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Ethnopharmacological Survey of Endemic Medicinal Plants in Paphos District of Cyprus

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Abstract

Paphos district is an unexplored area in the field of ethnopharmacology. Traditional medicine combines a mix of superstitions and beliefs with the therapeutic use of medical plants that grow wild. In this report we discuss the ethnopharmacological, historical and medical aspects of the use of endemic medical plants in the area of Paphos of Cyprus. Paphos is cited in the east region of the island, characterized by its unique flora.. Many plants were used in an unusual way for therapeutic purposes by local people, comprising a significant part of their tradition that accompanies them up to today in their daily life.

Keywords: Paphos; Cyprus; ethnopharmacology; ethnobotany; traditional medicine; herbs.

Introduction

Cyprus is the birthplace of goddess Aphrodite, a crossroad of three regions (Europe, Asia, Africa) and a rapid expanding economical and technological country. As an island, cited in the eastern site of the Mediterranean sea, it has a unique climate that favours many plants to grow all the year. According to Aristotle's script (*It was*

found that there is a big and high mountain in Cyprus, higher than all its mountains, called Troodos, where many different plants grow, which are useful in medicine. If I try to describe them separately, time will not be enough for me to narrate) Cyprus' land triggers the interest as it regards the exploration of its flora.

In antiquity, Paphos was progressive in medical therapeutics. "Thermophores", mud pots that was filled with hot water placed in body parts and "Asclipeios" temples devoted to the god of medicine are just few of the signs indicating a long tradition in therapeutics. In Roman times, Paphos was the capital of the island and an important commercial hub station. Goods and plants were carried out from the east coasts to western Europe. Historically, conquerors (Assyrians, Egyptians, Francs, Veneticians, Turkish, Englishmen) imported their herbs and plants in Cyprus. This partially explains the existence of some exotic plants that grew in Cyprus.

Although there are few in numbers of ethnobotanical surveys in Cyprus, no ethnopharmacological survey has been accomplished yet in the district of Paphos. Paphos area is an interesting field for ethnopharmacological and ethnomedical survey because of its unique geophysical characteristics. It belongs to the 1st phytogeographical zone with vine villages to enclose the biggest part of human population surrounding Paphos home town. Slippery hills, semi-rock fields and topical microclimates are composing a distinct agrogeophysical identity that distinguishes Paphos area from other districts of Cyprus. Therefore, it represents an exciting field for ethnopharmacological study for medical plants and their therapeutic use.

Material and methods

For this survey 73 personal interviews were accomplished in the period 2005-2006 (December, April-May, July-September). The selection of the villages was according to the population status, the accessibility to interviews (personally) so as to validate the authenticity of the interview. The villages that were included in this survey are: Pano Arodes, Kato Arodes, Kathikas, Stroumpi, Theletra, Kritou Terra, Tsada, Mesogi, Mesa Chorio, Geroskipou, Anavargos, Choulou, Phiti, Pegeia and Kallepia (Fig. 1). Most of the interviewers were women (n=57) with mean age 61 years old. All applicants were Greek speaking with Cypriot dialect and Paphian idiom. It is estimated that 60000 people live in Paphos and the number of interviewers is sufficient enough to investigate traditional medicine in Paphos region.

No personal data was recorded by the authors according to the Laws of Personal Data Protection of the Republic of Cyprus. Parallel with the interviews, it was purposed to search among local manuscripts, books from local school libraries and churches, press articles in order to identify the medical plants and their use noted previously by interviewers. A great majority of the interviewers still use many of these medical plants as noted for their therapeutic purposes.

Questionnaires were cited ordered and not personal oriented, with the basic information that was needed, taken during the conversation. The local-paphian idiom of the medical plants, the places of cultivation (plus period or season), their therapeutic use and the parts of the plants used were noted. Although questionnaires were structured based, direct questions were avoided. Botanical names and families were cross-identified according to *Flora of Cyprus* (*Meikle RD. 1977/1985*) and related textbooks (*Kyriakou-Zanettou P. 1998, Arnold N. 1985*). If there was any doubt about the origin of data, it was purposed to collect the specimens of plants, be identified by the interviewers and described by Biologist Mrs. Katerina Dokou. Most of the interviewers have still traditional agricultural activities and this helped us to identify with more accuracy the local medical plants.

