



The uses of *Pistacia* spp. in various Mediterranean countries ("MEDUSA" database)

Spyros Grigorakis & Panagiota Gotsiou

CIHEAM Mediterranean Agronomic Institute of Chania (MAICh)

First joint learning event of MEDLENTISK project, 28 June to 2 July 2021, Conference Center of MAICh, Chania, Crete, Greece



Cofinancé par le
programme Erasmus+
de l'Union européenne

MEDUSA Network/Database

- Developed in 90's at MAICh
- Funded by CIHEAM and European Union AIDCO
- Objective: The identification of native and naturalized plants of the Mediterranean Region that are used in some way
- Further info & database search:
<http://medusa.maich.gr/>



Cofinancé par le
programme Erasmus+
de l'Union européenne

2



MEDUSA Network

MEDUSA Steering Committee:

- Professor V. H. Heywood,
- Mr P. Griffee
- Dr. S. Padulosi
- Professor J. Slikker,
- Mrs M. Skoula

MEDUSA MAICH TEAM

- Coordinator: Chris Johnson
- MEDUSA Executive Secretary: Melpo Skoula
- MEDUSA Technical Director: Nicolas Boretos



The countries involved in the MEDUSA project are; Greece, Turkey, Syria, Lebanon, Cyprus, Egypt, Tunisia, Algeria, Morocco, Malta, Portugal, Spain, France, Italy.

MEDUSA Focal Point Coordinators (in alphabetical order of countries):

1. Dr Zahia Houmani, Algeria
2. Dr A. Della, Cyprus
3. Prof. M. El. Demerdash, Egypt
4. Dr. Agnes Vannereau, France
5. Mrs M. Skoula, Greece
6. Dr. Domenico Pignone, Italy
7. Prof. Dr. Massimo Maffei, Italy
8. Dr Nelly Arnold-Apostolides, Lebanon
9. Mr Joseph Borg, Malta
10. Prof. Mohammed Hmamouchi, Morocco
11. Dr. Mohamed Ibn-Tattou, Morocco
12. Prof. Antonio Proenca da Cunha, Portugal
13. Prof. Diego Rivera Nunez, Spain
14. Dr. Youssef Barkoudah, Syria
15. Prof. Rachid Chemli, Tunisia
16. Prof. Uygun Aksoy, Turkey



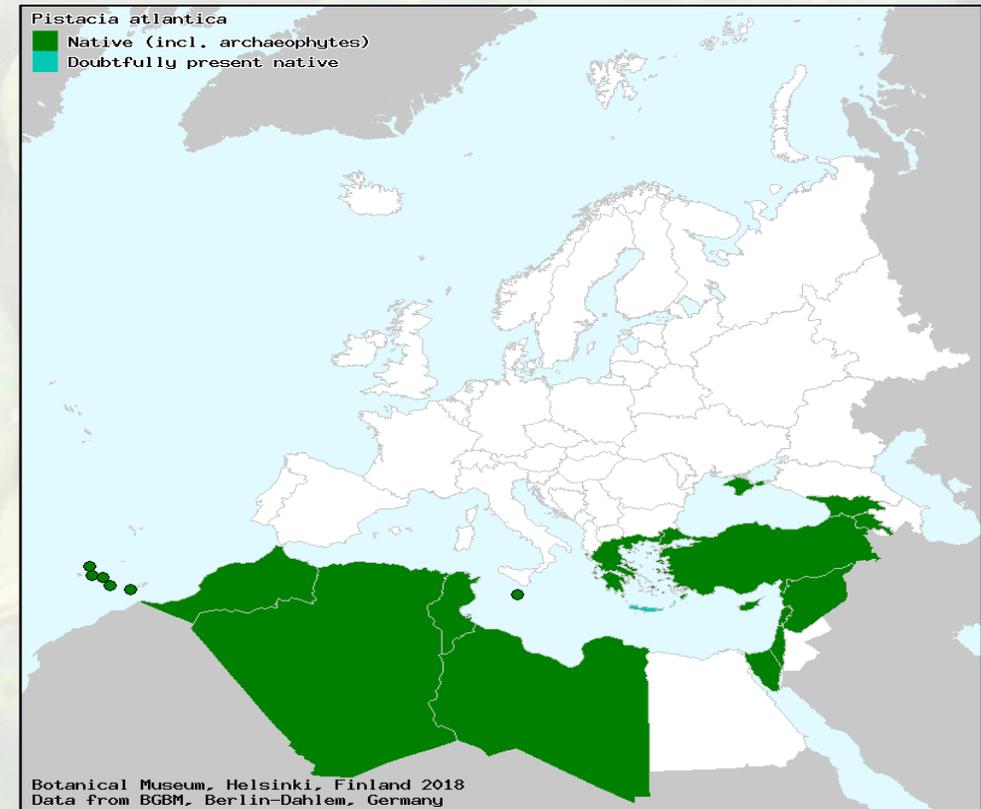
Cofinancé par le programme Erasmus+ de l'Union européenne



