



Herbal Medicines use in Pregnancy in Northern Cyprus

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Objective: To identify the herbal medicinal products used in pregnancy in community pharmacies, the approach of pharmacists in Northern Cyprus and to compare the availability of the most commonly mentioned medicinal plants in accessible databases, in Northern Cyprus.

Design: Questionnaire was designed and administered to 263 community pharmacists in Northern Cyprus and gathered the data on herbal medicinal products they had and recommended to pregnant women. Databases such as ScienceDirect, PubMed, OpenAccess Journals were searched through the Near East University Grand Library's Online Resources for keywords relating to the 'herbal medicine', 'pregnancy' 'pregnant women', 'herbal products'. Descriptive statistics was used with IBM® Statistical product and service solutions software platform.

Location/Setting: Northern Cyprus

Outcome Measures: Herbal medicinal products used and recommended in pregnancy by community pharmacists in Northern Cyprus were identified. It has also been determined which of the most used plants in the world are grown in Northern Cyprus.

Results: The most recommended herbal pharmaceutical forms were herbal lozenges (n = 76, 31%), then herbal form of teas (n = 60, 24%), herbal oils (n = 57, 23%), herbal capsules (n = 36,

14%), other pharmaceutical forms (n=20, 8%). Within the limitation of our literature search, totally 650 medicinal plants (single or formula) used in pregnancy were determined. Out of these 74 were mostly used worldwide, and it was discovered that 56 species out of these plants are grown or cultivated; 18 of the compiled species were imported species some of the genera have species growing naturally growing in Cyprus.

Conclusion: Pregnant women in Cyprus also follow their counterparts in other countries in developing interest in herbal medicines. The number of herbal medicines in the pharmacies owned by Turkish Cypriots is small. Interestingly, the result of this study showed that the pharmacists that were mainly Turkish Cypriots were found not to be selling herbal medicinal products to pregnant women without doctor's prescriptions. This study recommends that the herbal medicines use in pregnancy should be the ones that have undergone in-depth evidence-based scientific researches with clinically proven efficacy that are known not only to the healthcare professionals such as medical doctors, midwives but also the pharmacists and the general public.

Keywords: Herbal medicine; pregnancy; pregnant women; herbal products; Northern Cyprus.

1. INTRODUCTION

Taking care of pregnancy is important to pregnant women at all stages of development of the fetus. In an effort to do that, both chemotherapy and phytotherapy are commonly taken into consideration. The use of latter for example is receiving attention among pregnant women especially in the past thirty years, remarkable increase has been recorded in the last twenty. This is because of the perception that herbal medicines are of comparatively lesser side effects than the conventional medicines largely by women as opposed men [1, 2]. Likelihood of such usability is higher at pregnancy especially second trimester when the signs of the pregnancy are eminent. All in the name of protecting the health of the fetus from perceived harmful effects of the conventional medicines. As evident in various part of the world, different types and forms of herbal medicinal products were used by pregnant women for different purpose.

In this study plant based medicinal products used during pregnancy were reviewed, their indications as observed in pregnant women were documented and tabulated alongside related published researches on how safe and or effective they are. This is to enable provision of starting point for future studies on the safety and efficacy of phytomedicines and their products use in treating different health related issues during pregnancy with belief that the outcome could important to both the consumers and healthcare professionals alike. Safety related issues and efficacies of the herbal medicines such as mutagenic and teragenic effects are usually not completely known however inferences are usually drawn on basis of

outcomes of researches conducted in laboratories and on animal models [3]. This does not to deny the fact that the inherent pharmacologic effects of some of the active components of these herbal products used by pregnant women might affect the fetus and such potential effects are known to the pregnant women themselves.

Because of the aforementioned issues and the importance attached doing research in these regards, this work aims to search and review accessible literatures on the use of plant-based medicinal products use in pregnancy as well as conduct survey on herbal medicinal use recommendations by North Cyprus pharmacists through administering questionnaires as permitted by the Turkish Pharmacists Association. And the availability of these medicinal plants found in North Cyprus was compared to that of other countries based on the literatures reviewed.

2. METHODOLOGY

2.1 Drug Prescription and Pregnancy

Treatment of pregnant women are done by grouping them on the basis of their conditions before the pregnancy, coincidental sickness and conditions that are directly related to pregnancy [4]. This is done with the ultimate aim of achieve best pregnancy within shortest period by taking the effective and least toxic dose that would keep the pregnant women in a controlled situation [4]. It is pertinent that pregnant woman takes into cognizance of balancing of not treating medical conditions and avoidance of treating those conditions with drugs [4].

Taking some medicines during pregnancy comes with different degree of risks of harming the fetus - i.e. teratogenic effect, of medically historical importance is the thalidomide tragedy that occurred at the thereabouts of 1960 which prompted the increase in public awareness on risk of use of some drugs during pregnancy [5]. Since most of the drugs taken by pregnant women are delivered to the developing baby by passing across the placenta which may affect the fetus either positively or negatively. If well-researched conventional medicines are reported to have negative effects to pregnant women, then there is no doubt that the herbal medicinal use in pregnancy need to be compiled and investigated as well.

2.2 Herbal Medicines in Pregnancy

Herbal medicinal treatment of pregnancy conditions are often rendered as a complementary and alternative medicine (CAM) which is defined by the National Centre for Alternative and Complementary Medicines as a "Group of health care approaches developed outside of conventional medicines for specific conditions or overall wellbeing" [6].

While the Herbal Medicinal Product (HMP) is defined by the European regulations as: "any medicinal product, exclusively containing as active ingredients one or more herbal or one or more herbal preparations, or more such substances in combination with one or more such herbal preparations" [7]. Similarly World Health Organization (WHO) defines HMP as "any medicinal product base on herbs, herbal preparations and finished herbal products that contain as active ingredient parts of plants, or other plant materials, or combinations thereof" [8].

2.3 Herbal Medicinal Products or Herbal Medicines: Regulations

Plant derived medicinal products such HMPs or herbs are sometimes considered as dietary supplements especially in the United States. Thus allowed to be sold over the counter and in markets by the Food and Drugs Administration (FDA) as far as they are safe [9]. Unlike the States, However, this is not the case in Europe where it is under the watch of The Committee of the Herbal Medicinal Products that is responsible for preparing views of the European Medicinal Agency (EMA) on herbal medicines. Previously it

was the German Commission E that is mandated to review of scientific studies and issuance of monographs. Generally, regulation of the monographs is done by done by the EMA based on evidence-based scientific researches, clinical trials and experiences gathered over many years [7].

2.4 Safety Issues of Use of Herbal Medicines in Pregnancy

The ultimate aim of the treating pregnancy using drugs is to achieve best pregnancy within shortest period by taking the effective and least toxic dose that would keep the pregnant women in a controlled situation [4].

The use of over-the-counter medicines and especially herbal medicines during pregnancy this is owing to the perceived believe that natural medicinal products are comparatively safer than the allopathic medicines and protects the fetus from negative effects of the latter. However, it is important to note that herbal medicines, despite their widely perceived safety, they were historically shown to have potent pharmacological actions that thus calls for questioning the perceived safety in comparison to their conventional counterparts [8]. And thus the clinical research outcomes on herbal medicines are medical less informative as most of the inferred safety and efficacy are animal studies, in vitro studies and laboratory researches thus making it difficult to determine their teratogenic and mutagenic effects [3, 4] so mainly their effects are largely unknown.