Results and Discussion

Paphos district presents a great interest in the field of Ethnopharmacology and Ethobotany (*Della A. et al. 2006*). This study is a preliminary report of a wider study in the area of Paphos and its medicinal plants that are used by the habitats of the district. Local people were tremendously helpful with their questionnaires and explained in detail the use of each medicinal plant, their local names, therapeutic uses and any unwanted effects (Table 1). Notice that many of them are grown outside the yards and gardens of their house, a fact that reveals the untouched natural heritage of this part of the island. Also it is known that Paphos area has many ecological zones protected by environmental organizations and societies such as the Akamas' peninsula and the Paphos' forest.

Salvia fruticosa Mill. Cyprus or else *Spatsia* (local name) of *Lamiaceae* family, *Salvia* ssp. is a widely used medicinal plant by the local people (**Figure 2**). The three-lobe sage is used as a herbal tea in the local coffee shops and usually after a heavy meal with carbohydrates during the day. Analyzing the results from the study, interviewers stressed out the beneficial effects of *Salvia fruticosa* in patients with mild diabetes and sometimes on severe hyperglycemia cases. Long ago, local people knew the existence of diabetes condition and its consequences in human organism and tried to find medicinal plants that could reduce the high glucose levels.. A daily drink of sage, as a breakfast tea for diabetics helped to restore pancreatic dysfunction. Studies indicate the hypoglycemic effects of this medicinal plant extracts (*Perfumi M, et al. 1991, Mironidou-Tzouveleki M et al. 2008*). *Salvia fruticosa* that grows in Cyprus has ~0.1% percentage of thugione but *Salvia officinalis* which is used worldwide has the greatest percentage of thugione (~30-40%). Thugione is an extremely toxic substance when used in large doses (*Ministy of Agriculture 2000, 2002*). Among other medicinal plants, *Salvia fruticosa's* infusion was drunk by men to reduce persistent coughs, colds, sore throats and tonsilitis.

Origanum majorana L. var Tenufolium or else *Sapsi(ch)ia* belongs to the *Lamiaceae* family and is used for decreasing nervous-related pain (migraines, insomnia, headaches). Local people appreciate its arterial blood hypotension effect which is exerted through reduction of the diastolic blood pressure (**Figure 3**). Also

Cyprus majorana is used in several villages for tooth ache.

Taraxacum cyprium belongs to the *Compositae* family (**Figure 4**). It was studied broadly in both ethnobotanical and pharmacological level and it is one of the most common plants that anyone can see in Paphos area (*Barnes J, et al. 2007, Bisset NG. 1994, Guarerra PM 2005, Kim HM et al. 1999*). This plant was used as a rehabilitation-recovery medicinal plant after insect or animal bite. Also Cyprus dandelion was used for its stimulating effect on gastrointestinal system.

Malva sylvestris L. was used as a culinary herb by local people but also as a remedy against cough and infection (**Figure 5**). Recent studies reveal its precious pharmacological properties (*Conforti F. et al. 2008, Zanettou-Panteli K 1997, 1998*). Indeed the soup made by this plant represents a part of traditional cooking with impressive therapeutic effects. Cyprus cedar is only grown in the area of *Trifyllos* located in Paphos' forest. Its parts were used for hemorrhoids treatment and upper respiratory viral croup.

Conclusion

Paphos remains one of the most important areas of untouched natural beauty with important ethnobotanical and ethnopharmacological aspects. Local people are familiar not only with the medicinal plants that surround their environment but also with their therapeutic uses. Further studies will reveal new data about the use of medicinal plants in this area of the island.

