

ETHNOPHARMACOLOGY AND PHYTOCHEMICAL SCREENING OF BIOACTIVE EXTRACTS OF *LIMONIASTRUM FEEI* (PLOMBAGENACEAE)

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ABSTRACT

Limoniastrum feei (plombagenaceae) is a plant traditionally used to treat gastric infection in the southeast of algeria (saoura region of bechar) northern Africa. [1-2]

Leaves, stem and twig of this plant were screened for the principal classes of secondary metabolites, such as anthraquinones, terpenes, saponins, alkaloids, coumarins, flavonoids and tannins.

Keywords: Limoniastrum feei, Bioactive extract, Phytochemical screening.

INTRODUCTION

Present and future of medicinal plants, both as potential antimicrobial crude drugs as well as source for naturel compounds that act as new antimicrobial agents. It is interesting to note that local people believe that the medical effects of wild plants are better than those of cultivated species.

The aim of this studies is to evaluate the bioactives extracts of *Limoniastrum feei* plant of the Southeast of Algeria (saoura region of Bechar) northern Africa [1-2]by phytochemical screening. In earlier work we have reported the antimicrobial activity of aerial part crude extracts from *Limoniastrum feei* (Belboukhari et al 2005). In continuation of our studies on medicinal plants, we isolate tow flavonoids from methanolic extract of *Limoniastrum feei*. [3-4]

PLANT MATERIALS AND EXTRACTION

Aerial parts of *Limoniastrum feei* were collected in March – May 2005 from Boukais (region in Bechar) south-western Algeria. A voucher spercimen (CA99/14) (Belboukhari et al 2005) is deposited at the herbarium of phytochemistry and organic laboratory of university of Bechar .

All parts of *limoniastrum feei* (leaves stem and twig) were individually ground to a fine powder .Extraction using soxhlet apparatus; reflux for 3 hours was performed. The residue was evaporated in vacuo apparatus, and according to the operative fashions of chemical screening one determines the present natural product in bioactive extract [5- 6].

BOTANICAL DESCRIPTION

Limoniastrum feei is a tree belongs to *Plumbagenaceae* family. It grows to a height of 10 – 40 ft, it's possess long leaves and flowering palms without leaves, it's flower is entoured by a brickly bracts with a purplish red color. [2- 7]

Limoniastrum feei is common plant known under the name vernacular "Melefet Khadem" and used as a common herbal drug in the south-western Algeria (Ozenda, 1983, Cheriti et al 2004).

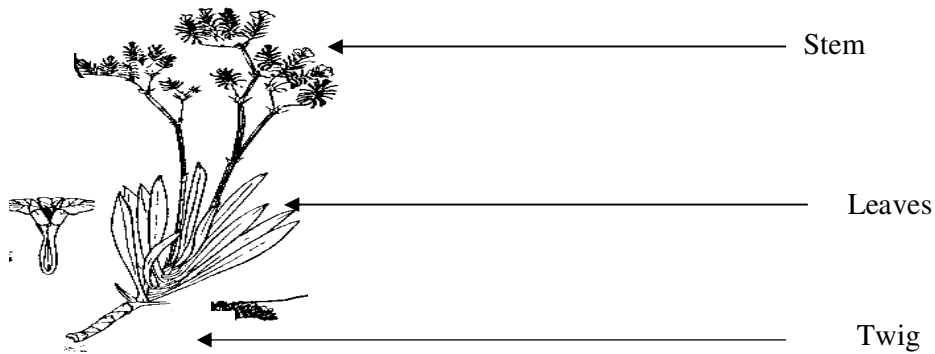


Figure 1. General morphology of *Limoniastrum feei*



Figure 2. *Limoniastrum feei*

Study Area

The district of Bechar (Saoura region of Bechar) is an area of 161400 km, it's situated between the high trays and the big sahara, in the SouthEast of Algeria Northern Africa. It's 1000 km far from the capital Algiers.

Climate is of the Sahara continental, it's whole dry, cold season starts from December to February and lasts May, June, July and August constitute a hot season it can reach the 40 °C. [8- 9]

Population

The majority of the population consists of four important origins: dewimenâ, ouled djerir, cheraga and ksouri. A total population is 180115(1999). The language of the inhabitants is Arabic. The people's main source of living in this region is farming. [8- 10]

