

Status of Traditional Chinese Medicine in Greece and its Approach on COVID-19 Pandemic

Grivas Constantinos¹, Hatzopoulou Anna², Kaparianos Dimitrios¹, Panagiotaras Taxiarchis¹, Tzoumerka Vasiliki³

¹Akadimia of Ancient Greek and Traditional Chinese Medicine, Ymittos 17237, Athens, Greece, ²Omoioopathitiko Farmakeio, Athens 10672, Greece, ³Peonia Herbs, Athens 11742, Greece

Abstract

Although acupuncture was first introduced to Greece in about 1938, it was not until 1973 that an institution was created to teach it, where its study was limited to medical doctors (MDs). Traditional Chinese medicine (TCM) was not taught to non-MDs until 2004. Even today, TCM has not been integrated into the Greek health system, and in a few exceptions, TCM was mainly associated with pain management. A few private schools teach TCM theory and practice in the fields of acupuncture, moxibustion, herbology, gua sha, and tui na (Chinese massage). This study examines the use of Chinese single herbs and formulas for prevention or treatment during the COVID-19 pandemic in Greece, as well as issues with the availability of Chinese herbs and proposals for substitutes from the traditional Greek medicine point of view.

Keywords: COVID-19, Greek, traditional Chinese medicine

Status of Traditional Chinese Medicine in Greece

Gastroenterologist Georgios Voulpiotis (1900–1980), a Greek medical doctor (MD) who studied in Paris, began to practice using acupuncture to some extent probably from 1938 when he returned to Greece. But it was not until 1949 that acupuncture was for the first time practiced systematically by urologist Constantinos Trangas (1896–1981). In 1973, the first institution for the teaching of acupuncture – the Hellenic Center for the Research and Application of Acupuncture – was founded by the Cypriot pathologist Yagos Karavis (1922–1996), who, in 1975, also founded the Hellenic Society of Acu-treatment.^[1,2] It was not until 1977 that the first systematic 3-year program in acupuncture, intended exclusively for MDs, was organized under the supervision of Nguyễn Văn Nghi, a Vietnamese professor in Marseille. In 1983, for the first time, acupuncture was practiced in the pain management clinic of the AHEPA General University Hospital of Thessaloniki, in northern Greece. Today, Medical Acupuncture [Note 1] is available in 23 public hospitals and several private ones.^[3] Although

Traditional Chinese Medicine (TCM) is not yet officially integrated into the Greek Health System, in December 2019, a TCM clinic, under Chinese administration, was officially established in Chalandri Athens, with Georgios Patoulis – the president of the Athens Medical Society and Governor of Attica – present at its inauguration. The clinic's aim is to offer its services to the Chinese community in Athens and Piraeus. In January 2020, Medical Acupuncture was officially recognized in the webpages of the Greek Ministry of Health.^[3]

TCM teaching for non-MDs was not provided until the Natural Health Science School introduced a TCM basic theory class in 2001–2002. The Akadimia of Ancient Greek and TCM [Note 2] was founded in 2004, and it offered a more comprehensive curriculum of TCM, including both acupuncture and herbology. Today, six schools in Athens and Iraklion (Crete) offer TCM lessons to their students, three of which are Lifelong Learning Centers (Akadimia, NHS and KEPANSI). The newly founded (2019) Athens College of East Asian Medicine is associated with Shenzhou Open University of TCM in Amsterdam, capital of the Netherlands. Amongst

Submitted: 26-Jun-2020 Accepted: 19-May-2021 Published: 30-Jun-2021

Access this article online

Quick Response Code:



Website:
www.cmaconweb.org

DOI:
10.4103/CMAC.CMAC_16_21

Corresponding author: Mr. Grivas Constantinos,
Akadimia of Ancient Greek and Traditional Chinese Medicine, 4 Nymfaiou
Str., Ymittos 17237, Athens, Greece.
E-mail: cosgrivas5@gmail.com
ORCID: 0000-0002-1990-518X

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

the two of the six schools offer a comprehensive program in Chinese herbology, Akadimia being the one that provides a long-term course in Chinese herbology. During 2004 to 2020, this school conferred 342 diplomas in acupuncture, 27 diplomas in herbology (including Chinese herbology) and 112 4-year degrees (including both acupuncture and herbology) to students (Akadimia 2020, pers.com). Figure 1 shows the considerable difference between acupuncture and herbology studies in the school. Of the students, 23% were interested in a more complete curriculum in Chinese Medicine, and 6% were interested specifically in herbology (Akadimia 2020, pers.com).

