

# KNOW TO PROTECT AND CONSERVE TO USE MORE MEDICINAL SPECIES IN MEDITERRANEAN SCRUB

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# STUDY OF THE VEGETATION

- At the moment we are evaluating the medicinal potential of scrubs in La Safor (Valencia). Our study start with the vegetal association *Thymo piperellae-Cistetum crispum*
- This is an endemic vegetal community of the Valencian Community
- We study the characteristic species which are not considered medicinal plants

# SPECIES

The species we have studied are



*Thymus piperella* L.



*Erica scoparia* L.



*Cistus crispus* L.

# PHARMACOLOGY

The methodology we have used is:

1. Acute Oral toxicity
2. Pharmacological screening (only when the species are not toxic)

*in vivo* Test (writhing test, hot plate test)

*in vitro* Test

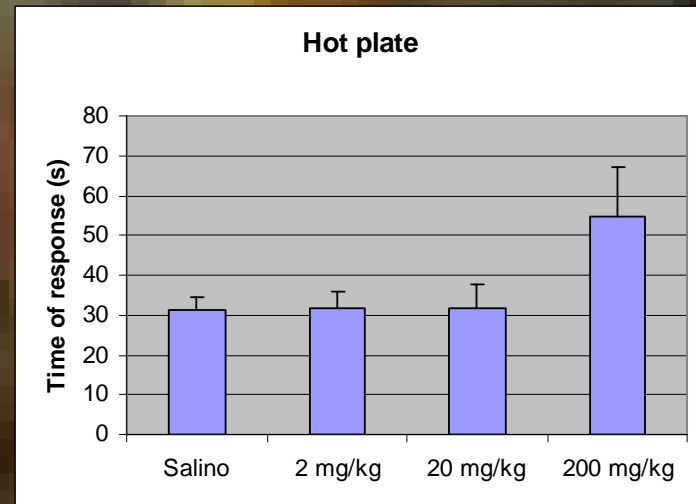
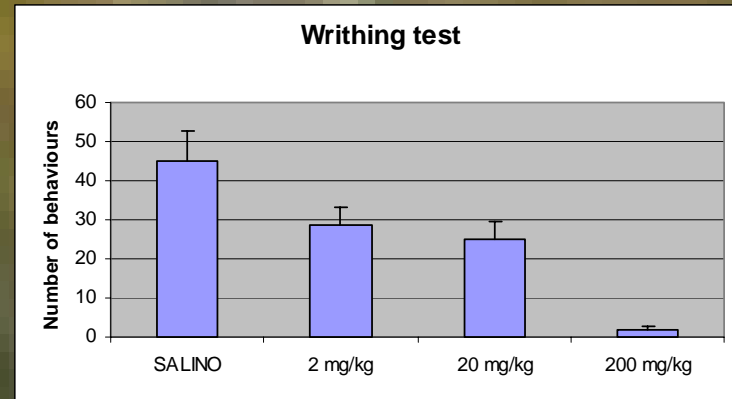
# PHARMACOLOGY

Oral Acute Toxicity was evaluated and no evidence of toxicity was detected at the assayed doses in *T. piperella* and *E. scoparia* extracts. The animals died at the same doses of *C. crispus* assayed extracts.

# PHARMACOLOGY

## IN VIVO

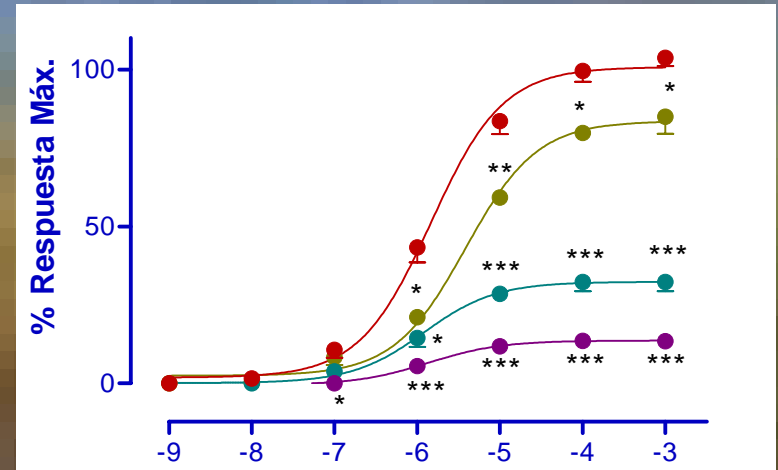
Analgesic activity: pain related response were study to i.p. administration of acetic acid (writhing test) and thermal stimulation (Hot plate test), in male mice. *E. scoparia* inhibited responses to both types of stimulation, which indicate a possible central and peripheral analgesic effect.



# PHARMACOLOGY

## IN VITRO

Spasmolytic activity was tested against acetylcholine induced contractions in isolated rat ileum. The different *T. piperella* extracts inhibited significantly in a concentration-dependent manner. Maximum effect was obtained with the hexanic extract



Concentration-response curve Acetylcholine (rat ileum) obtained in control (●) or in presence of the extracts: hexane (●) buthanolic (●) and dicloromethane (●) at the concentration of  $100 \mu\text{M}$ . Results show mean  $\pm$ SEM  $n=6$  and significant difference from control is show as \* $p<0.05$ , \*\*  $p<0.005$ , \*\*\*  $p<0.001$ .