2.5 Prevalent Use of Herbal Products

The prevalence of use of HMPs differ from one country or region to the other for example in the European Union with lowest range of 5.9% and up to 48.3% higher than the USA with 17.9% and Canada 12% [10]. Furthermore, based on the articles reviewed in this studies, the use of herbal medicinal products use in; the United Kingdom was recorded to be 56% [11], 25.2% [10], 57.8% [12]; Italy 48% [11] and 27.2% [10] and 81% [2], Norway 46% [11] US 5.4 % [13] and 29% [10]; Australia 62% [11], 43% [8] and 75.3% [14]; Alexandria 27.3% [15]; Japan 76% and Taiwan 33.6 % [16]; Russia 92% [17]; Turkey 43% [18] and Canada 23% [10].

Accordingly WHO report showed that about 80% of population of use their traditional medicines to

take care of their health comparatively higher than of China where the prevalence of herbal medicinal use ranged from 30 to 50% [19]. However, another study has shown more than fifty percent (50%) of pregnant women in Europe as well as North America and those from regions that industrialized used CAM approximately once [19].

Health professionals do sometime recommend HMPs to pregnant women in order to control pregnancy conditions. It was reported in a survey to determine the percentage recommendation of herbal medicine by midwives which showed that midwives endorse HMPs to pregnant women in a range between 65% to 100% during which 78% to 96% of those midwives who participated in the survey had referred the clients to CAM practitioner similarly a study conducted in Turkey reported that 58.9% of the participated midwives have suggested the use of CAM to their patients [20]. However, despite the endorsement of CAM by the healthcare professionals, there was a tendency of taking contraindicated herbal medicines in pregnancy [18], this calls for the need for urgent awareness creation [8, 20, 21]. The increased use of phytomedicinal products is likely to be based upon the perception that the allopathic medicines are of lesser safety and effectiveness as compared to phytotherapeutic medications [1, 2, 11, 22].

It is important to reiterate that herbal medicines, despite their widely perceived safety, they were historically shown to have potent pharmacological actions that thus calls for questioning the perceived safety in comparison to their conventional counterparts [8]. In view of the aforementioned information this study surveyed herbal medicinal products recommended by community pharmacists in Northern Cyprus and compared the results obtained to that of data obtained in the literatures reviewed worldwide.

3. RESULTS

The results from the literature searched and reviewed showed that there about six hundred and fifty, 650 medicinal plants used in pregnancy, fifty eight (58) of which are grown or cultivated in Cyprus and seventeen (17) were found to be imported species but some species of same genus were recorded in Cyprus compiled from the literature reviewed and obtained using the Near East Grand Library Electronic Resources of the Near East library scholarly accessible databases 650 (Table 2, Fig. 1). Note

3.1 Plants used in Pregnancy and their Comparative Availability in Northern Cyprus

Within the limit of this study there were no studies conducted previously on medicinal plants used in pregnancy in Cyprus. We believe that this may be a good starting point for future researchers including the clinical trials for Cyprus. Table 3 showed the list of medicinal plants that were used in treating pregnancy condition and indicated whether those medicinal plants are available in Cyprus or not. As indicated in the aforementioned table, 56 medicinal plant species naturally growing or traditionally cultivated in the Cyprus. Eighteen of these species of these species were found not to be naturally growing in the country but were imported ones or have another species of the same genus growing in the country.

3.2 Recommended Forms of HMPs in the North Cyprus Community Pharmacies

The result from the questionnaire survey showed that 116 community pharmacists responded to questionnaires distributed to the 263 community pharmacies across the four districts covered in this study these include the North Lefkoşa (Nicosia), Girne (Kyrenia), Güzelyurt (Morphou) and Mağusa (Famagusta). One hundred and sixteen (116) community pharmacists participated in the survey, one hundred and one (101) of answered to have HMPs in their respective pharmacies. Eleven (11) of them were found not dispensing any herbal medicinal products. Four (4) also answered not having any HMPs but stated to have almond oil in their pharmacies. The years of the participants in community pharmacy ranged from two (2) years (these were mostly new graduates) to thirty seven years (37). Note that some of the medicines recorded were conventional medicines as stated to be recommended to pregnant women in Turkish Cyprus pharmacies.

Most herbal medicinal products recommended were in the form of lozenges which were 76 in number, 60 different types of herbal teas, 57 oils from different herbal medicinal materials, 36 were capsulated HMPs while other forms recorded were 20 in number which includes 9 hair coloring kits, 1 soap, 4 deodorants, 2 shampoos, 2 cosmetics and 2 perfumes as shown in Fig. 2

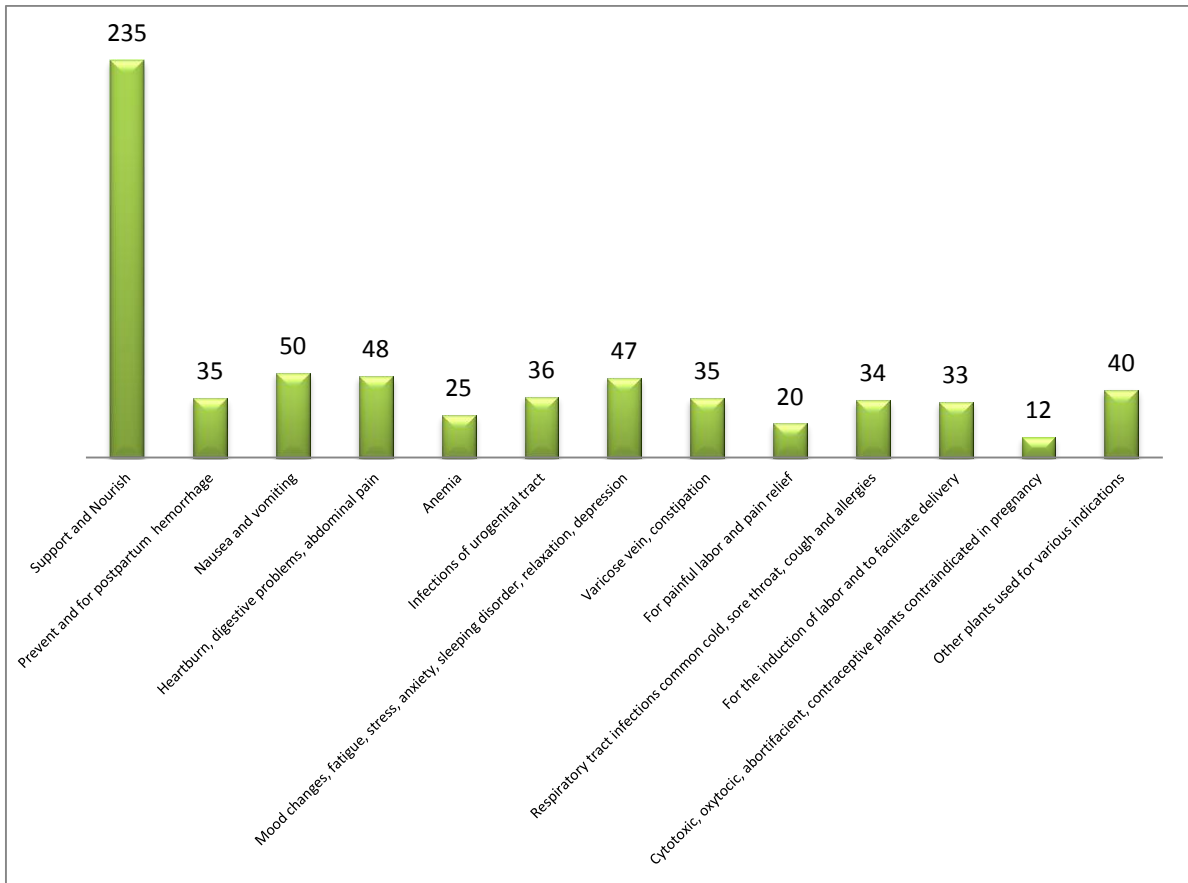


Fig. 1. Symptoms treated by herbal remedies during pregnancy and No of plant used based on the literatures reviewed