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Table 1: Pharmaceutical plants, origin and therapeutic properties

Scientific Name	Family	Common name	Place of origin	Local name	Part used	Application	Therapeutic uses
Salvia fruticosa Mill.	*Lamiaceae*	Three-lobe sage	W	Spatsia	Frl, Drl, Cor	Inf, Spi	Tu 1-7,17
Cyprus							
Origanum majorana L.		Cypriot majorana	E	Sapsi(ch)ia	Frk, Drl, Cor	Inf, Spi, Eso	Tu 1,2,6,8-13
var. Tenuifolium	*Lamiaceae*						
Taraxacum cyprium	*Compositae*	Cyprus dandelion	W	Pikralida	Rot, Cor	Inf	Tu 2,10,14-16
Malva sylvestris L.	*Malvaceae*	Common malva	E	Molocha	Top, Frl, Cor, Top	Sou	Tu 10,17-27

Cedrus libani ssp. brevifolia	*Pinaceae*	Cypriot cedar	F	Kedros	Nuts, Tar	Eso, Spi, Pos	Tu 28,29

Abbreviations

Place of origin: **W** wild country (rock-side, hills, mountain areas), **E** endemic (water-enriched areas), **F** Paphos forest (Trifyllou area).
Part of plant used: **Frl** fresh leafs, **Drl** dried leaves, **Rot** root part, **Cor** plant core section.
Application: **Inf** infusion, **Sou** soup-boiled, **Spi** spice, **Pos** per os, **Eso** essential oil.
Therapeutic uses: **Nut** nuts, seeds, **Top** top part of the plant, flower of the plant, **Tar** tar.

Tu1 hypoglycaemic	Tu9 diuretic	Tu15 rehabilitation-recovery after insect, mosquito or animal bite	Tu22 emetic
Tu2 anti-cough	Tu10 expectorant	Tu16 gastrointestinal tonic	Tu23 treatment of asthma
Tu3 against sweating	Tu11 hypotensive	Tu17 throat ache	Tu24 stomach ache – crisis
Tu4 anti-diarrhoeic	Tu12 anti emetic	Tu18 loss of voice	Tu25 bites of scorpions and spiders
Tu5 antipyretic	Tu13 anti-neuralgic	Tu19 anti-parasitic	Tu26 eczema
Tu6 spasmolytic	Tu14 against dyspepsia	Tu20 antibacterial	Tu27 antibiotic
Tu7 tonic		Tu21 cuts and wounds	Tu28 haemorrhoids
Tu8 digestive			Tu29 nasal depression

