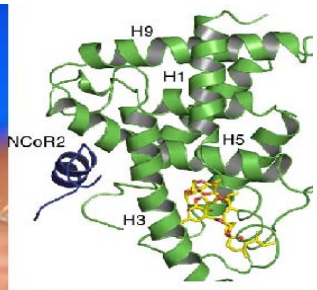

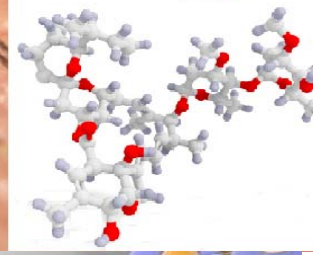

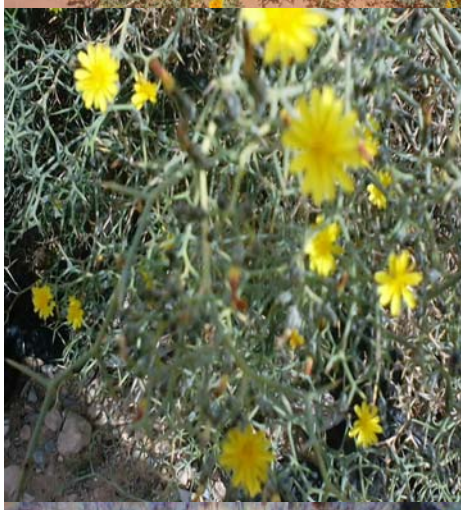

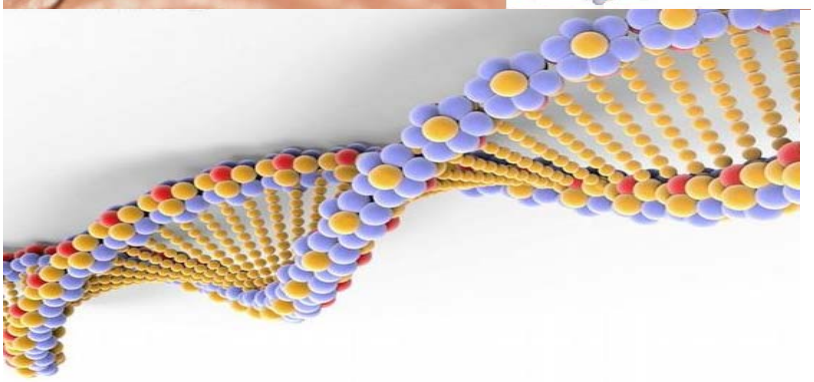

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Traditional use of *Citrullus colocynthis* (L.) Schrad. in Bou Saada (Algeria)

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Abstract. ***Context:*** *The study area called gate to the desert, the oasis is the closest to the Algerian coastline luxuriant vegetation, lies at the Monts Ouled Nail of the Saharan Atlas. The latter is characterized by the presence of a fairly specific Algeria dunes, presents a sizeable floristic and ecological diversity.*

Objective: *Highlight traditional usage of plants despite environmental characteristics.*

Materials and Methods: *Our study consists in the elaboration of a survey concerning the traditional use in the Bou Saada region especially Citrullus colocynthis (L.) Schrad. species. Ethnobotanical surveys were conducted in the study area during 2011-2012. His research has been conducted in collaboration with healers, herbalists and ordinary users.*

Results: *This analysis of Citrullus colocynthis (L.) has revealed its use by 69 people of different ages. In addition, it has multiple uses such as: rheumatism (50%), diabetes (24%), inflammation of skin (8%), bacterial infections (7%), diseases of prostates (8%) and female infertility (4%).*

Conclusion: *This study shows that the colocynth is traditionally used by people of both sexes belonging to age groups and socioeconomic levels and different intellectuals. At the end of this work the observations on traditional use of Citrullus colocynthis (L.) Schrad. can be useful to guide a research work in the chemical and clinical side.*

Key Words**:** *Traditional use, Citrullus colocynthis (L.) Schrad, Questionnaires cards, Bou Saada (Algeria).*

1. Introduction

The region of Bou Saada is dedicated in 1930 as high place of Algerian tourism. On the one hand, the tourist success of our investigation area is ensured through various attractive natural sites, the old Ksar, the zaouïa Rahmaniya El Hamel and secondly, that region offers enough floristic and ecological diversity important enhancement of this natural heritage especially in terms of floristic

research studies, ecological, medicinal and ethnobotanical plants are paramount [1-2]. This study involves the preparation and counting of a series of ethnobotanical surveys to collect the maximum information about therapeutic uses specially practiced by the species *Citrullus colocynthis* (L.) Schrad that enjoys a high frequency compared to other species by indigenous inhabitants, herbalists and healers in this region.