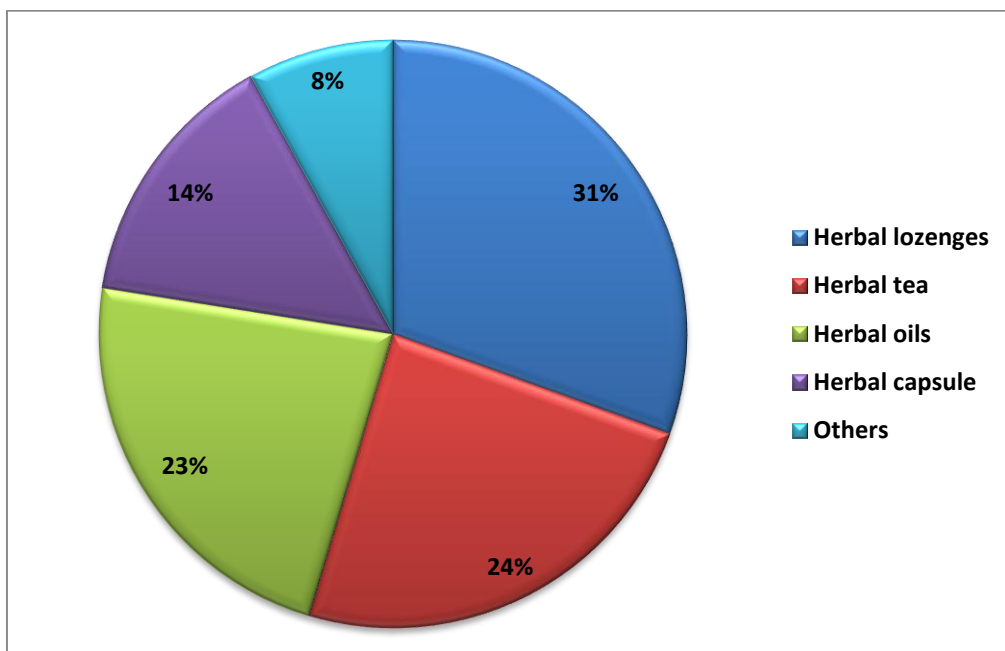


Fig. 2. Herbal pharmaceutical forms recommended by Turkish Cypriot pharmacists to pregnant women

Table 1. Drugs causing developmental defects and alternatives considered to be safer [4]

Drug class	Drug to be avoided in pregnancy	Drug considered safer
Analgesics	NSAIDs	Paracetamol, Opiate (for moderate severe pains)
Antibiotics	Trimethoprim (in 1 st trimester) Aminoglycosides	Penicillin, Cephalosporin Erythromycins
Anticonvulsants	Sodium valproate Phenytoin	Lamotrigine, Carbamazepine
Cardiovascular drugs	ACE inhibitors Amiodarone	Methyldopa Digoxine
Hypoglycemics	Sulfonylureas	Insulin
Others	Cytotoxics, Retinoids, Statins, Thalidomide	

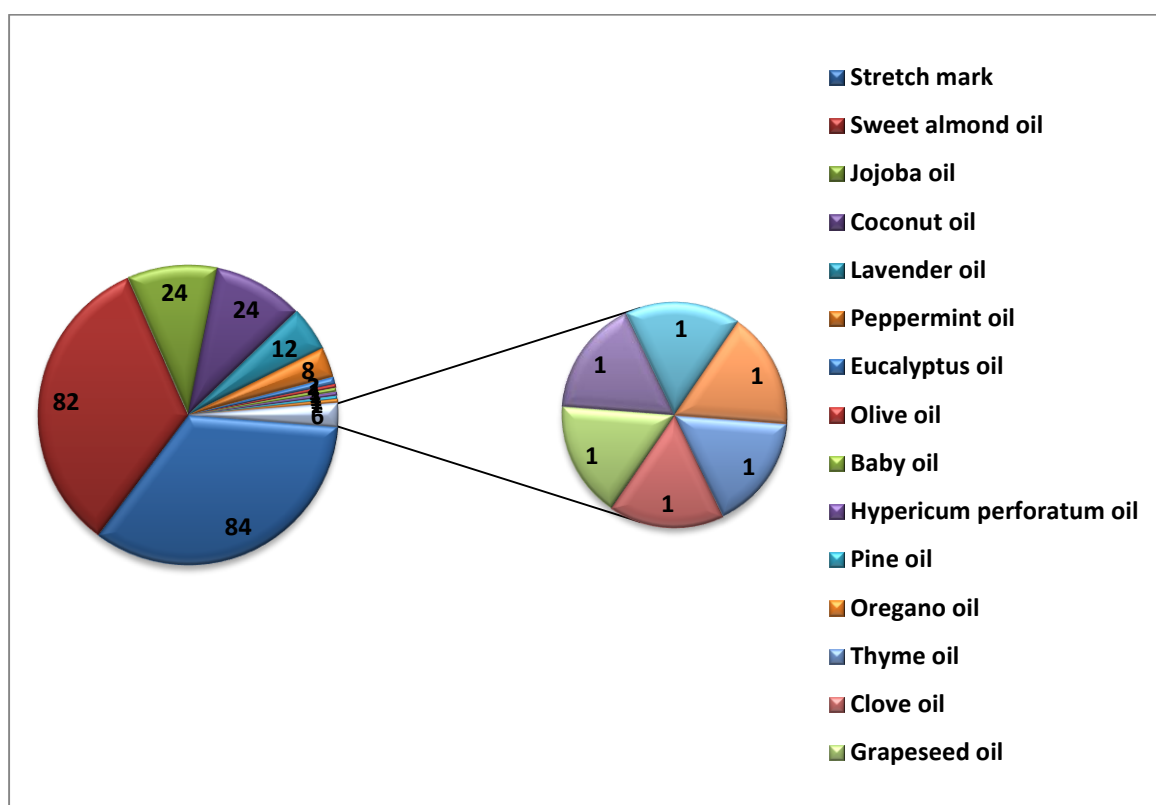


Fig. 3. Herbal Oils Recommended to pregnant women by Turkish Community Pharmacies in the Northern Cyprus pharmacists

3.2.1 Medicinal oils

Most of medicinal herbal oils recommended pregnant women were the ones for stretch mark, from sweet almond, jojoba, coconut, lavender and peppermint constituting n=84, n=82, n=24, n=24, n=18 and n=8 respectively. And one (n=1) herbal pharmaceutical oil from olive, for soothing on babies, St. John’s Wort, Oregano, thyme, clove, grape seeds, wall nut, strawberry+almond and wheat germ respectively while two (n=2)

herbal oils from eucalyptus were recorded are illustrated in Fig. 3.