Pistacia atlantica Desf.



Pistacia atlantica, Greece, isl. Rhodes (Goula Katerina)



Geographical distribution of Pistachia atlantica Desf. (EURO+MED)



Cofinancé par le
programme Erasmus+
de l'Union européenne



Uses of Pistacia atlantica in Morocco

Food

- Raw fruits with acid taste smashed and mixed with dates or figs eaten during scarcity periods.
- Other preparations: Edible nut oil.

Material

- **Wood** used to make plough and different tools.
- **Leaves' galls** (produced by bites of *Pemphigus utricularis* Pass.) and leaves are used for tanning.
- **Wood ashes** used to produce soap.
- **Dried sap** extracted from the trunk, used in previous times as ink.



Fuel

- stem woods used for cooking & heating fuel (the wood is very appreciated to make charcoal)

Social use

- Gum used as inference material in rituals and masticatories
- Fruits (crushed, toasted, grinded and mixed with olive oil and burnt copper) used for hair care, as make-up for the eye brow and tattoo.

Medicine

fruits (in powder against stomach pains), fruit oil (external frictions against cough and colds, leaves (boiled, used internally against stomachache, and externally as plasters against scrofula), galls (boiled, for stomachache).





Uses of Pistacia atlantica in Tunisia

Material

- gum from stem woods and leaves

Uses of Pistacia atlantica in Cyprus

Food

- Nuts used for food preparations: for preparing pies ('tremithopittes'). It is roasted with salt and used as a snack. In the past the fruit was used to extract oil.

Habitat & landscape modification

- Used as ornamental species



Cofinancé par le
programme Erasmus+
de l'Union européenne

6



Uses of *Pistacia atlantica* in Egypt

Food

- The fruit is edible raw - it has a turpentine flavor
- Edible oil obtained from the seed.

Animal food

- Aerial parts and young leaves used as fodder for Mammals & Ruminants

Material

- Tannins obtained from stem galls are used in tanning leather. The leaves contain up to 22% tannins, they are often used as an adulterant of sumac.

Medicine

- Resin is used in folk medicine to treat pains for respiratory system disorders: employed as an expectorant for bronchial troubles and coughs.
- Resin was at one time greatly used in herbal medicine. It is little used in modern herbalism though it could be employed as an expectorant for bronchial troubles and coughs, and as a treatment for diarrhea. The resin is analgesic, antitussive, carminative, diuretic, expectorant, odontalgic. It is mixed with other substances and used as a temporary filling for carious teeth. Internally it is used in the treatment of diarrhea in children and externally it is applied to boils, ulcers, ringworm and muscular stiffness

Plants use as gene sources

- The species is used in grafting of *Pistacia vera*.