Founded in 2013, the Hellenic Society of Chinese Medicine, a member of the European Traditional Chinese Medicine Association (ETCMA), comprises mainly non-MD's. In 2018, the Shanghai University of TCM and the University of West Attica jointly created a Tai Chi Health Center, offering a Tai Chi program for practitioners in Greece. In the same year, the Hellenic Society of Chinese Medicine signed a memorandum of mutual collaboration for the promotion and development of TCM with the World Federation of Acupuncture Societies. Founded in 2019, the Hellenic Society of Acupuncture and Chinese Medicine, also a non-MD group, has applied recently for ETCMA membership.

Chinese Immigrants in Greece

The population of Greece was 10,724,599 in 2019, among whom approximately 3,153,000 lived in Athens. The Chinese immigrants in Greece are mostly merchants with retail stores, selling clothes and other kinds of goods. Tonchev^[4] estimated that the Chinese community in Greece consisted of approximately 20,000 members (mostly from Fujian Province and Zhejiang Province). This figure is 15 times larger than the approximately 1500 Chinese registered in the 2001 census^[4] or 5 times larger than that in 2011 (3857).^[5] About one half of the Chinese community settle themselves in Athens, while a few thousand move to the

islands during the summer months, to take advantage of the trade opportunities there.^[4]

COVID-19 Pandemic in Europe and Greece

On March 13 2020, the WHO declared Europe as an active center of the pandemic, due to the increasing number of cases.^[6] In Greece, back in January, there was not much concern about the possibility of a global pandemic. On January 21st Panagiotis Arkoumanas, president of the National Public Health Organization (NPHO), declared that “the virus is not lethal and does not transmit easily from human to human” [Note 3]. The next day, Sotiris Tsiodras, the head of the Scientific Committee for the Management of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic, assured the public that “it is a coronavirus with low infection levels amongst humans,” that the “possibility of transmission in Greece was limited,” and that the ministry’s response mechanism was fully capable of dealing with the issue [Note 4].

On February 26, 2020, the first case was confirmed in Greece, the victim was a 38-year-old woman from Thessaloniki and she had recently visited Northern Italy. The subsequent cases were mainly related to people who had traveled to Italy and a group of pilgrims who had traveled to Israel and Egypt. The Greek authorities issued precautionary guidelines and recommendations, however, measures taken up to that moment were localized, including only the closure of schools and the suspension of cultural events in the affected areas.

On March 10, with a total of 89 cases, Health Minister Vasilis Kikilias announced the closure of all educational institutions for 14 days [Note 5]. Two days later, the first confirmed death from COVID-19, a 66-year-old man, was reported [Note 6]. On March 13 and 16 the Greek government intensified preventive measures, closing shops, restaurants, temples, etc., On March 22, significant restrictions were imposed on all nonessential transport and movement across the country, starting from 6 a.m. the next day. On May 4, after a 42-day lockdown, the country began the gradual lifting of restrictions on social travels and the restarting of business activity. Interestingly, the use of masks was not made mandatory either before or during the lockdown and was not implemented until May 1.

In the 115 days between February 26 and June 21, there were officially 3,256 cases of COVID-19 (55% men, average age: 48), with 720 (22%) related to travel abroad and 1,826 (55.9%) related to known cases. There were 190 deaths (68.4% men), with an average age of 76 years; 100% were suffering from a serious disease and/or were above 70 years old. The average number of new cases per day was 28.3 and the number of deaths per day was 1.65. The fatality rate among the COVID-19 cases was 5.83%, but it should be noted that from March 14 until mid-May, testing was limited to only the elderly, the

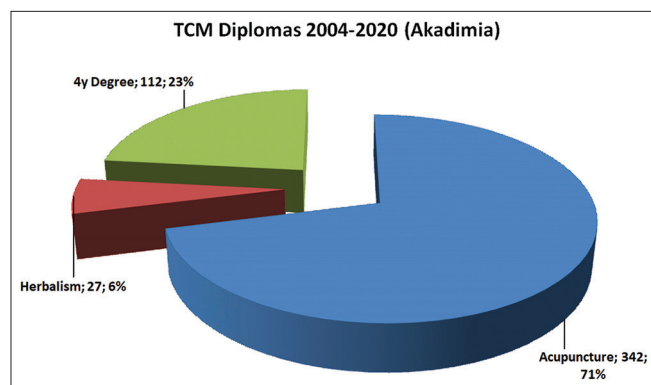


Figure 1 Number of traditional Chinese medicine diplomas awarded by Akadimia, during 2004–2020. There is a considerable difference in interest between acupuncture and herbology studies.

severely sick and other high-risk groups, as well as healthcare personnel. Attica was greatly affected more than the other parts of Greece, with 1,687 cases (51.8%) and 81 deaths (42.6%) (NPHO, covid19.gov.gr).