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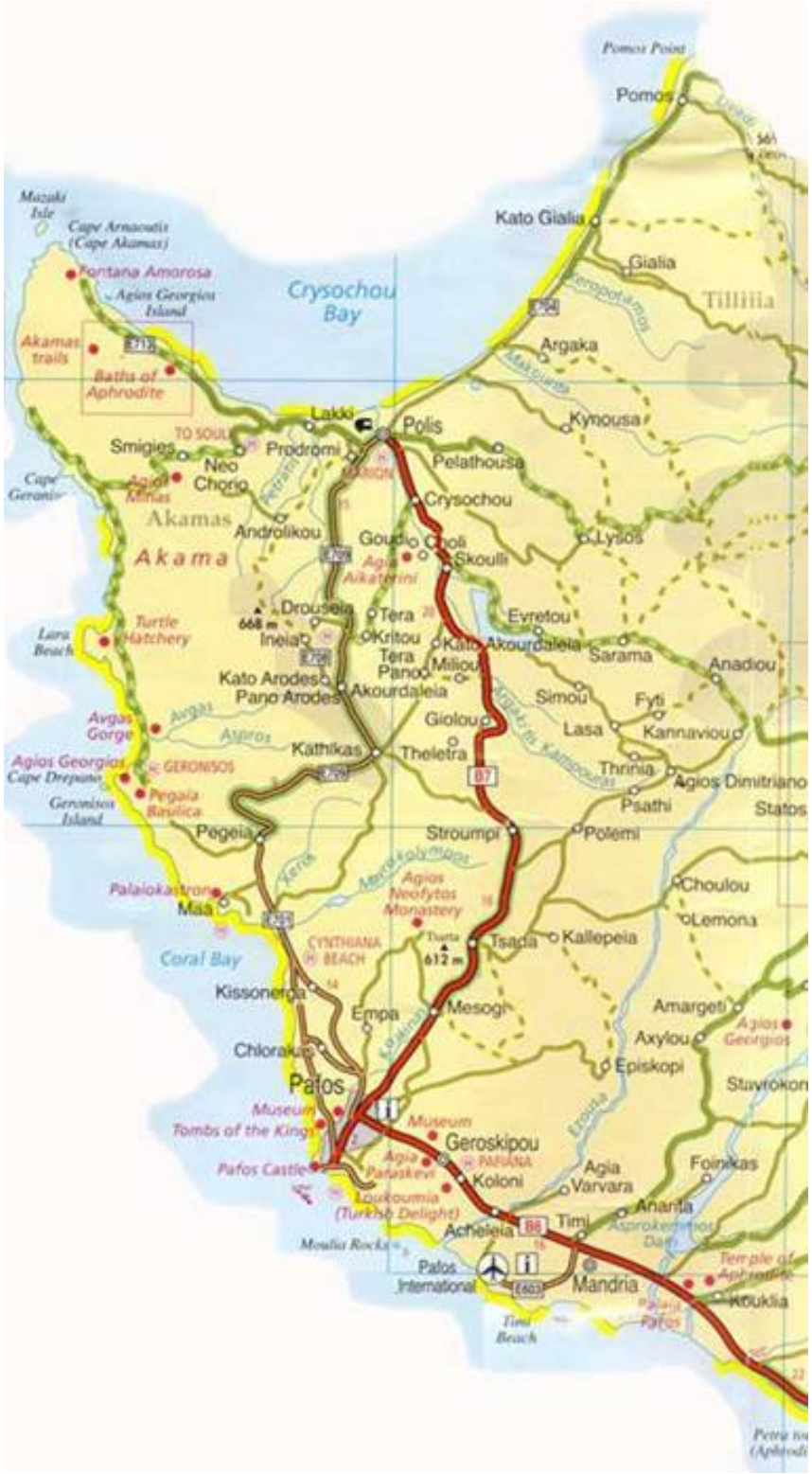
Pomos Point
Pomos
Kato Gialia
Gialia
Tillíria
Crysochou Bay
Mazaki Isle
Cape Arnaoutis (Cape Akamas)
Fontana Amorosa
Agios Georgios Island
Akamas trails
Baths of Aphrodite
Argaka
Kynousa
Lakki
Polis
Smigies
Prodromi
Neo Chorio
Pelathousa
Agios Minas
Crysochou
Akamas
Androlikou
Goudi
Choli
Skouli
Lysos
Agia Aikaterini
Drouseia
Tera
Evretou
Turtle Hatchery
Lara Beach
Ineia
Kritou Tera
Kato Akourdaleia
Sarama
Anadiou
Miliou
Pano Arodes
Kato Arodes
Akourdaleia
Simou
Fyti
Avgas Gorge
Giolou
Lasa
Kannaviou
Agios Georgios
Cape Drepano
Kathikas
Theletra
Thrinia
Agios Dimitrianos
Geronisos Island
Pegaia Basilica
Psathi
Statos
Pegeia
Stroumpi
Polemi
Palaiokastron
Maa
Agios Neofytos Monastery
Choulou
Lemona
Coral Bay
Tsada
Kallepeia
Kissonerga
Empa
Mesogi
Amargeti
Axylou
Agios Georgios
Chlorakas
Episkopi
Stavrokon
Paphos
Museum
Tombs of the Kings
Geroskipou
Paphos Castle
Agia Paraskevi
Koloni
Agia Varvara
Foinikas
Loukoumia (Turkish Delight)
Timi
Anarita
Achaleia
Moulia Rocks
Paphos International
Mandria
Kouklia
Timi Beach