3.2.2 Herbal lozenges

Herbal medicines in form of lozenge that were recorded in this survey includes those of the brand Otaci®, Bepanthen® (a conventional medicine), Phytorelief®, Cistus® and Santasapina® constituting n=65, n=10, n=3, n=1 and n=1 respectively as shown in Fig. 4.

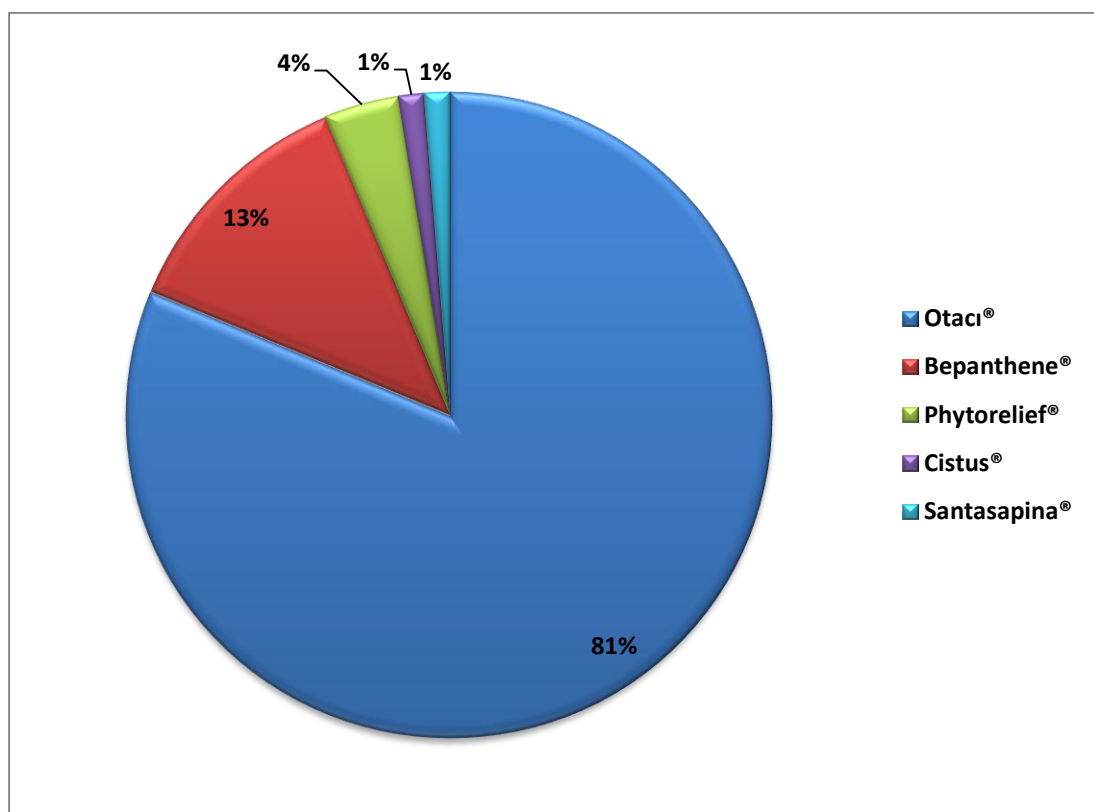


Fig. 4. Herbal lozenges recommended by the Turkish Cypriot pharmacists to pregnant women

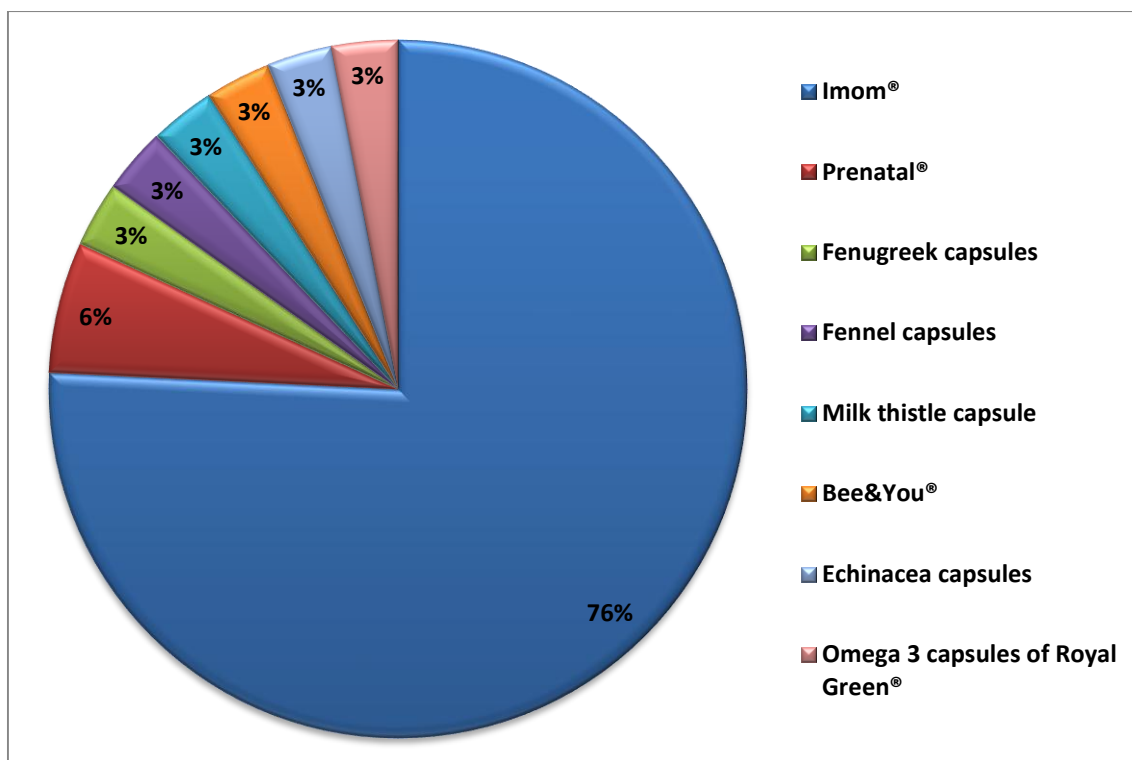


Fig. 5. Herbal Capsules recommended by the Turkish Cypriot pharmacists to pregnant women

Table 2. Herbal products for treatment of pregnancy symptoms and No of plant used based on the literatures reviewed

Symptoms treated by herbal remedies during pregnancy	No of plant used
Support and Nourish	235
Prevent and for postpartum hemorrhage	35
Nausea and vomiting	50
Heartburn, digestive problems, abdominal pain	48
Anemia	25
Infections of urogenital tract	36
Mood changes, fatigue, stress, anxiety, sleeping disorder, relaxation, depression	47
Varicose vein, constipation	35
For painful labor and pain relief	20
Respiratory tract infections common cold, sore throat, cough and allergies	34
For the induction of labor and to facilitate delivery	33
Cytotoxic, oxytocic, abortifacient, contraceptive plants contraindicated in pregnancy	12
Other plants used for various indications	40
	650