The two highest peaks of COVID-19 cases per day [Figure 2] were due to selective testing: On April 2, of the 129 new cases, 23 came from the Ritsona refugee and immigrant camp and another 79 came from the cruise ship “Eleutherios Venizelos” anchoring itself off the port of Piraeus. On April 21, 150 out of the 156 new cases were asymptomatic and related to the refugee facility in Kranidi. The number of new deaths per day was low, fluctuating from 0 to 9.

Use of Traditional Chinese Medicine Single Herbs and Formulas

Three protocols were widely published by the Chinese sources:

- 1) Hubei Provincial Hospital of TCM protocol (February 10, 2020).
- 2) Wuhan Union Hospital (February 17, 2020).
- 3) COVID-19 Diagnosis and Treatment Plan (7th edition, March 3, 2020).

These manuals follow a Chinese syndrome differentiation in four or seven major phases of symptoms and conditions, presented in Table 1.^[7] The protocols included here are the Wuhan and Hubei ones, since the third one, using patent formulas, is unavailable in Greece. These are slightly different approaches by the different hospitals and teams. The Wuhan Union Hospital used a more detailed differentiation between groups of symptoms.

Due to the lack of integration with the Greek healthcare system, TCM treatments were limited to the first two phases, i.e. prevention and influenza-like symptoms. The main bulk of Chinese single herbs or formulas in Greece are available at four points: three herb shops (2 in Athens and 1 in Chania, Crete) and one pharmacy (in Athens). One shop in Athens (Point A) distributes mainly herbs in whole or powder form. The other (Point B) distributes whole herbs or standard formulas made by European or Chinese companies, in pill form. The pharmacy

(Point C) prepares Chinese herbal tinctures exclusively (usually 1:5). A fifth point at which Chinese herbs are available is a pharmacy and herbal shop owned by a Chinese, with a clientele among the Chinese community in Athens.

We collected the recorded data from Points A, B, and C concerning the use of Chinese single herbs or formulas used for either the prevention or treatment of ailments with symptoms similar to those of COVID-19, including fever, sore throat, sneezing, nasal congestion, cough (productive or not) and dyspnea.^[8] The data period extended from March to mid-June (>3 months). The collected data included quantities of whole herbs, herb powders, pills, or tinctures. These quantities were extrapolated to the number of people intended to use the preparations, with some assumptions. For example, in the case of the Yu Ping Feng Powder (玉屏风散), every person had obtained 100–150 pills. These numbers do not include the standard consumers of specific herbs, for example, people taking Cordyceps or Yu Ping Feng Powder before the COVID-19 outbreak.

Prevention Phase

In any case, with the use of single herbs, it is difficult to ascertain whether it is intended for prevention or whether it is intended to be used in the treatment phase and whether it is going to be used for acute or chronic diseases. But it seems that a limited number of herbalists in Greece prescribed Huang Qi (黄芪 *Radix Astragali seu Hedysari*) (whole herb or tincture), Reishi (500 mg tablets) and Cordyceps (500 mg tablets) [Table 2]. There was one case where 100 g of Shi Gao (石膏 *Gypsum Fibrosum*) was ordered, not for treatment, but to reduce high fever, in case of emergency. Huang Qi (黄芪 *Radix Astragali seu Hedysari*) is used typically in prevention to tonify qi and blood, to raise the spleen and stomach yang qi, as well as to tonify defensive qi (wei qi).

Most of the TCM practitioners in Greece were influenced by the TCM protocol of Hubei Provincial Hospital and administered either Prevention Formula #1 (in powder form) or Yu Ping Feng San (in the form of powder, pill or tincture).

