

STUDY OF CHINESE HONEY LOCUST (*GLEDITSIA SINENSIS*) AND SHALLOT (*ALLIUM ASCALONICUM L.*) FOR INTEGRATE TRADITIONAL CHINESE MEDICINE INTO OTHER COUNTRIES' MEDICINE IN ORDER TO IMPROVE PUBLIC HEALTH

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The population health is an important component of the country development, since the working capacity and workers' safety in the workplace depends on their health status. Toxic substances that are used the manufacturing process often cause allergies, inflammatory processes of the skin and internal organs, sometimes diabetes and cancer. To strengthen immunity and improve the health of workers, traditional Chinese medicine, which has achieved great success at present, can be recommended. The aim of this manuscript is review of health benefits and pharmaceutical impacts of Chinese honey locust and shallot. Literature search was conducted in Medline, Research Gate, Scopus, PubMed and Google Scholar Databases. The keywords were Chinese honeylocust, shallot, traditional Chinese medicine, Asian medicine and modern pharmaceutical Sciences. *Gleditsia sinensis* Lam. (*G. sinensis*) is a perennial arbour spread in most parts of the world, especially in China. It is a classical traditional Chinese medical herb. All relevant papers in the English language of researchers from different countries were collected. The most important benefits of shallots are high source of antioxidants, improve heart health, cancer prevention, and diabetes, anti-inflammatory, antimicrobial, might help fight obesity, and help to prevent or treat allergies. The most important components of *Gleditsia sinensis* are triterpenoid saponins, triterpenes, flavonoids, alkaloids, phenolics, sterols, and their important derivatives are responsible for tremendous medicinal effects. It has been reported that *Gleditsia sinensis* Lam thorn (GST) possesses a wide spectrum of pharmacological activities such as antioxidant, anti-inflammatory, anti-microbial, anti-angiogenic and anti-tumor effects. Its fruit is antibacterial, antifungal, antitussive, astringent, emetic, expectorant, haemostatic and stimulant. The seed is emetic, expectorant, decongestant and purgative, and its root bark is both anthelmintic and antifebrile. The obtained findings suggest potential of Shallot and Chinese honey locust in both food and pharmaceutical industries. The demand for shallot products is increasing every year with increase population growth and food industries. More clinical studies may necessary to uncover the numerous substances and their effects in shallot that contribute to public health.

Keywords: population health; workers' strengthening immunity; Chinese honey locust; Shallot; traditional Chinese medicine.

ВИВЧЕННЯ ГЛЕДИЧІЇ КИТАЙСЬКОЇ (*GLEDITSIA SINENSIS*) І ЦИБУЛІ ШАЛОТ (*ALLIUM ASCALONICUM L.*) ДЛЯ ІНТЕГРАЦІЇ ТРАДИЦІЙНОЇ КИТАЙСЬКОЇ МЕДИЦИНИ В МЕДИЦИНУ ІНШИХ КРАЇН З МЕТОЮ ПОЛІПШЕННЯ ЗДОРОВ'Я НАСЕЛЕННЯ

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Здоров'я населення є важливою складовою розвитку країни, оскільки працездатність і безпека працівників на робочому місці залежать від стану їхнього здоров'я. Токсичні речовини, які використовують у деяких виробничих процесах, часто спричиняють алергію, запальні процеси шкіри і внутрішніх органів, а іноді діабет і рак. Для зміцнення імунітету і поліпшення здоров'я працівників може бути рекомендована традиційна китайська медицина, яка досягла великих успіхів. Метою цього дослідження є огляд корисних властивостей широко використовуваних у традиційній китайській медицині гледичії китайської (*Gleditsia sinensis*) і цибулі шалот (*Allium ascalonicum L.*), які можуть бути використані для зміцнення імунітету і поліпшення здоров'я працівників. Пошук літератури проводився в Medline, Research Gate, Scopus, PubMed и Google Scholar Databases. Ключовими словами були Chinese honeylocust, shallot, traditional Chinese medicine, Asian medicine and modern pharmaceutical Sciences. Відповідні статті англійською мовою дослідників із різних країн, в яких розглядаються цілощі властивості гледичії китайської і цибулі шалот, були зібрані й проаналізовані. Гледичія китайська (*Gleditsia sinensis*) – це багаторічна рослина, поширена в більшості частин