Figure 1: Map of Paphos District

Figure 2: *Salvia fruticosa Mill. Cyprus***.**

Figure 3: *Origanum majorana L. var. Tenuifolium*

Figure 4: *Taraxacum cyprium.*

Figure 5: *Malva sylvestris L.*

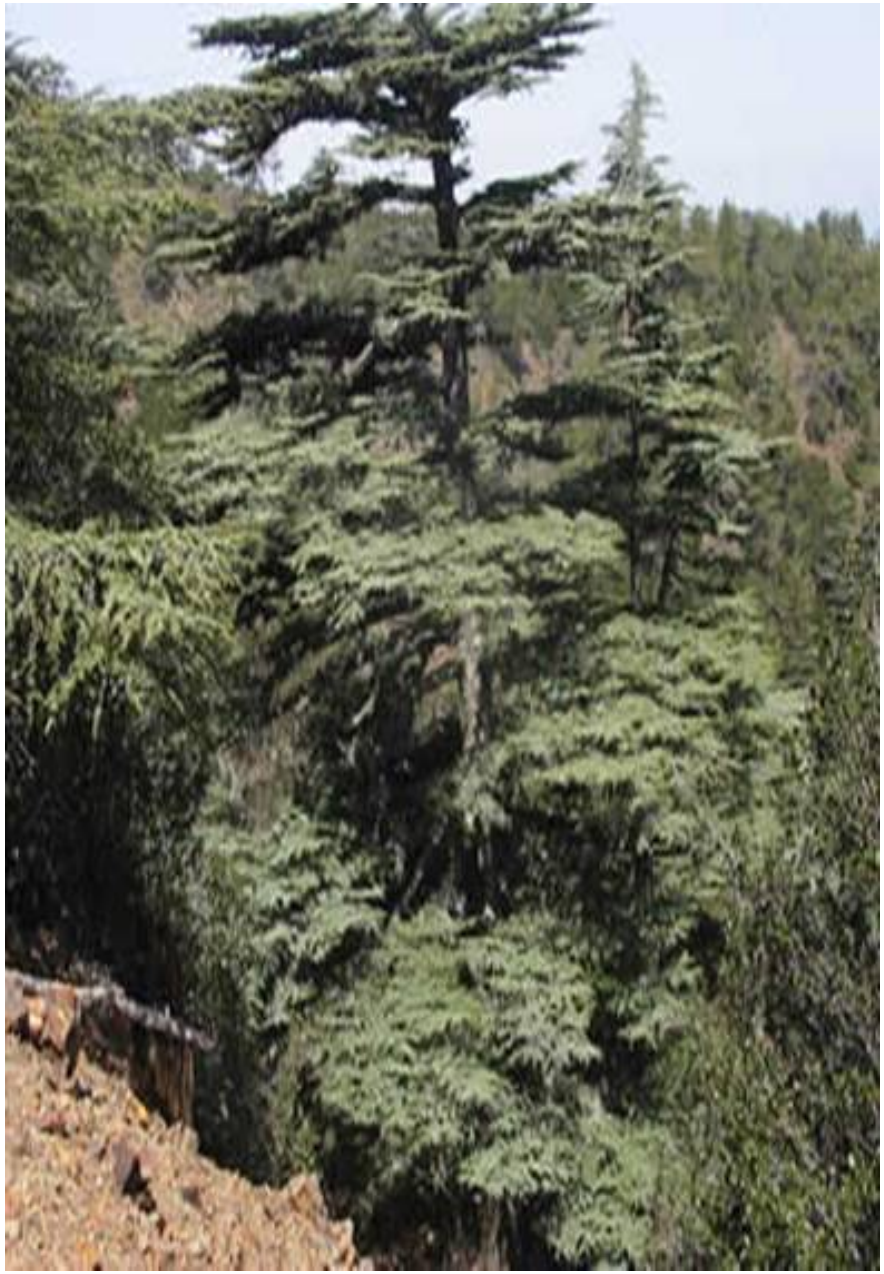

Figure 6: *Cedrus libani ssp. brevifoli.*

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