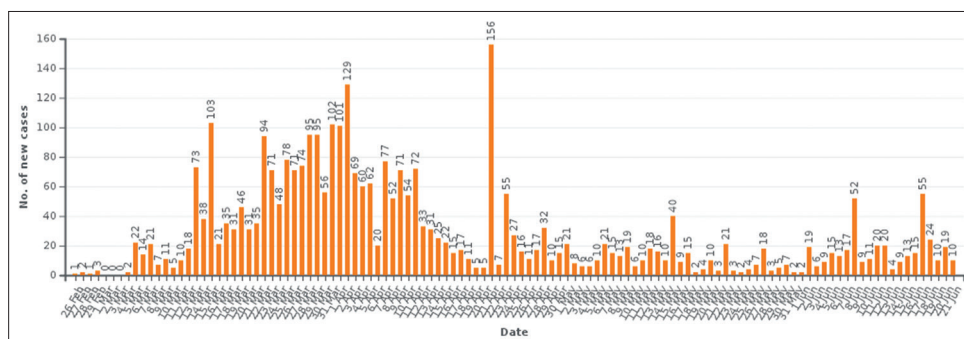


Figure 2 New COVID-19 cases per day from February 26th to June 21st (National Public Health Organization of Greece, covid19.gov.gr)

Prevention Formula #1 is based on Yu Ping Feng Powder (玉屏风散), with the addition of Mian Ma Guan Zhong (绵马贯众 *Dryopteridis Crassirhizomatis Rhizoma*) [Note 7], Jin Yin Hua (金银花 *Flos Lonicerae*), Chen Pi (陈皮 *Pericarpium Citri Reticulatae*) and Pei Lan (佩兰 *Herba Eupatorii*). Since Point B did not have access to Guan Zhong (贯众 *Rhizoma Blechni*) and Pei Lan (佩兰 *Herba Eupatorii*), they could only use Yu Ping Feng Powder (玉屏风散). Bu Fei Decoction (补肺汤) is used in lung qi deficiency while Sheng Mai Powder (生脉散) is used mainly in lung, kidney and/or heart qi deficiency. These two are actually the only typically tonifying formulas of the table, administered to 12 and 21 people, respectively, with more or less severe lung qi deficiency (weak cough, panting, weak voice, frequent respiratory inflammation, etc.).

Point C advocated mainly what we entitled European Prevention Formula #1, a tincture combining a Chinese herb and two European ones, based on the experience of MDs from Milano, Italy, which was severely affected by COVID-19. More specifically, they used Qing Hao (青蒿 *Herba Artemisiae Annuae*), Ku Ai (苦艾 *Artemisia absinthium* L.), a related species and Jie Gu Cao (接骨草 *Sambucus nigra* L.), a herb used especially for influenza-like symptoms.

Influenza-like Phase

There were very few reports on the TCM treatment of patients with common cold influenza-like symptoms. Most of the ordered formulas were stored in case of disease and not for the actual treatment. There was also no feedback from any client who was found positive for SARS-CoV-2. The Chinese formulas included [Table 2]:

- Ma Huang Decoction (麻黄汤) is probably the most important Chinese formula to treat wind-cold attacking the lung syndrome.^[9] One of the European brands was not

used, since it lacks Ma Huang (麻黄 *Herba Ephedrae*), because it is a controlled herb in European countries [Note 8]. The formula was used in 10 cases.

- Gui Zhi Decoction (桂枝汤) is also used for wind-cold attacking the exterior, with deficiency of ying and wei qi.
- Xiao Qing Long Decoction (小青龙汤) is used mainly in severe wind-cold attacking the lung syndrome. It was used in 14 cases.
- Huang Lian Jie Du Decoction (黄连解毒汤) is used in syndrome where fire toxin pervades both the exterior and the interior or syndrome shown to be lung heat.
- Yin Qiao Powder (银翘散) is used in wind-heat attacking the lung or damp heat. It was administered only in 2 cases, in pill form.
- Er Chen Decoction (二陈汤) is probably the most typical Chinese formula to dissolve phlegm, especially when it obstructs the Lungs. It was administered only in 3 cases, in pill form.
- Xiao Chai Hu Decoction (小柴胡汤) is used in Shao Yang stage [Note 9] disorders (cold invading in Shao Yang) or heat in the lung. It was administered only in 3 cases, in pill form, possibly manifesting fever and shivering.
- Ge Gen Decoction (葛根汤) is used to treat the cold attacking tai yang [Note 10] or the transitional stage between acute and chronic rhinitis or sinusitis. It was administered in only 2 cases, presumably in the early stage of the common cold.