світу, особливо в Китаї, є традиційною китайською лікувальною рослиною. Найбільш важливими компонентами гледичії китайської є тритерпеновий сапонін (*Triterpenoid saponin*), тритерпени, флавоноїди, алкалоїди, фенольні кислоти, стероли та їх важливі похідні, які мають величезну лікувальну силу. Плоди цієї рослини є антибактеріальними, протигрибковими, протикашльовими, в'язучими, блотовними, відхаркувальними, кровоспинними і стимулюючими засобами. Насіння рослини використовують як блотовний, відхаркувальний, протинабряковий і проносний засіб, а корінь – як глистогінний, так і антифібрільний засіб. Найбільш важливі переваги цибулі шалот – це високий вміст антиоксидантів, що поліпшують здоров'я серця, мають протизапальні, антимікробні властивості та профілактичну дію щодо раку й діабету, можуть бути корисними в боротьбі з ожирінням, а також допомагають запобігати або лікувати алергію. Отримані результати свідчать про потенціал гледичії китайської та цибулі шалот як у харчовій, так і у фармацевтичній промисловості. З розвитком харчової промисловості попит серед населення на продукти з використанням цибулі шалот зростає з кожним роком. Є думка, що можуть знадобитися додаткові клінічні дослідження, щоб розкрити потенціал цих рослин та вплив їх численних речовин на суспільне здоров'я.

Ключові слова: здоров'я населення; зміцнення імунітету працівників; гледичія китайська; цибуля шалот; традиційна китайська медицина.

1. Problem statement and analysis of the recent researches and publications.

The population health is an important component of the country development, since the working capacity and workers' safety in the workplace depends on their health status. Very often, the labor process is accompanied by a significant influence of harmful and dangerous factors at the workplace, such as noise, vibration, dust of toxic substances, etc. Toxic substances that are used the manufacturing process often cause allergies, inflammatory processes of the skin and internal organs, sometimes diabetes and cancer. To strengthen immunity and improve the health of workers, traditional Chinese medicine, which has achieved great success at present, can be recommended. Not only natural products, but also traditional medicines have great importance [1–3]. Traditional medicine contains health practices, knowledge, approaches and beliefs incorporating plants, fruits and herbs based on both ancient and modern pharmaceutical science [4–7]. Traditional Asian and Chinese medicine play a significant role in sustainable food systems, it is also offers a notable approach to prevent diseases while making suitable usage of organic and herbal products [8–11].

The aim of this manuscript is review of health benefits and pharmaceutical impacts of Chinese honey locust and shallot.

2. Statement of the problem and its solution.

2.1. Materials and methods.

Literature search was conducted in Medline, Research Gate, Scopus, PubMed and Google Scholar Databases. The keywords were Chinese honeylocust, shallot, traditional Chinese medicine, Asian medicine and modern pharmaceutical sciences.

2.2. Results and Discussion.

2.2.1. Chinese Honey Locust (*Gleditsia sinensis*).

It is reported that the fruit of *G. sinensis* consists of triterpenoids, oligosaccharides and flavonoids and it has been used as a traditional Chinese herbal medicine for the treatment of miscellaneous diseases like epilepsy and parasitic disease [12]. It is called Jo Gak Ja in Korea and also documented in the Chinese Pharmacopoeia as Zao Jiao Ci [13]. In different parts, it is called Da Zao Jiao, Zhu Ya Zao, Zao Jia Zi, Zao Jia Ye, Zao Jiao Ci, and Zao Jia Gen Pi [14]. *Gleditsiae sinensis fructus* (Da Zao Jiao), *Gleditsiae fructus abnormalis* (Zhu Ya Zao), and *Gleditsiae spina* (Zao Jiao Ci) are officially recorded in the Chinese Pharmacopoeia [15]. Content of echinocystic acid and oleanolic acid in *Gleditsiae Fructus Abnormalis* and *Gleditsiae Sinensis Fructus* is presented in Table 1.