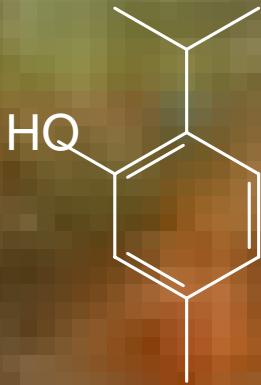
# PHYTOCHEMISTRY

The methodology we have used is:

1. To obtain metanol, hexane, diclorometane and butanol extracts
2. To isolate substances by column chromatography
3. Analysis of substances by spectroscopy of mases, nuclear magnetic resonance of proton and carbon 13
4. To obtain the essential oil

# PHYTOCHEMISTRY

Monoterpenes in essential oil of *Thymus piperella* :



Thymol



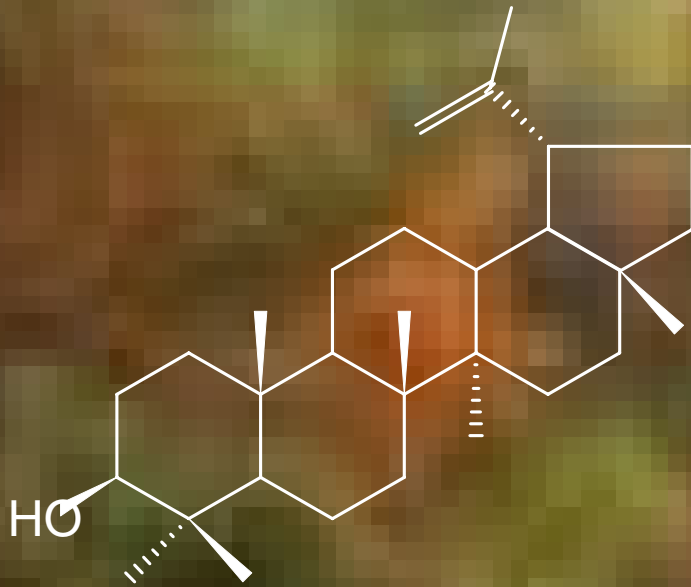
p-cymene



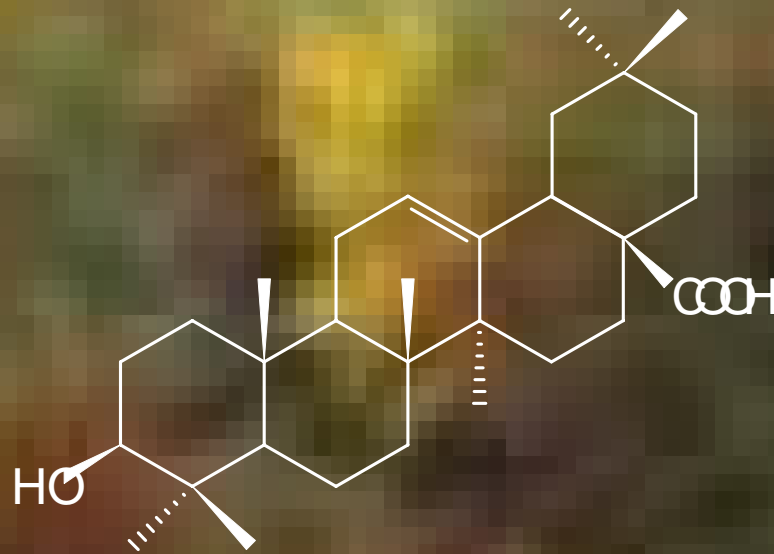
gamma-terpinene

# PHYTOCHEMISTRY

Triterpenes in hexane and diclorometane extracts of *Erica scoparia* :



**Lupeol**



**Oleanolic acid**

# CHARACTERITATION OF THE DRUG

The methodology we have used is:

1. Micromorphologic study (indument)
2. Anatomical study

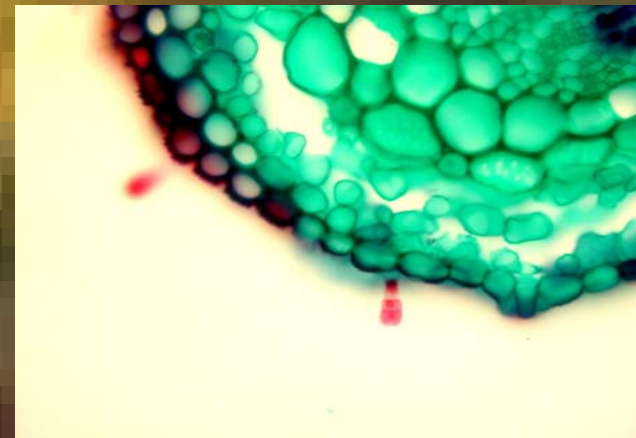
# CHARACTERITATION OF THE DRUG

Indument of epidermis of the leaf of *Cistus crispus*

Starred trichome



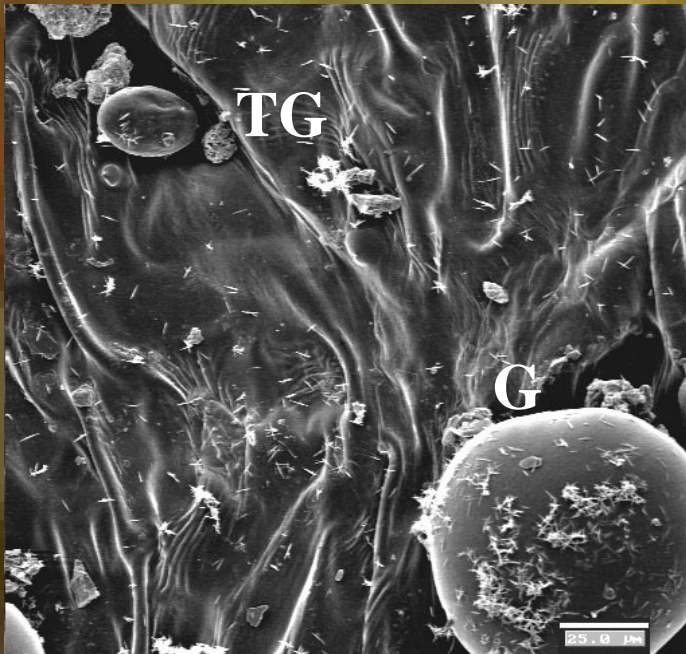
Glandular trichomes



# CHARACTERITATION OF THE DRUG

Indument of epidermis of the leaf of

*Thymus piperella*



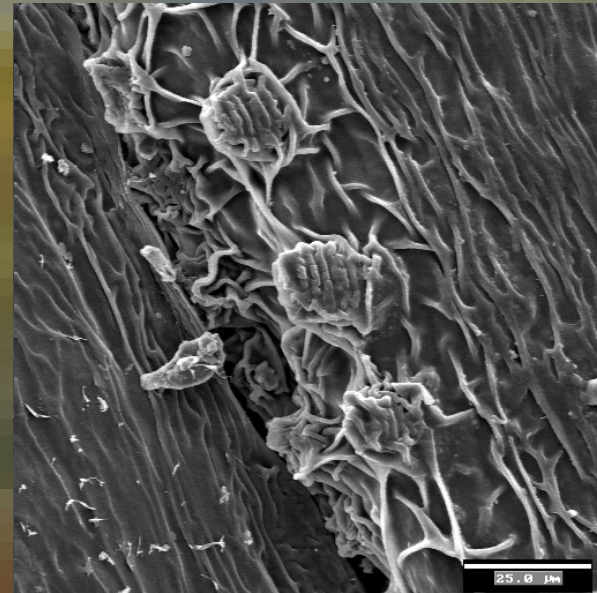
Glandular trichome (TG) and gland (G) of epidermis of the leaf of *Thymus piperella*.

# CHARACTERITATION OF THE DRUG

## *Erica scoparia*



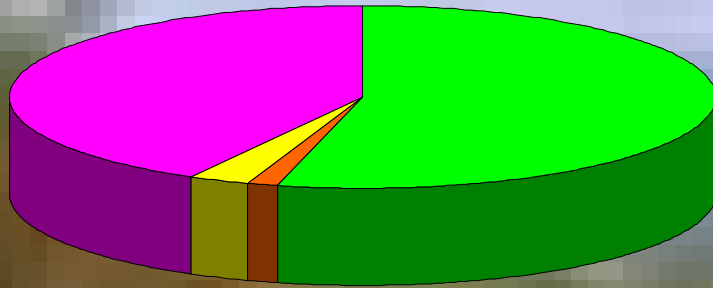
Transverse section of  
the leaf



Trichomes

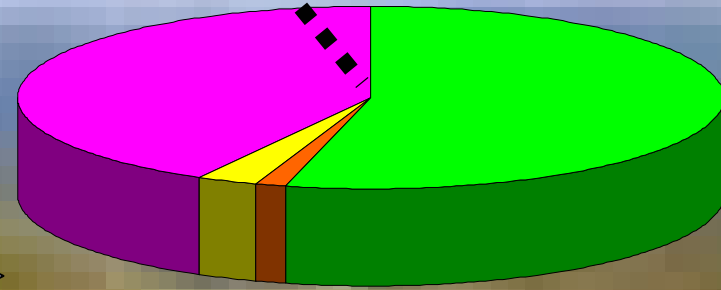
# DISCUSSION

% DE USOS DE LA FLORA



■ medicinales ■ tóxicas ■ otros ■ sin uso conocido

% DE USOS DE LA FLORA



■ medicinales ■ tóxicas ■ otros ■ sin uso conocido

• Two of the characteristic species that we have studied are not considered medicinal plants, however we have demonstrated that they have medicinal properties



• This fact alters the percentage of the medicinal plants of the region of La Safor (Valencia) where the vegetal association *Thymo piperellae-Cistetum crispum* grows

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MEDITERRANEAN SCRUB**

**THIS WORK IS SUPPORTED BY  
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