Uses of Pistacia atlantica in Turkey

Food

- nuts used in sweet dishes and other preparations

Habitat & landscape modification

- Used as ornamental species

Uses of Pistacia atlantica in Syria

Bee plant

Material

- Gum & resin (from leaves and fruits)

Fuel

- Defoliated stems used as heating fuel

Medicine

- Leaves and fruits used for various disorders: pain, mental disorders , digestive system disorders;

- resin: dental care, gingivitis, headache

Plants use as gene source



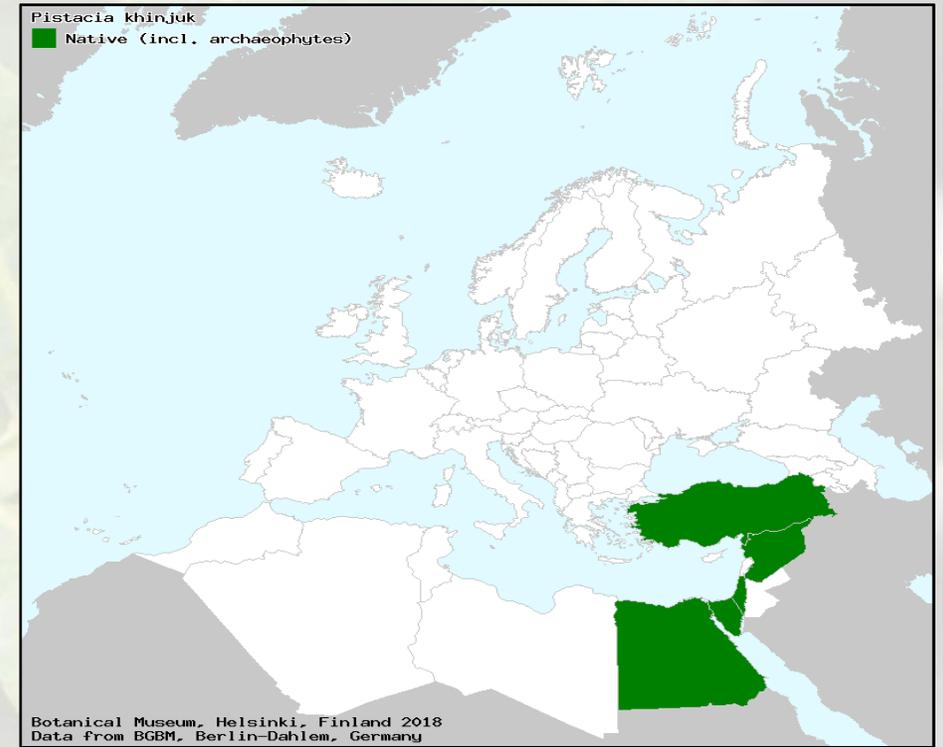
Cofinancé par le
programme Erasmus+
de l'Union européenne



Pistacia khinjuk Stocks



Pistacia khinjuk (<https://eol.org/>)



Geographical distribution of *Pistacia khinjuk* Stocks (EURO+MED)



Cofinancé par le
programme Erasmus+
de l'Union européenne



Uses of Pistacia khinjuk in Egypt

Animal food

- aerial parts used as fodder for Mammals, Camelidae, Ruminants

Material

- For leather tanning.

Social use

- Miscellaneous uses of the resin as for e.g. used for making local perfumes.

Medicine

- Decoction of the leaves is taken for seven days for treatment of pains in bones. Also used for mental disorders

Habitat & landscape modification

- As ornamental plant

Uses of Pistacia khinjuk in Syria

Food

- Entire Seeds

Material

- Gums, Resins
- Entire Seeds



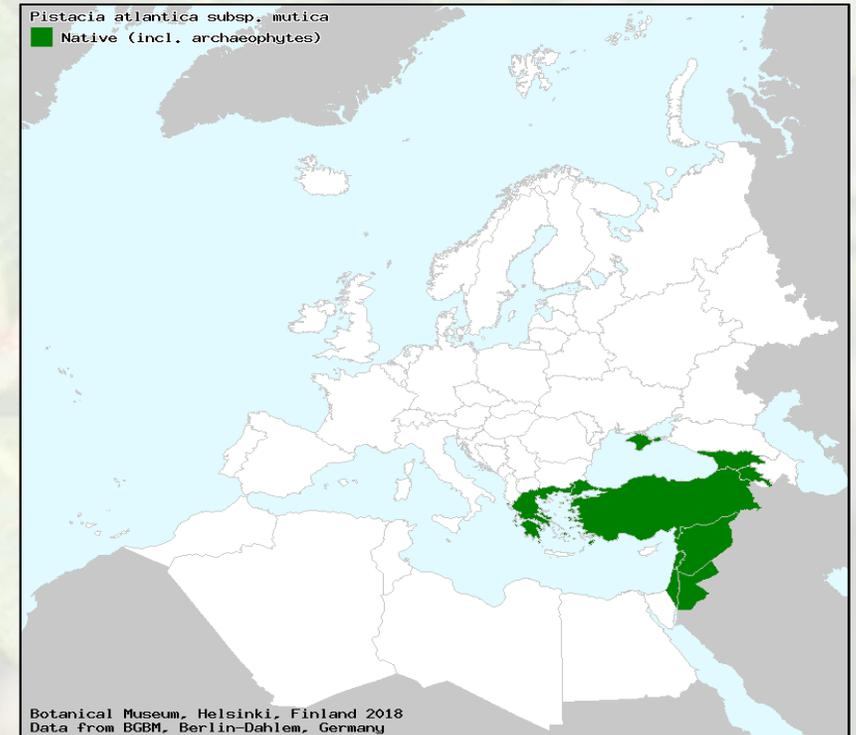
Cofinancé par le
programme Erasmus+
de l'Union européenne