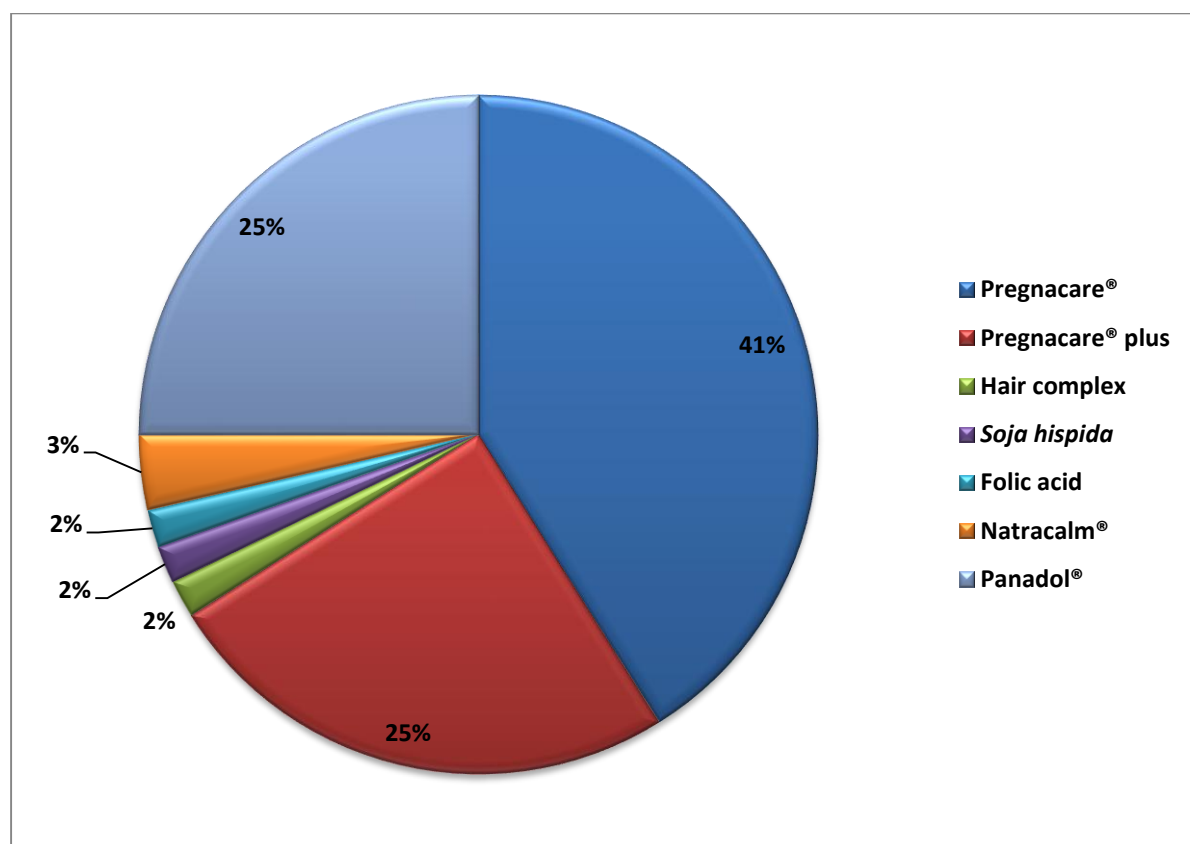


Fig. 6. Herbal and Conventional Tablets recommended by the Turkish Cypriot pharmacists to pregnant women

3.2.3 Capsules

Recorded recommended capsules includes Imom® (n=25); an omega-3 containing vitamin

supplement rather than a herbal medicine. Others includes Prenatal®, Nurse Harvey's Fenugreek capsules (a supplement too) and the ones from Fennel, Milk thistle, products from

bees under the brand Bee&You® bee, supplement from Royal Green®. Details as Echinacea, Isoflavone, another Omega 3 shown in Fig. 5.

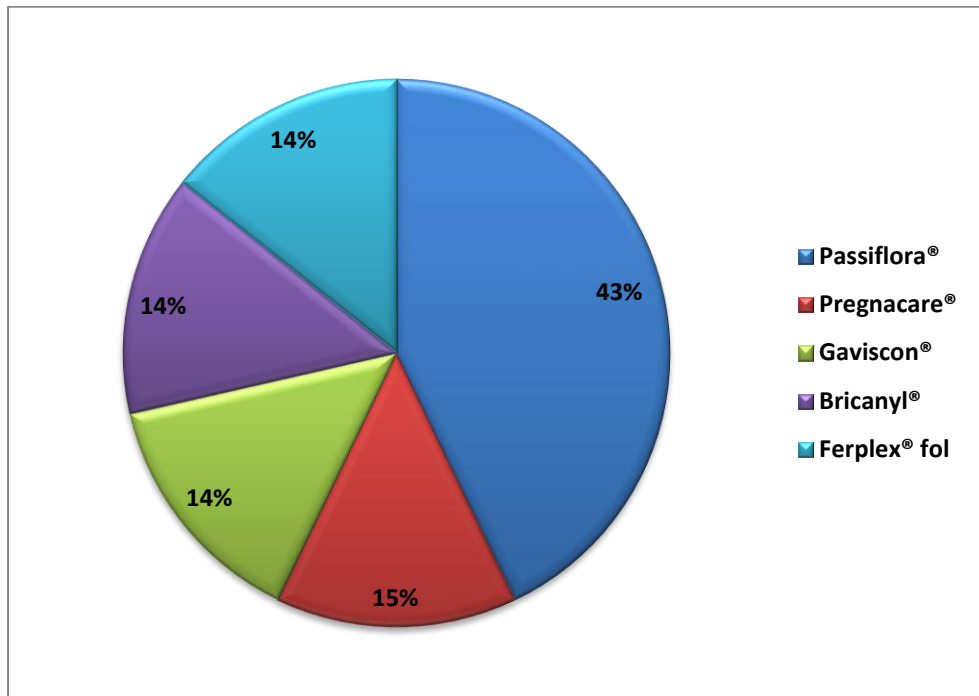


Fig. 7. Herbal and Conventional Syrups recommended by the Turkish Cypriots pharmacists to pregnant women