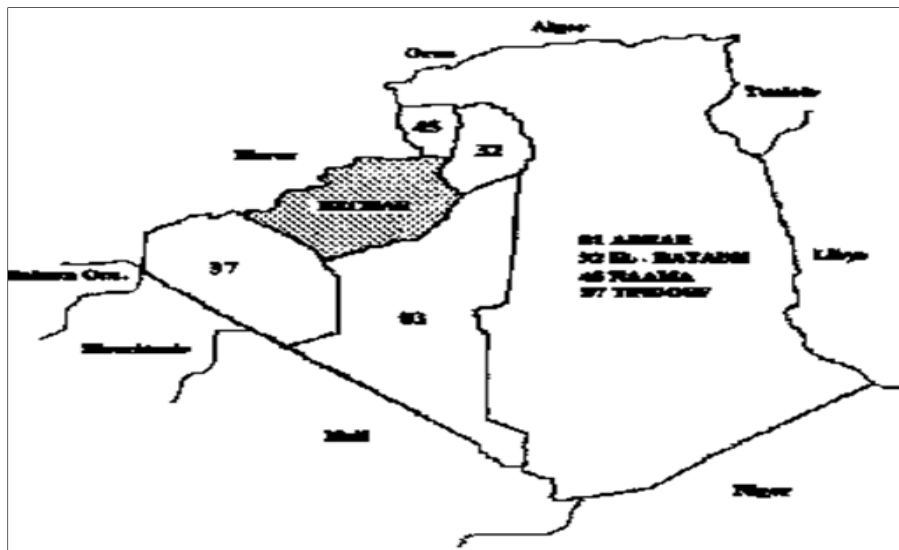


Figure 3. The location of Bechar district, Algeria

Ethno pharmacology Screening

According to the results of ethno pharmacology study to several medical plants that are used in Bechar (Southeast of Algeria) in traditional medicine, it carries out by laboratory LPSO (1998). We are interested to deepen the investigation of this specie.

METHODOLOGY

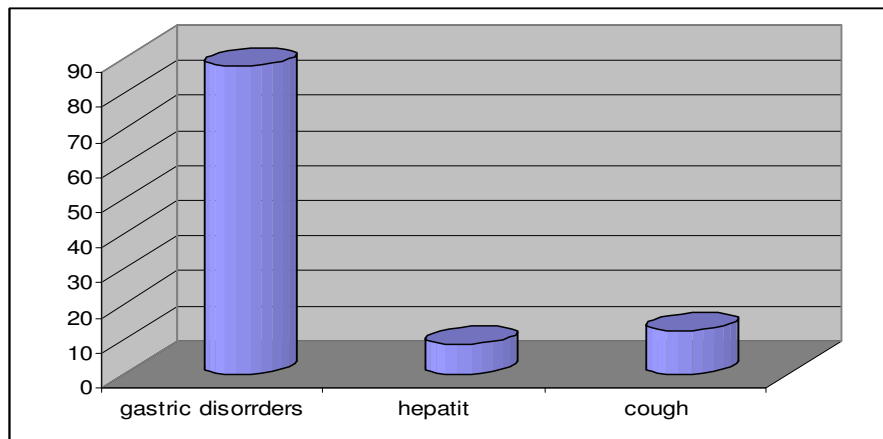
This ethno pharmacological investigation realized in the town of Bechar, during three months, failing to the pin inquiry, including one hundred persons.

Questionnaire include question on vernacular name, plant parts used, the plant part from (dried or fresh), medicinal use of plant medicinal preparation methods and the taken dose.

Gross-checked by interviewing elderly people aged between 50 and 70 years old, who had traditional knowledge about plants.

RESULTS AND DISCUSSION

Statistical information on the plant medicinal value authenticity used by the patients and elderly people is shown in the following histogram.



Preparations are usually made by using an entire plant parts.

The majority of medicinal traditional plants were prepared using water as solvent.

Phytochemical Screening

According to the results of biological screening of several extracts of three parts of *Limoniastrum feei* (leaves, stem and twig) [3- 4].The methanolic and heptan extracts of these parts of *Limoniastrum feei* were selected (table1) and were carried out a phytochemical screening on the active extracts for this plants.

Table 1. Extracts selected

Parts Use	<i>Escherichia coli</i>	<i>pseudomonas aeruginosa</i>	<i>enterococcus faecalis</i>	<i>klebsiella pneumoniae</i>	<i>Staphylococcus aureus</i>	<i>candida albicans</i>	<i>Saccharomyces cereviceae</i>
Leaves	MeOH	MeOH	MeOH	MeOH	MeOH	MeOH	MeOH
Twig	MeOH	MeOH	MeOH	MeOH	MeOH	MeOH	MeOH
Stem	MeOH	MeOH	/	Heptan	MeOH	Heptan	/

The crude of metenolic and heptane extracts of three parts of *Limoniastrum feei* were screened for the presence of saponins, flavonoids, tannins.

Table 2. Results of chemical screening of the aerial part of *Limoniastrum feei*

Natural products	leaves		twig		stem		
	MeOH	Water	MeOH	Water	MeOH	Water	Heptan
Alcaloïds	-	-	-	-	-	-	-
Saponins	+	+	+	+	+	+	+
Terpens	+	-	+	+	-	+	+
Tanins	+	+	+	+	+	+	+
Flavonoïds	+	+	+	+	+	+	+
Free Flavonoïds	+	+	+	+	+	+	+
Heterosids flavonoïds	+	+	+	+	+	+	+
Steroids	+	-	-	-	-	-	+
cardenolids	-	-	+	-	+	-	+

+: existence, - : not detected

Qualitative phytochemical screening of the water; methanolic and heptane extract of three parts of *Limoniastrum feei* revealed the presence of saponins, tannins, Flavonoïds, free Flavonoïds and Heterosids flavonoïds. However, Alcaloïds were absent

CONCLUSION

Limoniastrum feei (plombagenaceae) is a plant traditionally used to treat gastric disorders, prepared by decoction in water, took one cup of tea for each day. The phytochemical screening of the active extracts have noted the flavonoids, saponins and tannins existence in the methanolic, aqueous and heptane extracts of three parts the *Limoniastrum feei*. For that we have realized a correlation essay between the existing substances in plant extracts and both antibacterial and anti-fungal activity, which permit us to concluded that: the bioactive extracts contain Flavonoïds, saponins and tannins.

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