1
0



Pistacia mutica Fisch. & Mey.

Today accepted by some taxonomists as *Pistacia atlantica* subsp. *mutica* (Fisch. & C.A.Mey.) Rech. f.)



Pistacia mutica or *P.atlantica* subsp.*mutica* (NE Greece, Platon Kleanthidis, <http://www.greekflora.gr>)

Geographical distribution of *Pistacia mutica* Fisch.& Mey. (EURO+MED)



Cofinancé par le
programme Erasmus+
de l'Union européenne

1
1



Uses of Pistacia mutica in Lebanon

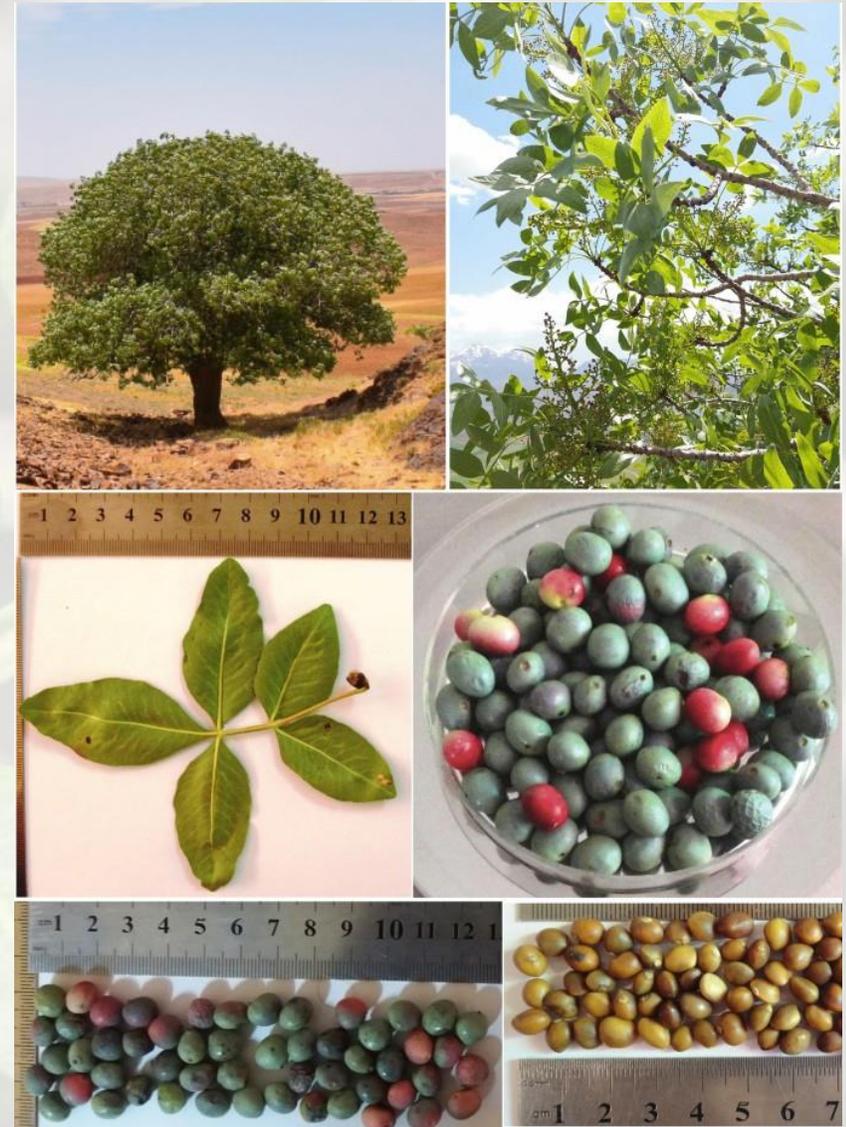
Medicine