Table 1 – Content of echinocystic acid and oleanolic acid in *Gleditsiae Fructus Abnormalis* and *Gleditsiae Sinensis Fructus* [16]

Item	Sample	Production/collection area	Content (g kg ⁻¹) ^a Echinocystic acid	Oleanolic acid
A	<i>Gleditsiae Fructus Abnormalis</i>	Shandong (HK Market)	17.81 ± 2.31	22.78 ± 2.37
B	Ditto	Shandong (HK Market)	20.99 ± 2.86	22.67 ± 0.61
C	Ditto	Shandong (HK Market)	27.95 ± 1.73	19.22 ± 2.68
D	Ditto	Shandong (HK Market)	12.91 ± 3.42	19.42 ± 1.91
E	Ditto	Guangzhou, Guangdong	24.18 ± 1.82	21.51 ± 0.48
F	Ditto	Yuncheng, Shanxi	21.05 ± 2.60	24.08 ± 2.83
G	Ditto	Anguo, Hebei	15.46 ± 0.46	18.22 ± 1.33
H	Ditto	Taian, Shandong	16.44 ± 3.21	20.24 ± 2.08
I	Ditto	Shangqiu, Henan	17.88 ± 0.11	21.12 ± 1.43
J	Ditto	Lintong, Shanxi	22.93 ± 3.13	23.24 ± 3.03
K	<i>Gleditsiae Sinensis Fructus</i>	Guangzhou, Guangdong	20.88 ± 2.23	15.99 ± 0.81
L	Ditto	Lintong, Shanxi	18.52 ± 0.92	14.77 ± 1.69

^aValues are expressed in g kg⁻¹ of dried fruit mass. Mean ± SD, n = 3.

Kuwahara et al. [17] reported that *Gleditsia sinensis* is extensively used as a medicinal plant in Asian countries, especially in China; triterpenes, alkaloids, and sterols are isolated from *Gleditsia* species, and among them, triterpenoid saponins are very principal metabolites owing to their numerous pharmacological activities. Wang et al. [18] indicated that arbuscular mycorrhization is advantageous for the growth of young *G. sinensis* plants. Cai et al. [19] reported that the thorns of *Gleditsia sinensis* have been historically applied in Chinese medicine and also considered one of the elemental therapeutic herbs. Cai et al. [19] indicated the potential of *Gleditsia sinensis* extract (GSE) in Hepatocellular carcinoma (HCC) treatment, and expand the understanding of miRNA-related mechanisms in the anticancer effects of GSE. Chow et al. [20] suggested that *Gleditsia sinensis* fruit extract (GSE) could be potentially

used as an angiogenic inhibitor in not only solid tumour, but also leukaemia therapy. Lu et al. [21] found that the saponin fraction isolated from the fruits (SFGS) is considerably able to prevent angiogenesis by interfering with multiple steps. Jian et al. [22] indicated that *G. sinensis* gum has potential to produce value-added oligosaccharides in food industries. Lee et al. [23] indicated that *Gleditsia sinensis* ethanolic extract (GSEE) could be a vital novel therapeutic agent for the treatment of allergic asthma. Dai et al. [24] demonstrated that the ethanolic extract from the anomalous fruits of *Gleditsia sinensis* possesses antiallergic and anti-inflammatory activities, which may mediated by decreasing the release of mediators like histamine from mast cells and also weakening the inflammatory action of all these mediators. Hou et al. [25] stated that the saponin fraction from anomalous fruits of *Gleditsia sinensis* Lam. (SFGS) should be a candidate important therapeutic agent for

