An ethnopharmacological survey in Paphos district of Cyprus: the hypoglycemic and other therapeutical properties of *Salvia fruticosa* Mill

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**ABSTRACT:** The current report is analyzing the results of an extensive ethnopharmacological survey accomplished in Paphos district of Cyprus. Local people seem to be very familiar with the use, preparation and therapeutic properties of medical plants, most of which grow in the wild. According to the study, *Salvia fruticosa* Mill., a specific species of sage, is widely used in Cyprus, especially by local people of Paphos villages as a hypoglycemic agent. Further experimental studies need to be accomplished so as to validate the use of *Salvia fruticosa* Mill. as a hypoglycemic agent.

*Key Words: Salvia fruticosa Mill., Sage, Paphos, Cyprus, Ethnopharmacology, Hypoglycemic, Phytotherapy.*

**INTRODUCTION**

Cyprus, the island of Aphrodite and a cross-road of three continents: Africa, Asia and Europe. Paphos town was the first capital of Cyprus at Roman times. Therapeutics flourished in Paphos area, as indicated by archaeological temples devoted to the god and doctor of antiquity Asklepios and *thermophores* («thermo» - hot; «phores» - mud pots), sites used for healing purposes.

**STUDY AREA - POPULATION FACTS**

Paphos district is in the west side of Cyprus with approximately 60,000 residents. It is a favorite tourist attraction in Cyprus, nevertheless agriculture still exists especially in village areas (Figure 1).

**AIM OF STUDY**

This study is an ethnopharmacological survey accomplished in the area of Paphos in 2005-2006. The unique of this study is that interviewers were personally contacted. Paphos area has never been examined at ethnopharmacological level before, although its flaura is unique in Cyprus. In this report, according to the methodology, there is an analysis of the hypoglycemic activity of *Salvia fruticosa* Mill., an interesting saga species, parallel with its other pharmacological properties according to personal interviews.

**PREVIOUS KNOWLEDGE OF LOCAL FOLK MEDICINE**

Traditional medicine in Paphos district is closely related to beliefs and superstitions. People involved with medical plants can be divided into three categories: (a) women that pass the *iatrosophia* («iatron» - medical/healing; «sophia» - knowledge/wisdom) from generation to generation, mostly in houses. This group still exists nowadays and it is a tradition to pass this knowledge. (b) folk therapists, mostly women with experience of several diseases and the use of medicinal plants. These therapists also delivered babies. Each village had at least minimum one therapist. Knowledge was passed from the therapists to their daughters so as to continue their work. Folk therapists in the past were respectable persons among the villagers. (c) monks therapists that combined religion and folk medicine. This category of monks therapists unfortunately today does not exist. The first botanical gardens that contained and cultivated herbal plants were in monasteries. Local people knew that monks

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were familiar with herbal medicine and therapeutics. During Byzantine times they preserved the classical Greek medicine. Surprisingly monks, isolated in their monasteries far away from civilization, saw patients who came to them to be cured. They believed that their favorite saint or the saint who protected the monastery would cure their disease. Byzantine monasteries served as hospitals. Therefore they had the chance to revalidate, observe and record the medicinal plants and their use in diseases.

**METHODOLOGY**

For this study, personal interviews were accomplished in the villages Anavargos, Tsada, Mesa Chorio, Pegeia, Theletra, Kathikas, Stroumpi, Arodes (Pano and Kato) and Geroskipou. The selection was based on the population of the villages, because they have the largest population among the others. No personal information was given to the authors, according to data protection laws of the Republic of Cyprus. Totally 16 persons were interviewed in this report about the use of the plant, its mode of application and the therapeutic properties. Although questionnaires were structure based, personal questions were avoided. In addition to the interviews, it was intended to search in the local libraries, schools and personal handouts so as to identify the therapeutic use of this traditional medical plant.

**RESULTS AND DISCUSSION**

According to an ethnobotanological study *Salvia fruticosa* Mill. has hypoglycemic properties. Local people of Paphos district seem to be familiar with the use of *Salvia fruticosa* Mill. species. Most interviewers were women (n = 10) that use «Spatsia» (local phytonym of sage species) daily as a home remedy. The botanical properties of the plant are indicated in Table 1. *Salvia officinalis* which is used worldwide has the greatest percentage of thugione (~30-40%). Thugione is an extremely toxic substance in large doses.

Instead, *S. fruticosa* that grows in Cyprus has ~0.1% percentage of thugione. It is endemic in the
island and generally grows in Eastern Mediterranean countries in 1,500 feet above the sea level. In Paphos region it grows in wild areas (e.g. dry rocky hill slopes and edges, mountains), but sometimes it can be seen in roadsides (~5,000 feet above sea level), from November until April. It is a perennial evergreen aromatic undershrub from which local people pick the seeds and leaves, which they dry out and conserve for the whole year.