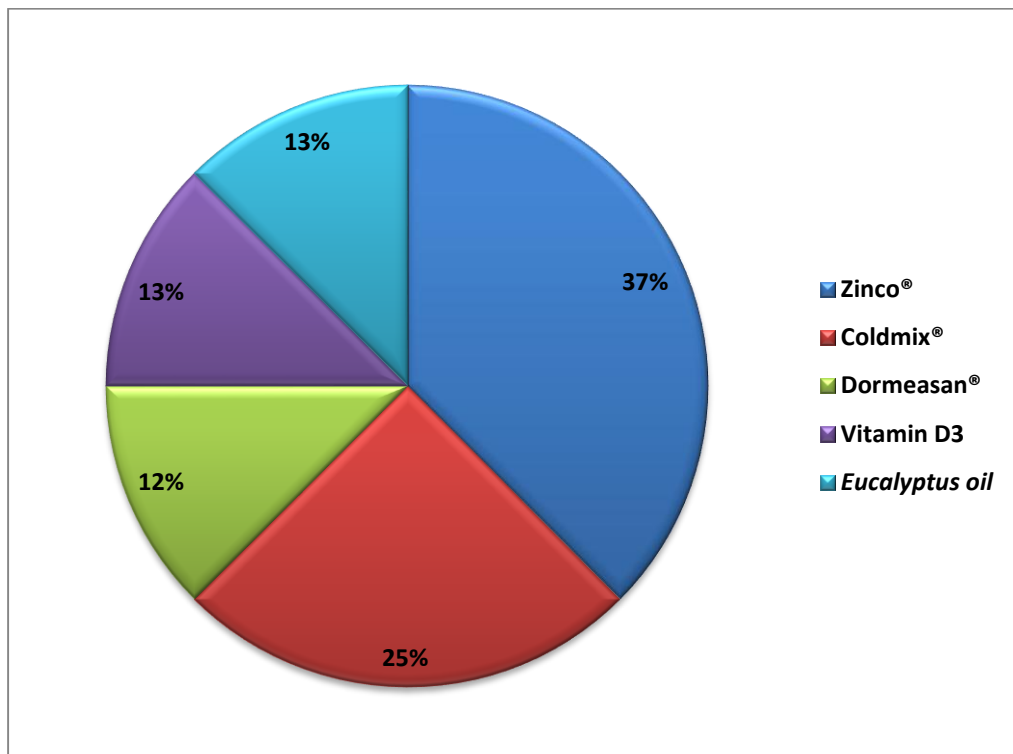


Fig. 8. Herbal and Conventional drops recommended by the Turkish Cypriots pharmacists to pregnant women

Table 3. Comparative availability of plants used in pregnancy in Cyprus

Plant used in pregnancy	Grown in Cyprus	Species grown in Cyprus	Medicinal use
<i>Achillea millefolium</i>	(+)	(-)	Hemorrhoids, hypotension, diaphoretic, common cold, dysmenorrhea, gynecological disorders, uterus spasms, antifungal, antiseptic, hemostatic, diuretic, cystitis infections, anti-inflammatory [23, 24].
<i>Aloe vera</i>	(-)	(-)	Gall disorder, immune system stimulant, antifungal, burns, sedative. Skin irritation, blood purification, detoxification [23].
<i>Anemone coronaria</i>	(+)	(-)	A tincture from flower use in medicine [24]
<i>Anethum graveolens</i>	(+)	(-)	Dyspepsia, flatulence, stomach ache, hiccup, diuretic [23].
<i>Artemisia absinthium</i>	(+)	(-)	Gastritis, intestinal disorder, compress, dizziness, insomnia, against stings [23].
<i>Astragalus membranaceus</i>	(-)	(+) <i>A.pelenicus</i> , <i>A.asterias</i>	[24].
<i>Ballota nigra</i>	(+)	(-)	
<i>Beta vulgaris</i>	(+)	(-)	
<i>Calendula officinalis</i>	(+)	(-)	Colitis, constipation, moles, antiseptic, bruises, sanative [23].
<i>Canabis sativum</i>	(+)	(-)	
<i>Chelodonium majus</i>	(-) Imported	(-)	liver disorder, cataract, herpes, antiseptic [23].
<i>Citrus aurantium</i>	(+)	(-)	Throat infections, acne, antiemetic, influenza, depression, insomnia, dysmenorrhea, antifungal, antiseptic [23].
<i>Crocus sativus</i>	(-)	(+) <i>C. hartmannianus</i> <i>C. veneris</i> <i>C. sempervirens</i>	Bowel troubles and anemia [24].
<i>Cupressus sp.</i>	(+)	(+)	
<i>Daucus carota</i>	(+)	(-)	
<i>Echinacea angustifolia</i>	(-) Imported	(-)	Laryngitis, dyspepsia, immune system stimulant, headache, bronchitis, common cold, against stings and snake bites, antiseptic, blood purification, febrifuge, tonic [23].
<i>Ficus carica</i>	(+)	(-)	Fruit has medical tradition, milky juice used to treat boils, warts, and insect stings [24].
<i>Foeniculum vulgare</i>	(+)	(-)	Diuretic, galactagogue, dyspepsia, flatulence [23].
<i>Foeniculum graecum tibetana</i> (<i>Trigonella foenum-graecum</i>)	(+)	(-)	[24].

Plant used in pregnancy	Grown in Cyprus	Species grown in Cyprus	Medicinal use
<i>Gallium aparine</i>	(+)	(-)	For treating wounds and ulcers, diuretic [23]. Adrenal disorder, hoarseness, laryngitis, duodenal ulcer, and gastritis, asthma, cough, pneumonia, oily skin, constipation [23].
<i>Glycyrrhiza glabra</i>	(+)	(-)	
<i>Gundelia tourneforti</i>	(+)	(-)	Gastric ulcer, gastritis, dyspepsia, duodenal ulcer, calmative, depression, headache, insomnia [23].
<i>Hedera helix</i>	(+)	(-)	
<i>Hypericum perforatum</i>	(+)	(-)	
<i>Lactuca sativa</i>	(+)	(-)	
<i>Lavandula angustifolia</i>	(+) Cultivated	(-)	Hypertension, tachycardia, bloating, colic, dyspepsia, intestinal parasites, spasmolytic, diaphoretic, calmative, depression, headache, insomnia, migraine and antiseptic [23].
<i>Linum usitatissimum</i>	(+)	(-)	Intestinal disorders, inflammation, constipation, cough, expectorant [23].
<i>Malva sylvestris</i>	(+) Cultivated	(-)	
<i>Marrubium vulgare</i>	(+)	(-)	Tea as a popular remedy for cough and colds [24].
<i>Matricaria aurea</i>	(+)	(-)	Sore throat, stomach ache, Inflamed eyes, ear ache, diarrhea, dyspepsia, spasmolytic, allergy, calmative, dizziness, headache insomnia, migraine, eye pain, common cold, cough, antiseptic, sanative [23].
<i>Matricaria chamomile</i> (<i>Matricaria recutita</i>)	(+)	(-)	
<i>Medicago sativa</i>	(+)	(-)	
<i>Melissa officinalis</i>	(+) Cultivated	(-)	Cardio tonic, hypertension, tachycardia, antiemetic, colic, dyspepsia, stomach tonic, anti-aging, brain stimulant, calmative, depression, headache, migraine, nervous tonic [23].
<i>Mentha piperita</i>	(+)	(-)	Hypotension, igmoritis, colitis, diarrhea, dyspepsia, liver disorders and calmatives, headache, stomach disorders, migraine, nervous tonic, bad breath, dysmenorrhea, rheumatism, tonic [23].
<i>Mentha spicata</i> and <i>M. angustifolia</i>	(+)	(-)	Tonsillitis, headache, cholitis, diarrhea, dyspepsia, stomach disorder, calmative, common cold, dysmenorrhea, tonic [23].
<i>Micromeria fruticosa</i>	(-)	(+)	<i>M. nervosa</i> , <i>M. myrtifolia</i> , <i>M. microphylla</i>
<i>Nasturtium officinale</i>	(+)	(-)	Used to alleviate toothache [24].