rheumatoid arthritis. Moon [26] identified that a novel molecular mechanism for the ethanol extract of *Gleditsia sinensis* thorns (EEGS) in colon cancer treatment and also provide a theoretical basis for the potential therapeutic use of EEGS in medication of malignancies. Park et al. [27] suggested the application of (EEGS) in both treatment and prevention of vascular proliferative diseases. Lee et al. [28] found that the water extract of *Gleditsia sinensis* thorns (WEGS) may inhibit proliferation of colon cancer both in vitro and in vivo, and it has proved that WEGS has capability as an anticancer agent for the treatment of malignancies. Tang et al. [29] found that the anti-cancer effect of fruit extract of *Gleditsia sinensis* (GSE) on esophageal squamous cell carcinoma (ESCC) inculcate the suppression of oncogenic expression and inhibition of telomerase activity. Choi et al. [30] suggested that fruit hull of *Gleditsia sinensis* (FGS) effectively vanquish neutrophilic lung inflammation, which can be associate with, at least in part, FGS-activating anti-inflammatory factor of Nrf2. Kim et al. [31] revealed that FGS can be used as a supportive measure to enhance the efficacy of a chemotherapeutic agent like *cis*-diammine dichloridoplatinum (II) (CDDP). Yi et al. [32] suggested that the ethanolic extract of *Gleditsia sinensis* thorns (EEGS) with its active constituent, cytochalasin H, are possible candidates for the development of anti-angiogenic cancer drugs. Lee et al. [33] reported that fruits of *G. sinensis* (GFE) inhibit lipogenesis by negative regulation of adipogenic transcription factors, which is linked with GFE-mediated cell cycle arrest and STAT3 inhibition. Lu et al. [34] revealed that the saponin fraction extracted from the fruits of *Gleditsia sinensis* (SFGS) is considerably able to prevent angiogenesis by interfering with multiple steps. Yang et al. [35] found that Echinocystic acid (EA), a pentacyclic triterpene extracted from the fruits of *Gleditsia sinensis* Lam, was considered as an important constituent to prevent reduction of bone mass and strength and improve the cancellous bone structure and biochemical properties in ovariectomy rats. Yi et al. [36] suggested that EEGS can hinder angiogenesis by down-regulating proangiogenic protein, and therefore it should be considered as a future anticancer drug targeting tumor-derived angiogenesis. Kim et al. [31] indicated that the fruit hull of *Gleditsia sinensis* (FGS) could enhance the antitumor activity of *cis*-diammine injury (ALI). They suggested a therapeutic potential of FGS on inflammatory lung diseases. Zhang et al. [37] found that MPF, a Chinese herbal compound, which is composed of *Thlaspi arvense* L. (Cruciferae), *Gleditsia sinensis* Lam. (Leguminosae), *Smilax china* L. (Liliaceae), *Euonymus alatus* (Thunb.) Sieb. (Celastraceae) and *Vaccaria segetalis* (Neck.) (Caryophyllaceae) has a remarkable anti-CPID effect, probably due to inhibition of the inflammation reaction by the promotion, and the induction of the apoptosis of inflammatory cells and down regulation of the serum levels of inflammation cytokines. Lee et al. [38] recognized a novel molecular mechanism for the ethanol extract of *Gleditsia sinensis* thorns (EEGS) in the treatment of colon cancer and might provide a theoretical basis for the possible therapeutic use of EEGS in malignancies treatment. Tong et al. [39] indicated that Gleditsioside B (GB), a triterpene saponin isolated from the anomalous fruits of *Gleditsia sinensis* Lam. was able to abrogate the migration of endothelial cells through down-regulating the activation of MMP-2 and FAK via preventing ERK and PI3K/AKT signaling pathways. Park et al. [27] suggested the use of the ethanol extract of *Gleditsia sinensis* thorns (EEGS) in the treatment and prevention of vascular proliferative diseases. Jin et al. [40] concluded that the addition of *Gleditsia sinensis* Lam. extract is not effective for improvement of the physical properties compared to chemical additives in sausages, which

could be applied to meat products as natural preservatives. Ryu et al. [41] reported that water extract of *Gleditsia sinensis* thorns (WEGST) inhibit prostate cancer progression in different stages, such as collagen-mediated adhesion and migration, and it might supply further development for the therapeutic use of WEGST in the treatment of prostate cancer progression. Wen et al. [42] found that isolation and identification of the nematode-antagonistic compounds in the fruit of *G. sinensis* would specify whether these chemicals are potential sources of biologically based nematicides. Zhou et al. [43] revealed that the crude ethanol extract of *G. sinensis* spines was partitioned sequentially with solvents of increasing polarity. In their experiment, ethyl acetate fraction, which showed the most significant antibacterial activities among the solvent fractions was further isolated by column chromatograph, yielding seven phenolic compounds including gallate (1) and caffeic acid (7), and five flavonoids, dihydrokaempferol (2), eriodictyol (3), quercetin (4), 3,3',5',5,7-pentahydroflavanone (5) and (-)-epicatechin (6).