- old leaves and fruits used for mental disorders and inflammations

Uses of Pistacia mutica in Syria

Food

- nuts and seeds



Rostami, R., Khadivi, A. & Bikdeloo, M. Morphological and pomological characterizations of male and female genotypes of *Pistacia atlantica* Desf. subsp. *mutica*. *Euphytica* **216**, 121



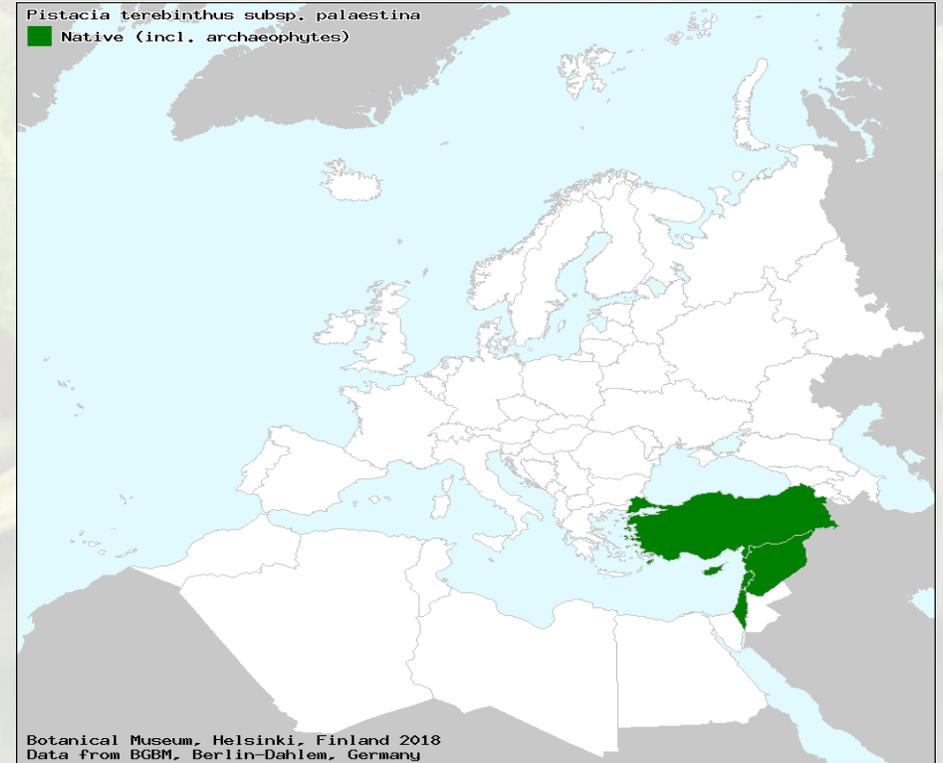
Cofinancé par le
programme Erasmus+
de l'Union européenne

1
2



Pistacia palaestina Boiss.

(today accepted as *Pistacia terebinthus* subsp. *palaestina* (Boiss.) Engl.)