Plant used in pregnancy	Grown in Cyprus	Species grown in Cyprus	Medicinal use
<i>Nigella sativa</i>	(+)	(-)	
<i>Origanum syriacum</i>	(+)	(+)	<i>O. marjorana</i> <i>O. dictamnus</i> <i>O. dubium</i> <i>P. caerulea</i>
<i>Passiflora incarnata</i>	(-)	(+)	Liver disorder, headache, neuralgia, antiseptic, sanative, aphrodisiac, tonic, diarrhea, dyspepsia, gall disorders, stomach ache, influenza, toothache, asthma, bronchitis common cold, cough and arthritis [23]. Sedative [24].
<i>Pelargonium graveolens</i>	(+)	(-)	Hypertension, diabetes, diarrhea, dyspepsia, stomach ache, cholesterol, estrogen action, insomnia, asthma, hemostatic, tonic [23].
<i>Petroselinum crispum</i>	(+)	(-)	Blood circulation stimulant, anemic, anti-inflammatory, tonic, traditional remedy for gallstones [23].
<i>Pimpinella anisum</i>	(+)	(-)	Dyspepsia, flatulence, intestinal disorder, stomach disorders, whooping cough, bronchitis, cough, expectorant, diuretic [23].
<i>Pistacia lentiscus</i>	(+)	(-)	Halitosis, resin used for dentistry [24].
<i>Plantago asiatica</i>	(-)	(+)	<i>P. lanceolata</i> Sores and injuries, respiratory ailments [24]. Igmorhitis, diarrhea [23]. Oils as emollient and laxative [24].
<i>Plantago major</i>	(+)	(-)	
<i>Prunus dulcis</i>	(+)	(-)	
<i>Prunus mahaleb</i>	(-)	(+)	
<i>Punica granatum</i>	(+)	(-)	
<i>Quercus sp</i>	(-)	(+)	<i>Q. infectoria</i> <i>Q. coccifera</i> Against endoparasites [24]. [24].
<i>Ranunculus ficaria</i>	(+)	(-)	
<i>Raphanus sativus</i>	(+)	(-)	
<i>Ricinus communis</i>	(+) Cultivated	(-)	Oil as powerful purgative, the seed contain ricin; one of the most toxic natural substances [24].
<i>Rosmarinus officinalis</i>	(+) Cultivated	(-)	Cardio tonic, hypertension, diabetes, diarrhea, dyspepsia, brain stimulant, calmative, concentration, headache, insomnia, memory stimulant, migraine, gingivitis, asthma, common cold, diuretic, tonic, optical acuteness, detoxification, overstrain [23].
<i>Rubus ideus</i>	(-)	(+)	<i>R. sanctus</i> <i>R. cyprius</i> <i>R. bucephalophorus</i> <i>R. conglomeratus</i> Used to bleeding, ulcer and diarrhea [24].
<i>Rumex crispus</i>	(-)	(+)	

Plant used in pregnancy	Grown in Cyprus	Species grown in Cyprus	Medicinal use
<i>Ruta graveolens</i>	(-)	(+) <i>R. pulcher</i>	Used in traditional medicine [24] Hypotension, diabetes, estrogen action, diarrhea, dyspepsia, spasmolytic, anti-aging, antiperspirant, brain stimulant, depression, nervous tonic, aphthae, gingivitis, dysmenorrhea, antiseptic, diuretic [23].
<i>Salvia fruticosa</i>	(+) Cultivated	(-) <i>R. dentatus</i>	
		(-) <i>R. chalepensis</i>	
		(-) <i>S. veneris</i>	
		(-) <i>S. viridis</i>	
		(-) <i>S. verbenea</i>	
		(-) <i>S. lonigera</i>	
		(-) <i>S. hierosolymitana</i>	
<i>Sambucus nigra</i>	(+)	(-)	Hypotension, constipation, gastric ulcer, stomach disorder, anemia, influenza, diaphoretic, depression, eye pains, cough, common cold, arthritis, rheumatism, diuretic, anti-inflammatory, detoxification, febrifuge [23].
<i>Sesamum indicum</i>	(+)	(-)	Sedative, painkiller taken with caution [24]. stomach ache and teething pains, [24].
<i>Silybum marianum</i>	(+)	(-)	
<i>Solanum tuberosum</i>	(+) Cultivated	(+) <i>S. nigrum</i>	
		(+) <i>S. villosum</i>	
<i>Stellaria media</i>	(+)	(-)	Phlebitis, constipation, gastric ulcer, osteoporosis, bronchitis, sanative [23].
<i>Symphytum officinale</i>	(-) Imported	(-)	
<i>Tanacetum vulgare</i>	(-) Imported	(-)	Influenza, calmative, depression, headache, insomnia, migraine, common cold, arthritis [23].
<i>Taraxacum officinale</i>	(+)	(-) <i>Taraxacum cyprum</i>	Diabetes, dyspepsia, gall disorder, liver disorders, obesity, cholesterol, rheumatism, diuretic [23].
		(+) <i>T. creticum</i>	
		(+) <i>T. scordium</i>	
		(+) <i>T. divariticum</i>	
		(+) <i>T. cyprum</i>	
<i>Thymus vulgaris</i>	(+)	(+) <i>T. creticum</i>	Hypotension, immune system stimulant, depression, dyspepsia, memory stimulant, migraine, diarrhea, asthma, common cold, cough, anemia, antifungal, antiseptic [23].
		(+) <i>T. scordium</i>	
		(+) <i>T. divariticum</i>	
		(+) <i>T. cyprum</i>	
		(+) <i>T. capitatus</i>	

Plant used in pregnancy	Grown in Cyprus	Species grown in Cyprus	Medicinal use
<i>Tilia sp.</i>	(+) Cultivated	(-)	Colic, constipation, calmative, cough [23].
<i>Ulmus minor</i>	(-)	(+) <i>U. canescens</i>	
<i>Urtica dioica</i>	(+)	(+)	Hemorrhoids, phlebitis, diabetes, constipation, gall disorders, anemia, allergy, bronchitis, dysmenorrhea, importance, arthritis, rheumatism, hemostatic, hair loss, diuretic, incontinence, blood purification [23].
		<i>U. pilulifera</i>	Mouth ulcer, nose, rheumatism [24].
<i>Verbena officinalis</i>	(+)	(-)	Bruised leaves applied to the septic wounds, infusions for fever, stomach troubles [24].
<i>Vitex agnus-castus</i>	(+)	(-)	Stomach ache, eye troubles [24].
<i>Ziziphus Jojoba</i>	(-)	(+) <i>Z. lotus</i>	Diarrhea, and skin troubles [24].
Total	56 (+)	18 (-)	