Surprisingly shade dried leaves are used in breakfast instead of green tea. Many times people add milk in the Spatsia infusion, a recipe that goes back to the times when Cyprus was under the government of English empire as a colony. The remedy is called «tsaogala» (tsai(ο) - tea; gala - milk) or «spatsiogala» (spati(a) - spatsia, sage).

Besides breakfast times, Salvia fruticosa infusion is used after a heavy lunch or dinner rich in fatty acids and carbohydrates. People know the instant hypoglycemic effect of this species of sage and drink the infusion instead of coffee or other beverage (red wine). It is believed that the active ingredients of the sage have digestive properties after heavy lunches especially in festivities, Sunday family meetings e.t.c.

From the early times, local men used to meet each other in traditional coffee-shops called «kafeneion». In these places many traditional home remedies, mostly infusions of medicinal plants, were served. Also coffee shops sell, until nowadays, dried sage for medical purposes. Among other medicinal plants, Salvia fruticosa’s infusion was drunk by men to reduce persistent coughs, colds, sore throats and tonsilitis. Children with asthma or bronchitis inhaled sage’s fumes because they have anti-asthmatic properties and relax the smooth muscles of bronchi.

Analyzing the results from the study, there were interviewers that stressed the beneficial effects of Salvia fruticosa on the mild diabetes patients and sometimes on severe hyperglycemia cases. Long ago local people knew the existence of diabetes condition in human organism and tried to find medicinal plants that reduce hyperglycemia. Daily, diabetics drink sage as a breakfast tea to reduce glucose level and restore pancreatic dysfunction. One of the authors remembers his grandfather that drunk sage because he was diabetic for years.

Among the other precious pharmacological properties of Salvia fruticosa, hypoglycemic effects seem to be important for investigation. Diabetic patients may reduce glucose level, just like local people of Paphos, by using sage infusion. An important study conducted by Perfumi M. et al. indicates the hypoglycemic effect of Salvia fruticosa in alloxan induced diabetic rabbits. The proposed mechanism is through reduction of intestinal glucose absorption.

**CONCLUSIONS**

According to the survey, Salvia fruticosa Mill. is used thoroughly as a hypoglycemic agent by local people of Paphos villages. It is used as a hypoglycemic agent for both diabetic and non-diabetic people, after heavy meals rich in fatty acids and carbohydrates. The belief of this type of sage’s hypoglycemic activity is strong in this area of Cyprus. Further experimental and ethnopharmacological studies are needed so as to establish the therapeutic use of Salvia fruticosa Mill. as a hypoglycemic agent in diabetic conditions.

### Table 1. Botanical properties of Salvia fruticosa Mill.

<table>
<thead>
<tr>
<th>Botany taxon</th>
<th>Botanical family</th>
<th>Common name</th>
<th>Cypriot phytonym</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Salvia fruticosa</em> Mill.</td>
<td>Lamiaceae</td>
<td>Three-lobed sage</td>
<td>Spatsia</td>
</tr>
</tbody>
</table>
Εθνοφαρμακολογική έρευνα στην Επαρχία Πάφου της Κύπρου: οι υπογλυκαιμικές και άλλες θεραπευτικές ιδιότητες της Salvia fruticosa Mill

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ΠΕΡΙΛΗΨΗ: Στην παρούσα μελέτη παρουσιάζονται τα αποτελέσματα μίας εκτενούς εθνοφαρμακολογικής έρευνας στην περιοχή της Επαρχίας Πάφου της Κύπρου. Οι γηγενείς κάτοικοι είναι γνώστες της χρήσης, της παρασκευής και των θεραπευτικών ιδιοτήτων διαφόρων φυτών. Σύμφωνα με τα αποτελέσματα της μελέτης, το αφέψημα της Salvia fruticosa Mill, ένα συγκεκριμένο είδος φασκομηλιάς, χρησιμοποιείται ευρέως στην Κύπρο και ιδιαίτερα στα χωριά της Πάφου ως υπογλυκαιμικό φάρμακο, πέραν των άλλων θεραπευτικών του ιδιοτήτων. Περαιτέρω πειραματικές μελέτες θα αποσαφηνίσουν την υπογλυκαιμική δράση της.

Λέξεις-κλειδιά: Salvia fruticosa Mill., Φασκομηλιά, Πάφος, Κύπρος, Εθνοφαρμακολογία, Υπογλυκαιμική δράση, Φυτοθεραπεία.

REFERENCES