Geographical distribution of *Pistacia palaestina* Boiss. (EURO+MED)



Cofinancé par le
programme Erasmus+
de l'Union européenne

1
3



Uses of Pistacia palaestina in Lebanon

Social use

- stem bark in religious uses, ritual

Non vertebrate poison

- Resin used against arthropods

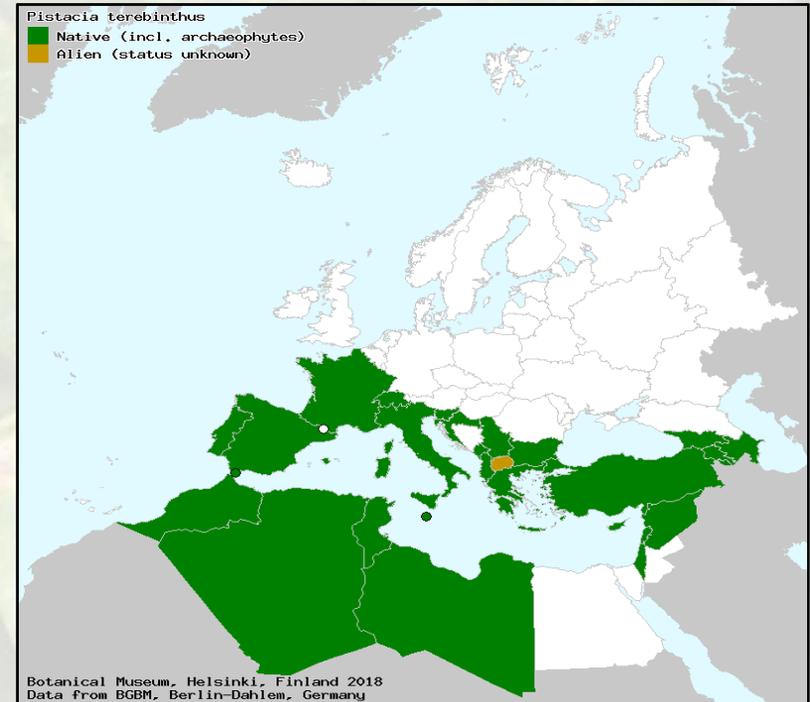
Medicine

- Leafy stems, stem bark, old leaves, fruits, seed oil, roots, & resin used for various disorders: of blood system, respiratory system, pregnancy/birth/puerperium (after birth) disorders, mental disorders, injuries and wounds inflammation, genito-urinary system disorders, digestive system disorders, skin/subcutaneous cellular tissue disorders



Pistacia terebinthus L.

(today taxonomy with subspecies)



Geographical distribution of *Pistacia terebinthus* L. (EURO+MED)



Cofinancé par le programme Erasmus+ de l'Union européenne

1
5



Uses of Pistacia terebinthus in Italy

Material

- wood used for small furniture, boxes, marquetry (inlay);
- resin used for perfuming;
- Fruits used for dyeing cloths
- leaves used for tanning furs

Fuel

- leafy and defoliated stems used as cooking fuel (the wood was used, and still is at a lesser extent, in stone ovens to cook bread to which it gives a special good flavor)

Medicine

- for musculoskeletal system disorders: resin is used in the production of medicinal creams to lean arthritic pain/sciatica
- for mental disorders
- for respiratory system disorders: resin oil with balsamic properties

habitat & landscape modification

- as boundaries ornamentals
- grafting stock



Uses of Pistacia terebinthus in Cyprus

Food

- the fruits used for making pies ('tremithopittes'); roasted with salt and used as a snack