Point B also disseminated four of Giovanni Maciocia's formulas, which are modifications of classical ones:^[10]

- Expel wind-heat consists of the classic formulas Yin Qiao Powder (银翘散) and Sang Ju Decoction (桑菊饮). It is used in wind-heat attacking the wei qi level.
- Clear metal formula is based on the combination of Huang Qin (黄芩 *Radix Scutellariae*), Huang Lian (黄连 *Rhizoma Coptidis*), Jin Yin Hua (金银花

Table 1 Different phases, syndromes and their relative herbal formulas

Hubei phase	Syndrome	Formula	Wuhan phase	Syndrome	Formula
Prevention		Pneumonia prevention number 1	Prevention		Wuhan number 1
Influenza-like	Wind-cold invading the exterior	Flu formula number 1	Early	Wind heat-attacking exterior	Wuhan number 2
	Toxic heat attacking the lung	Flu formula number 2	Mild	Damp warmth in early phase	Wuhan number 3
Pneumonia	Shaoyang syndrome with dampness	Pneumonia formula number 1	Moderate	Damp heat obstructing the lung	Wuhan number 4
	Damp heat afflicting the lung	Pneumonia formula number 2	-	-	-
	Toxic stagnation obstructing the lung	Pneumonia formula number 3	Severe	Epidemic toxins blocking the lung	Wuhan number 5
	Closed interior and abandoned exterior	Pneumonia formula number 4	Critical	Closed interior and abandoned exterior	Wuhan number 6
Recovery		Pneumonia formula number 5	Recovery	Deficiency of lung and spleen Qi and Yin	Wuhan number 7

According to the Hubei Provincial Hospital of TCM (left) and the Wuhan Union Hospital (right) protocols based on Formula Charts version 3,^[7] which clearly shows the slightly different approaches by the different hospitals and teams. The Wuhan Union Hospital decided to use a more detailed differentiation between groups of symptoms. TCM: Traditional Chinese Medicine.

Table 2 Single herbs and formulas of traditional Chinese medicine used in Greece during the first COVID-19 outbreak

Category	Formulas	Point A	Point B	Point C	Total
Prevention	Yu Ping Feng Powder (玉屏风散)	4	104	3	111
	Pneumonia Prevention number 1	50	0	0	50
	Sheng Mai Powder (生脉散)	0	21	0	21
	Bu Fei Decoction (补肺汤)	1	12	0	13
	European Prevention formula number 1	0	0	150	150
	Prevention formulas	55	137	153	345
Treatment	Flu formula number 2	3	0	0	3
	Ma Huang Decoction (麻黄汤)	10	0	0	10
	Gui Zhi Decoction (桂枝汤)	1	0	0	1
	Xiao Qing Long Decoction (小青龙汤)	3	11	0	14
	Huang Lian Jie Du Decoction (黄连解毒汤)	0	5	0	5
	Yin Qiao Powder (银翘散)	0	2	0	2
	Er Chen Decoction (二陈汤)	0	3	0	3
	Xiao Chai Hu Decoction (小柴胡汤)	0	3	0	3
	Ge Gen Decoction (葛根汤)	0	2	0	2
	Expel wind-heat	0	2	0	2
	Clear metal	0	3	0	3
	Expel toxic heat	0	8	0	8
	Limpid SEA	0	1	0	1
	Nin Jiom Pei Pa Koa	0	21	0	21
	Treatment formulas	17	61	0	78
	Total (formulas)	72	198	153	423
	Category	Single herbs	Point A	Point B	Point C
Prevention	Huang qi	0	16	5	21
	Shi gao	0	1	0	1
	Reishi	0	37	0	37
	Cordyceps	0	5	0	5
	Total (single herbs)	0	59	5	64
Sum	72	257	158	487	

The classical formulas in bluish color, the patented one in orange.

Flos Lonicerae) and Lian Qiao (连翘 *Fructus Forsythiae*). It is used for wind-heat progressing rapidly into the interior, with lung and stomach-heat, while it can also resolve phlegm.

- Expel toxic heat formula addresses toxic heat in all three Burners, and it can also be used in cases of acute tonsillitis or sinusitis with purulent discharges. It is based on Ban Lan Gen (板蓝根 *Radix Isatis*), Huang Qin (黄芩 *Radix Scutellariae*), Huang Lian (黄连 *Rhizoma Coptidis*) and Jin Yin Hua (金银花 *Flos Lonicerae*), among others.
- Limpid sea was designed for phlegm (damp, cold or warm) in the middle and upper. It consists of Er Chen Decoction (二陈汤) [Note 11] plus Da Zao (大枣 *Fructus Jujubae*), Wu Mei (乌梅 *Fructus Mume*), Zhu Ru (竹茹 *Caulis Bambusae in Taeniam*) and Gua Lou (瓜蒌 *Fructus Trichosanthis*), to increase its phlegm-dissolving properties.