2. Material and methods

2.1 Study area:

Bou Saada is the second most populous town in the department of M'sila with a population estimated at 125,573 inhabitants [3] and covers an area of 249.34 km^2. This region lies at an altitude of 470 m, is situated geographically between 35°13'09"N 4°10'54"E. Bou Saada enjoys a privileged position in the central part of northern Algeria. At the foothills of Ouled Nail of the Saharan Atlas, the city is an oasis with lush vegetation, although in a semi-desert area and thanks to power supply using the Bou Saada river. The climate of the area is continental, due in part to the Saharan influences. Summer is very hot and dry while the winter is very cold, with low rainfall which is irregular [4-5].

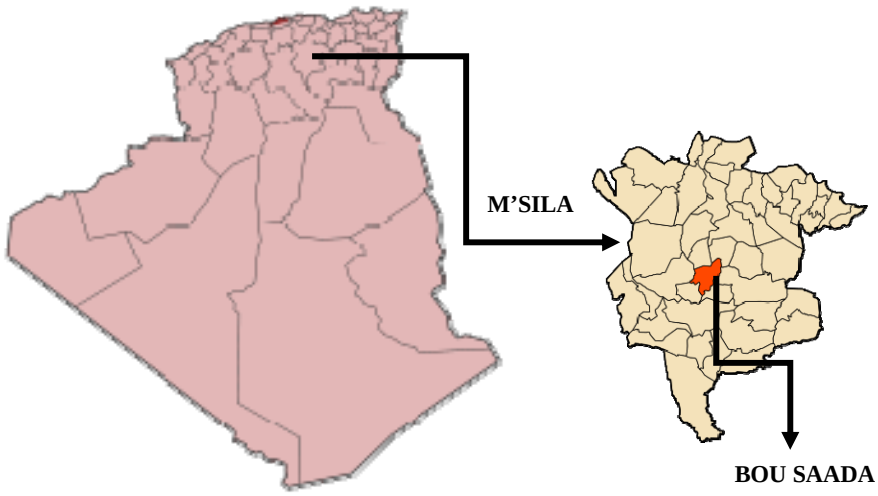

Figure 1: Location of the study area

2.2 Ethnobotanical data collection

The survey was conducted during the period 2011/2012; the information was gathered on traditional uses of *Citrullus colocynthis* (L.) Schrad. Colocynth said. Using questionnaires cards [6] that have been developed, we conducted ethnobotanical surveys throughout the territory of the town of Bou Saada order to have the maximum information concerning the traditional use of the species in question by locals because of their ethno medicinal knowledge. All investigations described the information on the informant, botanical characteristics of the plant (the scientific name, common name ...), ethnobotanical plant characteristics, disease intelligence, and more information on the fight and prevention against the diseases.

2.3 Colocynth identification

The colocynth is a plant known since antiquity, which received several nominations across the various countries of the world and may be variable in the same country; is most often confused

cucumber. It is called in Arabic "Handal", "Handhal", "Oorky", "Tatoor", "Hadag", "Hidej", "Mararet essahra"; in Berber called "Taferzizt", "Tifersit", "Alkat", "Ubruzi" and his name in Targui "Tadjellet" [7]. In French colocynth is called "Chilcotin" and "Coqueret" [8].
Species of the family Cucurbitaceae, Cucurbitoideae subfamily, tribe Benincaseae under Benincasinae tribe. The family Cucurbitaceae includes about 100 genera and 750 species [9]. High genetic diversity is noticed within species characterizing this family [10]. All of these species are creeping herbs, more or less woody, with tendrils at the base of the petiole placed in the square rod-sheet plane [11].

2.4 Taxonomy of Citrullus colocynthis (L) Schrad.

Reign	*Plantae*
Under reign	*Tracheobionta*
Division	*Magnoliophyta*
Class	*Magnoliopsida*
Underclass	*Dilleniidae*
Order	*Violales*
Family	*Cucurbitaceae*
Genus	*Citrullus*
Species	*Citrullus colocynthis*

3. Results and discussion

Determining *Citrullus colocynthis* (L.) Schrad. was made by the flora of Santa and Quezel [12]. All information and traditional therapeutic uses have been collected from local Bou Saada people and compared with the Algerian pharmacopeia [13].