Habitat & landscape modification

- ornamentals



Cofinancé par le
programme Erasmus+
de l'Union européenne

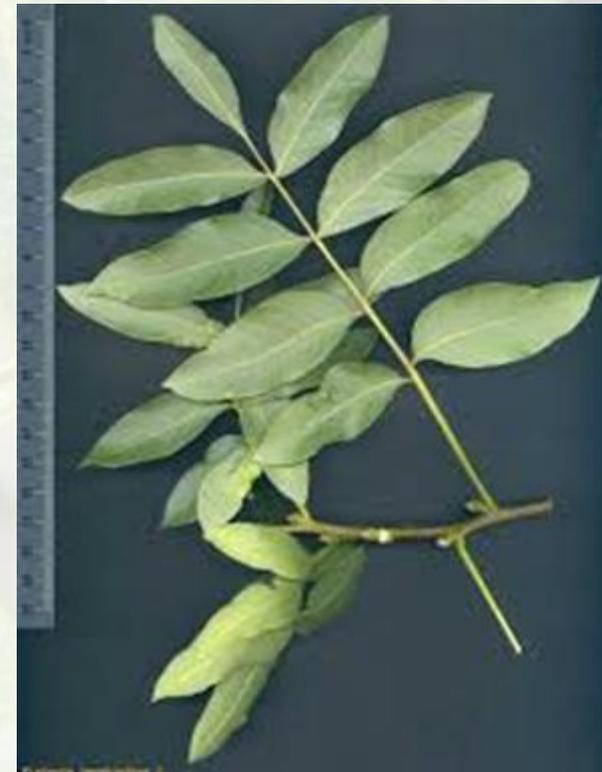
1
6



Uses of *Pistacia terebinthus* in Turkey

Medicine

- young and old leaves, seeds and resin use for various disorders: mental disorders, injuries and wounds, inflammation, digestive system disorders
- To treat sunstroke, leaves are mixed with garlic and yoghurt and spread on a sheet, and the naked body of the patient having sunstroke is covered with it
- To treat peptic ulcer, resin is taken orally every other day, alternately with the resin of pine tree, or pills every morning before breakfast
- Seeds are used for stomachache



Cofinancé par le
programme Erasmus+
de l'Union européenne

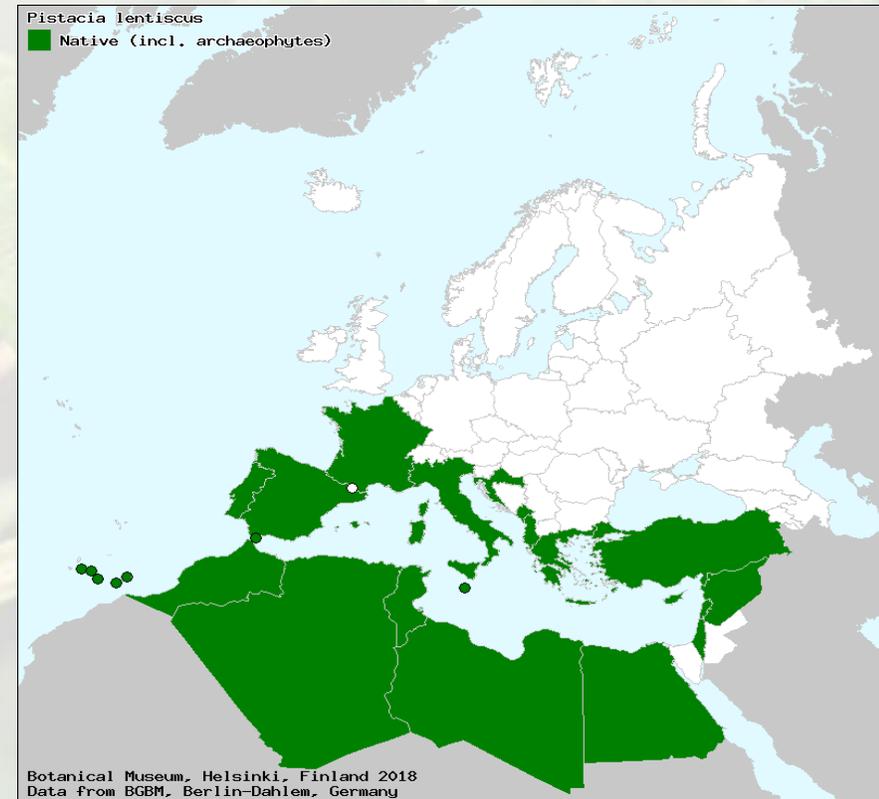
1
7



Pistacia lentiscus L.



Pistacia lentiscus, Greece, Isl. Lefkada (Goula Katerina)



Geographical distribution of *Pistacia lentiscus*. (EURO+MED)



Cofinancé par le
programme Erasmus+
de l'Union européenne

1
8



Uses of Pistacia lentiscus in Morocco

Food additive

- Mastic gum as flavoring; used to add aroma on the mint tea, coffee and bread and cakes
- The oil, lightly siccative, is extracted from the seeds and it is edible

Material

- The leaves are used to wash wool.
- The leaves and bark are tanning products.
- The leaves are used to prepare an indelible ink

Fuel

- the seed oil as lighting fuel

Social

- leaves and resin: as smoking materials for religious uses
- The resin is used as masticatory (to refresh the breath), as cosmetic product (make-up composition and waxing pastes) or for religious fumigations.