The contribution level of the TCM Clinic in Chalandri during the COVID-19 pandemic is unknown because the directions

of the Ministry of Health for private clinics remained closed during the lockdown. Nevertheless, a limited number of Chinese (less than 10) ordered prevention formulas at Points A and B. Taking into account the 10,000 Chinese living and working in Athens, there is a potential for an increased demand for Chinese herbs.

A total number of 487 people obtained Chinese formulas or single herbs in some form [Table 2 and Figure 3]. Of these, 345 (70.84%) took preventive formulas and 64 (13.14%) took preventive single herbs, in a total of 409 people (83.98%). Just 78 purchased formulas in the treatment category and 21 got the Nin Jiom Pei Pa Koa (Gold Voice) Syrup, for light symptoms of sore throat.

Herb Availability Issues and Substitutions with Greek Herbs

One of the most important problems with Chinese herbology is the availability of herbs. In times of crisis, the Greek herbalists feel more comfortable depending on local herbs. Point A ran

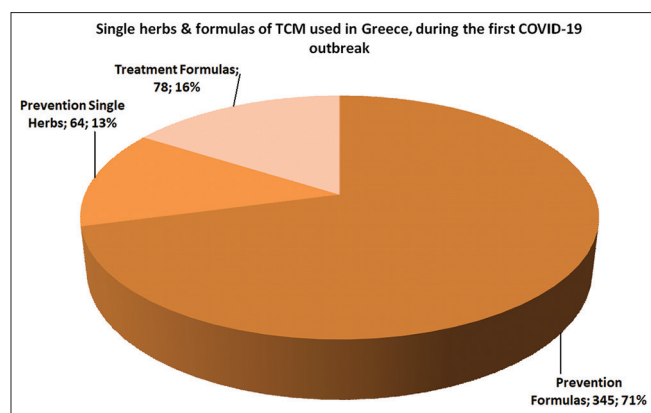


Figure 3 Single herbs and formulas used in Greece for prevention and treatment during the first outbreak of COVID-19

out of herbs for the Prevention Pneumonia #1 formula after fulfilling 50 orders. Point B could not prepare any quantity of the same formula because they did not have two of the constituents. Due to transportation problems, most of the herbalists turned to possible substitutes among European or Greek herbs. Their strategy was focused on boosting the immune system, expelling cold and transforming dampness that afflicts the respiratory system and halting the possible lung deficiency. In the first category, many practitioners, including those who use TCM, suggested the use of the following: Propolis tincture, pollen, royal jelly, Echinacea, and Siberian ginseng (*Eleutherococcus senticosus* [Rupr. and Maxim.] Maxim). In the expelling cold and dampness category, they recommended hot, pungent and aromatic herbs like ginger, chili, Cubeba, black and long pepper. Some of the main Greek herbs that were used during the last 3 months included (properties according to Grivas):^[11]

- Marshmallow root (*Althaea officinalis* L.), which expels damp-heat, mainly from the throat, soothes the inflamed mucosal tissues and tonifies the immune system.
- Greater burdock root (*Arctium lappa* L.), which clears toxic fire, reduces inflammations and tonifies the immune system. It is used often in the treatment of influenza-like symptoms. In TCM mainly the seeds Niu Bang Zi (牛蒡子 *Fructus Arctii*), and to a lesser extent the root Niu Bang Gen (牛蒡根 *Radix Arctii*), are used to eliminate wind-heat from the throat and to relieve the lungs.
- At least three species of the genus *Artemisia* (wormwood-*Artemisia absinthium* L., mugwort-*Artemisia vulgaris* L. and abrotanum-*Artemisia abrotanum* L.) are used to tonify the immune system and clear toxic fire with dampness. The first species is often used in the treatment of influenza-like symptoms. As we mentioned above, the combination of this herb, together with its close Chinese relative Qing Hao (青蒿 *Herba Artemisiae Annuae*) and elderflower (*Sambucus nigra* L.), were used extensively in March and April 2020.