3.1 Profile informers

3.1.1 Age
Using colocynth affects all age groups. It is mostly elderly enjoying a better knowledge of medicinal plants because of the experience and the transmission of popular craftsmanship. For young people, the use is very low. So it would be a loss of information among young people. The number of surveyed people arrived at sixty nine (69) people of different ages to be: 18 women and 51 men.

3.1.2 Sex
The use of medicinal plants by sex across the study area, men and women are involved in traditional medicine, with a predominance of men. Indeed, 74% of men surveyed use medicinal plants against 26% of women. This can be explained by the fact that men are traditionally the custodians of the secrets of medicinal plants because of their popular healers and herbalists trades.

3.2 Education level
The educational level of the informants in the region is of great importance because the colocynth may have some human vis-à-vis toxicity. In terms of our survey informants of varied educational levels. Regarding the academic level of those users of the plant, the results show that 30% are illiterate, 27% have a primary, secondary 24% and 19% university.

3.3 Profile traditional use

3.3.1 Used parts

Ethnobotany investigation found that the fruit of the colocynth is the most used part in this region with a percentage of 89% followed by 11% seeds. The remaining parts namely stem, bark, underground equipment, sheet and are now unused. In this sense, there are reports of toxicity studies on fruit *Citrullus colocynthis* collected in Bou Saada [14].

3.3.2 Preparation mode

Different treatment practices are used by local people namely maceration, infusion, fumigation, powder preparation, bath and poultice. Maceration is the most common method of preparation (67%) in the region of Bou Saada (Fig. 2), then the infusion (13%), followed by fumigation (7%). The other modes (poultice, bath and powder preparation) represent 13%.

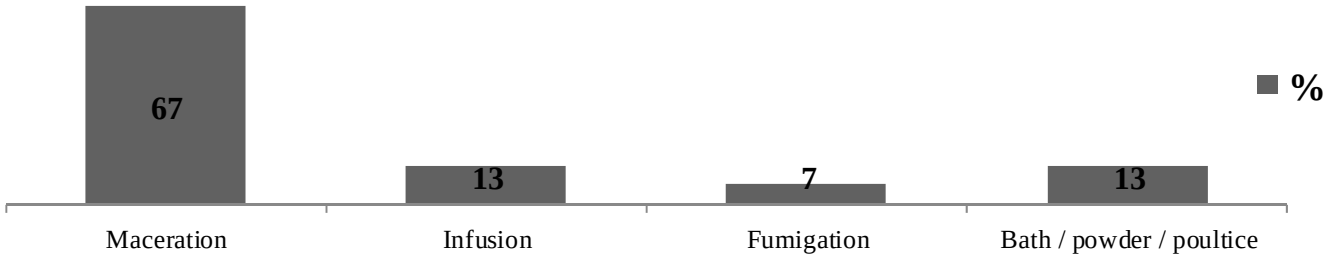

Figure 2: Distribution of different preparation mode at Bou Saada

3.4 Therapeutic indications

Ethnobotany analysis of the information collected allowed us to identify a number of diseases treated by colocynth. The results shown in Figure 3 show that the plant operates mainly in the treatment of rheumatism with a percentage of 50%, followed by 24% with diabetes. The remaining diseases (skin inflammation, bacterial infections, prostate and female infertility) represent 26%. Some work on the therapeutic indications is shared with our results [14-15].

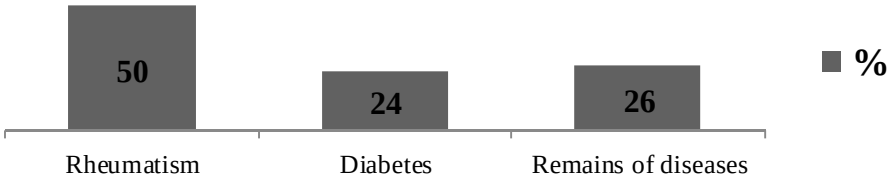

Figure 3: Percentage of therapeutic indications at Bou Saada

4. Conclusion

This study shows that the colocynth is traditionally used by people of both sexes belonging to age groups and socioeconomic levels and different intellectuals. The population believes that this species allows a cure or improved health. The dosages are not precise and vary from one person to another for the same indication. The colocynth therapeutic uses are especially rheumatism and diabetes.

Moreover, these results can be considered as a source of information for scientific research in the field of phytochemistry and pharmacology to search for new active ingredients based plants.

Conflict of interest

The authors declare no conflict of interest.

Acknowledgement

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