Cofinancé par le
programme Erasmus+
de l'Union européenne

1
9



Uses of Pistacia lentiscus in Morocco (cont')

Invertebrate poison

- The littered leaves are used to avoid warm attacks during fig drying and nematodes in stored products

Medicine

- Disorders treated: pregnancy/birth/puerperium disorders pain nervous system disorders, mental disorders, genito-urinary system disorders, digestive system disorders

ADDITIONAL USE INFORMATION:

- Boiled or powdered leaves and bark are used for gastro-intestinal disorders.
- Decocted leaves are diuretic and emménagogue.
- The resin used as sedative and emménagogue.
- Fruit oil is used against backache.
- A gum infusion with milk and honey is used for cardiac weakness and cough.



Uses of Pistacia lentiscus in Algeria

Material

- leaf essential oil

Medicine

- leaves and resin used to treat various disorders: mental disorders. rheumatism and colic treatment.

ADDITIONAL USE INFORMATION:

- After boiling, the seeds give an essential oil efficiently used in skin conditions (scabies) .

General:

- The resin is analgesic, antitussive, carminative, diuretic, expectorant, odontalgic. It is mixed with other substances and used as a temporary filling for carious teeth. Internally it is used in the treatment of diarrhea in children and externally it is applied to boils, ulcers, ringworm and muscular stiffness.



Uses of Pistacia lentiscus in Egypt

Food

- raw fruits used in sweet dishes

Animal food

- seeds fed to Mammals, Equidae, Camelidae, Ruminants, Rodents

Material

- Resinous exudation known as "mastic" used in making varnish.

Medicine

- leaves and fruits used to treat various disorders: mental disorders, injuries and wounds, inflammation, immune system disorders, genito-urinary system disorders, endocrine system disorders, digestive system disorders, circulatory system disorders
- Resin: Stimulant, diuretic. It has many of the properties of the coniferous turpentine and was formerly greatly used in medicine. Of late years it has chiefly been used for filling carious teeth, either alone or in spirituous solution, and for varnishes, and in the East in the manufacture of sweets and cordials. In the East it is still used medicinally in the diarrhea of children and masticated to sweeten the breath.

Habitat & landscape modification

- for erosion control, soil improver, for habitat restoration



Cofinancé par le
programme Erasmus+
de l'Union européenne

2
2



Uses of Pistacia lentiscus in Tunisia

Medicine

- mature fruits used in preparations against mental disorders

Uses of Pistacia lentiscus in Lebanon

Food

- the seed oil

Fuel

- all plant parts used as incendiary cooking fuel

Social

- bark and resin used for religious purposes, in rituals

non vertebrate poison

- bark and resin used against arthropods

Medicine

- bark, old leaves, seed oil and resin used to treat various disorders: blood system disorders, respiratory system disorders, pregnancy/birth/puerperium disorders, mental disorders, inflammation skin/subcutaneous cellular tissue disorders



Cofinancé par le
programme Erasmus+
de l'Union européenne

2
3



Uses of Pistacia lentiscus in Portugal

Food

- raw nuts used for sweet dishes

Bee plant

Uses of Pistacia lentiscus in Spain

Medicines

- Aerial parts used to treat various disorders: mental disorders, digestive system disorders

Uses of Pistacia lentiscus in Italy

Food

- oil



Cofinancé par le
programme Erasmus+
de l'Union européenne

2
4



Uses of Pistacia lentiscus in Greece

Material

- Gum

Bee plant (only pollen, not nectar)

Uses of Pistacia lentiscus in Cyprus

Food

- fruits used for making pies
- as flavourings: the fruits are used in the preparation of sausages.

Habitat & landscape modification

- as ornamentals



Cofinancé par le
programme Erasmus+
de l'Union européenne

2
5





Thank you
for your
attention



Cofinancé par le
programme Erasmus+
de l'Union européenne



Forêt
Modèle
de
Provence