- Another TCM herb, Xia Ku Cao (夏枯草 *Spica Prunellae*) is used more recently for the treatment of several bacterial or viral infections with toxic heat, while in traditional Greek medicine it is considered an important remedy for wounds, a function that is revealed also in its English name “self-heal” (*Prunella vulgaris* L.).
- Rosemary leaves (*Rosmarinus officinalis* L.) are used as a diaphoretic and expectorant in wind-damp-cold invasion and phlegm, including common cold-like or influenza-like symptoms. It can also tonify the lung and kidney yang, in cases with dyspnea, wheezing and fatigue.
- Elecampane root (*Inula helenium* L.) is used as an expectorant and to stop cough, in cases with lung qi deficiency and cold-dampness/phlegm in the lung. Xuan Fu Hua (旋覆花 *Flos Inulae*), the flowers of a similar species (*Inula britannica* L.) are used in TCM also for expelling dampness and dissolving phlegm.
- Various thyme or savory species [*Thymra capitata* (L.) Cav., *Thymus serpyllum* L., *Thymus vulgaris* L., *Thymus atticus* C. Kelak., *Satureja thymra* L.] have been used for centuries as very effective expectorants, to dissolve cold or dry phlegm, relieve cough or wheezing and mobilize lung qi. This is a group of herbs that have been used extensively in epidemics and have a strong anti-viral and anti-bacterial effect. Oregano species (*Origanum vulgare* L., *Origanum heracleoticum* L., *Origanum onites* L.) can be used as substitutes for thyme. In TCM, the Bei Yin Chen (北茵陈 *Origanum vulgare* L.), substitutes Yin Chen Hao (茵陈蒿 *Herba Artemisiae Scopariae*), as a diaphoretic in the treatment of the common cold.
- The elderflower and elderberry (*Sambucus nigra* L.) are used in wind-heat invasion and cold or warm phlegm in the treatment of lung syndromes. Both parts are also used in the prevention of common cold-like and influenza-like symptoms. The elder’s flowers are considered a standard herb for the prevention and treatment of influenza in Europe
- Fennel seeds (*Foeniculum vulgare* Miller) are effective expectorants, dissolving phlegm and relieving cough and wheezing. In TCM they are named Xiao Hui Xiang (小茴香 *Fructus Foeniculi*) and are used mainly for expelling wind-cold.
- Sage (*Salvia officinalis* L.) is a warm tonic and diaphoretic herb that is used frequently in wind-cold invasion.
- Chamomiles (either *Chamaemelum nobile* [L.] All. or *Matricaria recutita* [L.] Rausch) are used to expel wind-heat in the lung and to reduce fever.

Conclusions

According to the OECD list of spending on healthcare per capita for 2018, the USA holds the first place, followed by Switzerland, twelve European Union countries, the UK, Japan,

and Canada.^[12] Greece and China are in 29 and 44 place, respectively, on the list. Although the Chinese lockdown was in mid-January and the dissemination of information concerning COVID-19 and its treatment were circulating at the same time, the European Health Systems – the most expensive on the planet – were astonishingly unprepared. Furthermore, the efforts to integrate with traditional medical systems were very limited. Judging from the Chinese example, improvement in this sector can have an important impact on the wellbeing and survival of all patients.

Although TCM has not yet been integrated into the Greek Health System and the number of TCM herbalists is quite limited, we estimated that there were 487 people who preferred to use TCM single herbs or formulas for the prevention and possible treatment of COVID-19. Approximately 71% of them chose prevention formulas. An important issue with the Chinese herbs is their limited availability. To address this problem, most of the Greek TCM herbalists were inclined to substitute with Greek herbs. At least 20 such kinds of the herb were selected according to the extensive information and experience of Ancient Greek Medicine and Traditional Greek Medicine. It is interesting to note that six are identical or very similar to their Chinese counterparts. Therefore, it can be said that in times of crisis the local traditional medical systems can be used in conjunction with TCM.

Notes

Note 1: Medical Acupuncture is based on the neuronic model and follows specific acupuncture protocols. The Hellenic Medical Society of Acupuncture was founded in 1992 and is a member of the International Council of Medical Acupuncture and Related Techniques (ICMART).

Note 2: Its director, Alexandros Tilikidis was elected Executive Council Member of the 3rd Board of Educational Instruction of the World Federation of Chinese Medicine Societies, 2018–2023. He published the “Basic Theory of Traditional Chinese Medicine”, in 1999, the first Chinese Medicine manual in Greek.

Note 3: An interview to Athens Press News, January 21, 2020, 19:52 (in Greek). Press interviews are not mentioned in the References.

Note 4: An interview to D. Karagiorgos, uploaded in iatronet.gr, January 22, 2020 (in Greek).

Note 5: CNN – Greece (cnn.gr).

Note 6: Ministry of Health, press release, March 12, 2020 (in Greek).