(+): Species grown wildly in Cyprus
 (-): Species not wildly grown in Cyprus

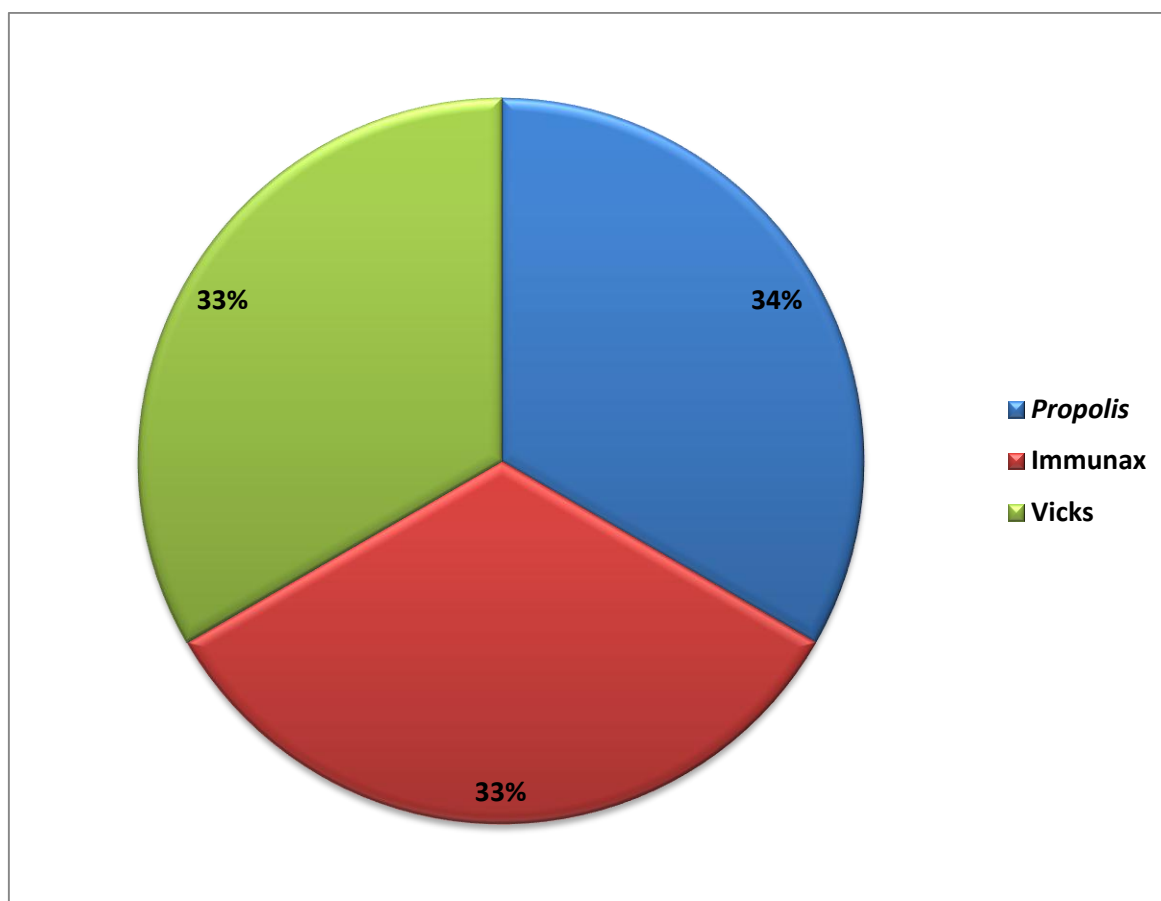


Fig. 9. Herbal and Conventional sprays recommended by the Turkish Cypriots pharmacists to pregnant women.

3.2.4 Tablets

Recommended tablet forms were of the brands Pregnacare®, Hair complex, the one from *Soja hispida*, Folic acid, Natracalm® and Panadol® constitution n=23, n=14, n=1, n=1, n=1, n=2 and n=14 ; though a conventional medicine, was stated to be recommended to pregnant women in Cypriot pharmacies, this is shown in Fig. 6.

3.2.5 Syrup

Recommended herbal medicines in the form of syrup includes those of the brand Passiflora®, Pregnacare®, Gaviscon®, Bricanyl® and Ferplex® fol constituting n=3, n=1, n=2, n=1 and n=1 respectively as shown in Fig. 7.

3.2.6 Drop

Recommended herbal medicinal drops were Zinco®, Dormeasan®, Vitamin D3, Coldmix® and Eucalyptus constituting n=3, n=1, n=1, n=2 and n=1 respectively as shown in Fig. 8.

3.2.7 Spray

Recommended herbal medicinal throat sprays were those containing propolis and the ones from Immumax® and Vicks® one (n=1) product of each as shown in Fig. 9.

4. DISCUSSION

There is no doubt that there is increase in the use of herbal medicinal products and the complementary and alternative medicine (CAM) in pregnancy worldwide mostly because they are considered more natural and safe. In fact some pregnant women go for safe medication using the HMPs without the consent of their healthcare professional indicating the need for educating them as well as the healthcare professionals on the pros and cons of using HMPs. The importance safe use of any medication at pregnancy cannot be over emphasized thus HMP use should be strictly on basis of scientifically and clinically proven safety and efficacy through recommendation of healthcare

professional. Even though there are studies accounting for the safety and efficacy of HMPs, there still exist gaps in terms of number of those studies covering adverse side effects of certain herbal medicines especially those that are depending dosage which is not captured in this work as well. Therefore it is recommended that future research should focus on adverse side effects of the HMP use in pregnancy especially the dose dependent effects of the mostly used ones. This is because it was reported that some herbal medicines containing cowberry (*Vaccinium vitis-idaea*), lovage (*Levisticum officinale*) and Motherwort (*Leonurus cardiaca*) were contraindicated because of the negative effects observed when used in pregnancy while others such as those that contain ginger (*Zingiber officinale*), cranberry (*Vaccinium macrocarpon*) and peppermint (*Mentha piperita*) were found to be safe to be used in pregnancy. Additionally those HMP containing valerian (*Valeriana officinalis*), raspberry (*Rubus idaeus*) and dog rose (*Rosa canina*) should be used cautiously during pregnancy [8].

5. CONCLUSION

Despite the wide use of herbal medicinal products use in general and in pregnancy in particular there is need for increase in awareness on their safe use. Pregnant women here in Cyprus were shown to take herbal medicines only on recommendation from their healthcare professionals. However this needs to be studied in-depth to include traditional herbal use in pregnancy and their effects to the health of the consumer. For example the use of linden elder flower tea traditionally is common among the Cypriots to treat upper respiratory tract infections need to be ascertained through evidence based research.

This study also showed that the HMPs in Turkish Cypriot community pharmacies are small in number and their recommendations to pregnant women are on the basis of doctor's prescription. The HMPs recommended to most of the pregnant women were in the form of lozenges and of the brand Otacı® and oils for stretch mark together with almond oil making up 33% respectively. And the mostly recommended herbal teas were namely antifatulence and nursing teas.

Professional recommendation for evidence-based scientifically researched HMPs is always sought for when taking medications especially

herbal medicines use in pregnancy and it is important that all the stakeholders are aware of such HMPs as well. Turkish community pharmacists' reluctances in not recommending HMPs to pregnant women without doctor's prescription is commendable. On the other hand Turkish traditional herbal medicine sellers (locally known as 'aktar') are always eager to recommend herbal medicines to the general public including pregnant women this pose a threat to public health thus needing serious regulatory action by the governments.

6. LIMITATIONS

This study is limited to the availability and accessibility of literatures. Although the search of the literatures covered worldwide, questionnaire administration is restricted to only registered Turkish Cypriot pharmacists.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

DECLARATION

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Near East University, Nicosia. All co-authors have reviewed and approved of the manuscript prior to submission

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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