2.2.2. Shallot (*Allium ascalonicum* L.)

Shallot is one of the most important vegetable crops in various local cuisines in different part of the world [44]. Greek history and literature mention shallots. They most likely originated in Southeast Asia and from there, spread into India and the Mediterranean region. Shallot is a hardy member of the onion family that is famous for its delicate, meaty, onion-like flavor. Persian shallot is native and endemic of Iran and grows as a wild plant across Zagross mountains at high elevations of different states from Northwestern to Southern of Iran with the climate of very cold to moderate cold [45, 46]. The benefit of shallot is as a source of carbohydrate, vitamin A, B, and C. Fasihzadeh et al. [48] noted that 1-Butene,1-(methylthio)-(Z) (18.21%), Methyl methylthiomethyl disulfide (8.41%), Dimethyl tetrasulfide (6.47%), Piperitenone oxide (4.55%) are the most abundant components of Persian shallot and comprised 37% of the essential oil. Ebrahimi et al. [47] showed that Iranian shallot landraces are influential in mineral elements and essential fatty acids content and are recommended for human nutrition. Sittisart et al. [48] showed that shallots extracts contained some polyphenols such as apigenin, gallic acid, catechin, quercetin, kaempferol and tannic acid which are famous compounds possessing antifungal activity. Golubkina et al. [49] indicated that shallot is an outstanding candidate for the health-centered strategy of producing functional foods with high levels of Se and antioxidants; and the utilization of arbuscular mycorrhizal fungi and selenium application represent environmentally friendly strategies to increase the overall yield and quality performances of shallot bulbs. Fattorusso et al. [50] reported two new furostanol saponins, named ascalonicoside A1/A2 (1a/1b) and ascalonicoside B(4), respectively, along with compounds 2a and 2b. Phaiphon et al. [51] discovered that heating and shallot supplementation can significantly enhance the quality of apple juice. Yin et al. [52] suggested the use of shallot and scallion oils in food systems which may enhance lipid and microbial stability. Raeisi et al. [53] concluded that the application of 3% ajwain seed extract gave the best antioxidant and antimicrobial activities, besides sensory, up to 15 days of storage, followed by 3% shallot fruit extract. Abdelrahman et al. [54] provided evidence for the anticancer from shallot plants and a strong foundation for more investigations to build theoretical bases for cell apoptosis and development of novel anticancer drugs. Seyfi et al. [55] proved that shallot is a useful herb with therapeutic or preventive activity against angiogenesis related disorders. Chen et al. [56] have shown the potential of shallots for use in treating adenoviral infection activities. Krejčova et al. [57] found that the important usage of Persian shallot for the treatment of inflammatory disorders. They have introduced 2-[(Methylthio)

methylthio] pyridine *N*-oxide with high anti-inflammatory effects. Hajian et al. [58] showed that shallot extract can dose dependently lessen the factors related to lead induced renal damages. Falahati et al. [59] indicated that crude juice of shallot has anti-candidal activity and might be promising in treatment of candidiasis. Kongkaew and Phichai [60] found that dried shallot powder, which was practical at inhibiting the growth of *Trichoderma* spp. isolated from Yanagi mushroom. Amin et al. [61] noticed that based on the antimicrobial compounds, shallot can be effective medicine for treatment of dermatomycosis and other infectious diseases. Jalal et al. [62] found that Iranian shallot extracts appear to improve learning and memory impairments in fructose-fed rats. Sadat Hosseini et al. [63] found that the Persian shallot extract can be considered as a potential candidate as a natural drug for both prevention and treatment of human hepatoma. Iranian shallot extracts appear to enhance learning and memory impairments in fructose-fed rats [64]. Farajii et al. [65] stated that the shallot extract was

preferred in both terms of reducing microbial growth and suitable sensory properties. Kazemian et al. [66] noted that hydroalcoholic shallot extract increases the number of germ cells in mice tested and helps amplify the sexual ability of male mice. Shallot as traditional herbal medicine are for febrifuge, diabetes, blood sugar and blood cholesterol, prevents thickening and hardening of the blood vessels and also ulcers [67]. Setyadjit and Sukasih [67] also reported that its powder is generally used as industrial raw materials such as in snacks production, seasoning in cooking, and medicine. Persian shallot has been reported to have a range of health benefits which include anticarcinogenic, hypoglycemic, hypolipidemic, antioxidant, antibiotic properties, kidney and liver protective impacts [45]. Some important components found in Persian shallot [45] (Table 2). The most important medicinal properties of Persian shallot [45] (Table 2). The most important health benefits of shallots (Table 2). Traditional Asian medicinal plants can consider as an important key in the treatment and prevention of many diseases [68–72].