Note 7: Guan Zhong (贯众 *Rhizoma Blechni*) is usually derived from the root of *Dryopteris crassirhizoma* Nakai, while Mian

Ma Guan Zhong (绵马贯众 *Dryopteridis Crassirhizomatis Rhizoma*) is derived from the root of the related species *Cyrtomium falcatum* (L.f.) C. Presl, (syn. *Dryopteris falcata* [L.f.] Kuntze), named Quan Yuan Guan Zhong [全缘贯众]. The genus *Cyrtomium* presents considerable difficulties in terms of taxonomy (FOC Vol. 2-3 Page 4, 12, 541, 542, 561).^[13]

Note 8: According to the Commission Regulation (EU) 2015/403 of 11 March 2015. The same stands for Xiao Qing Long Decoction (小青龙汤).

Note 9: It refers to the third stage of the Six Levels theory of *Shang Han Lun* (《伤寒论》 *Treatise on Cold Damage*) by Zhang Zhongjing (张仲景), written in 220 CE.

Note 10: The first of the abovementioned Six Levels.

Note 11: In Maciocia’s version the two prepared herbs honey-fried Gan Cao (甘草 *Radix Glycyrrhizae*) and processed Ban Xia (半夏 *Rhizoma Pinelliae*) are not actually treated.^[10]

Acknowledgments

Our special thanks to A. Tilikidis, I. Tsilafaki and V. Tsakalos, for their help.

Funding

None.

Authors' contributions

The authors, with the exception of the corresponding one, had contributed equally for this article and are presented in alphabetical order.

Ethical approval

The authors have no ethical conflicts to disclose.

Conflicts of interest

None.

References

1. Karavis M. The contribution of traditional Chinese medicine in Greece. *Archaeology* 2006;105:26-33.
2. Kourmadas L. Chinese Medicine Takes Root in Greece. *Traditional Chinese Medicine 1st TCM Congress in Athens*; 2011.
3. Hellenic Ministry of Health. Medical Acupuncture Application Code. Available from: <https://www.moh.gov.gr/articles/kentriko-symboyllo-ygeias-ndash-kesy/kateythinthries-odhgies/6607-iatrikos-belonismos>. [Last accessed on 2020 Jan 09].
4. Tonchev P, editor. *Asian Migrants in Greece: Origin, Present and Perspectives*. Institute of International Economic Relations, Department of Asian Studies; 2007. Available from: <http://www.migrationeducation.org>. [Last accessed on 2020 May 21].
5. Polyzou I. Immigrant Routes and Spatial-Social Transformations in Athens. The Case of Chinese Merchants in Metaxourgeio. *Social Research Review* 2014;143:145-52.
6. Spiteri G, Fielding J, Diercke M, Campese C, Enouf V, Gaymard A, et al. First cases of coronavirus disease 2019 (COVID-19) in the WHO European Region, 24 January to 21 February 2020. *Euro Surveill* 2020;25. doi:10.2807/1560-7917.ES.2020.25.9.2000178.
7. Hsu L, Chen JK (Comp.). Herbal Formula Chart for Covid-19. Available from: https://www.elotus.org/promo-files/COVID-19_resources/COVID-19%20Formula%20Charts%20v3.pdf. [Last accessed on 2020

- Mar 13].
8. National Health Commission of the PRC. Guidance for Corona Virus Disease 2019: Prevention, Control, Diagnosis and Management. 7th ed. Beijing: People's Medical Publishing House; 2020. p. 13-4.
 9. Tilikidis A. Chinese Herbal Therapy. Athens: ETRA; 2011. p. 462.
 10. Maciocia G. Su Wen Herbs. Santa Barbara: Su Wen Press; 2020. p. 72, 60, 70, 85.
 11. Grivas C. The Greek Herbs. Athens: Akadimia of Ancient Greek and Traditional Chinese Medicine; 2010. p. 124, 583, 587, 565-7, 656, 660, 132, 400-1, 421-3, 381-2, 301-2, 407-9, 358-9.
 12. OECD. Health at a Glance 2019: OECD Indicators. Paris: OECD Publishing; 2019. p. 151-2.
 13. Wu ZY, Raven PH, Hong DY. Flora of China. Beijing: Science Press and St. Louis: Missouri Botanical Garden; 1994. p. 4, 12, 541, 542, 561.

How to cite this article: Constantinos G, Anna H, Dimitrios K, Taxiarchis P, Vasiliki T. Status of traditional Chinese medicine in Greece and its approach on COVID-19 pandemic. Chin Med Cult 2021;4:78-85.