Table 2 – Details about Persian shallot

Some components found in Persian shallot [45]	Medicinal properties of Persian shallot [45]	The most important health benefits of shallots
Allicin	Antibiotic properties	Cut Cancer Risk
Saponins	Hypolipidemic properties	Improve Heart Health
Sapogenins	Anticancer properties	Aid Detoxification
Ajoene	Antioxidant properties	Help Control Diabetes
Sulphuric compounds (thiosulfates)	Hypoglycemic properties	Improve Brain Health
Flavonoids: Quercetin and Kaempferol	Kidney protective properties	Help Fight Obesity
Mineral Elements	Hepatoprotective properties	Help Treat Allergies
Essential fatty acids		Boost Bone Health
Folic acid		Might Maintain Vision Health
Protein		Boost Immunity
Fiber		Improve Skin Health
Vitamin C		Enhance Abdominal Health
		Keep Hair Healthy

Conclusion and recommendations.

Gleditsia sinensis Lam. (*G. sinensis*) is a perennial arbour spread in most parts of the world, especially in China. It is a classical traditional Chinese medical herb. Its different parts named Da Zao Jiao (fruit), Zhu Ya Zao (anomalous fruit), Zao Jia Zi (seed), Zao Jia Ye (leave), Zao Jiao Ci (thorn), and Zao Jiao Gen Pi (radix cortexes), have long been used in traditional herbal Chinese medicine (TCM). The most important components of *Gleditsia sinensis* are triterpenoid saponins, triterpenes, flavonoids, alkaloids, phenolics, sterols, and their derivatives are responsible for great pharmacological effects which is they it has been considered as a medicinal treasure. It has been reported that *Gleditsia sinensis* Lam thorn (GST) possesses a wide spectrum of pharmacological activities such as antioxidant, anti-inflammatory, anti-microbial, anti-angiogenic and also anti-tumor effects. Its fruit is antibacterial, antifungal, antitussive, astringent, emetic, expectorant, haemostatic and stimulant. The seed is emetic, expectorant, decongestant and purgative, and the root bark is anthelmintic and antifebrile. Shallot is an important part of diet of many countries, especially in Asian countries and its fantastic

medicinal effects have been proved. Historically, the shallot has been used for both its nutritional and aromatic properties in Iranian, Indian, Chinese, Asian, French and Mediterranean cooking. Like onions, shallots are a member of the allium family, but their flavor is richer, sweeter, yet more potent. The most important benefits of shallots are high source of antioxidants, improve heart health, cancer prevention, and diabetes, anti-inflammatory, antimicrobial, might help fight obesity, and help to prevent or treat allergies. The demand for shallot products is increasing every year with increase population growth and food industries. More clinical studies may necessary to uncover the numerous substances and their effects in Chinese honey locust and shallot that contribute to public health.

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Conflicts of Interest.

It is declared that the authors neither have any financial gain nor conflict of interests regarding this paper.

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ИЗУЧЕНИЕ ГЛЕДИЧИИ КИТАЙСКОЙ (*GLEDITSIA SINENSIS*) И ЛУКА-ШАЛОТ (*ALLIUM ASCALONICUM L.*) ДЛЯ ИНТЕГРАЦИИ ТРАДИЦИОННОЙ КИТАЙСКОЙ МЕДИЦИНЫ В МЕДИЦИНУ ДРУГИХ СТРАН С ЦЕЛЬЮ УЛУЧШЕНИЯ ЗДОРОВЬЯ НАСЕЛЕНИЯ

Здоровье населения является важной составляющей развития страны, поскольку работоспособность и безопасность работников на рабочем месте зависят от состояния их здоровья. Токсичные вещества, которые используют в некоторых производственных процессах, часто вызывают аллергию, воспалительные процессы кожи и внутренних органов, а иногда диабет и рак. Для укрепления иммунитета и улучшения здоровья работников может быть рекомендована традиционная китайская медицина, которая добилась больших успехов. Целью этого исследования является обзор полезных свойств широко используемых в традиционной китайской медицине гледичии китайской (*Gleditsia sinensis*) и лука-шалот (*Allium ascalonicum L.*), которые могут быть использованы для укрепления иммунитета и улучшения здоровья работников. Поиск литературы проводился в Medline, Research Gate, Scopus, PubMed и Google Scholar Databases. Ключевыми словами были Chinese honeylocust, shallot, traditional Chinese medicine, Asian medicine and modern pharmaceutical Sciences. Соответствующие статьи на английском языке исследователей из разных стран, в которых рассматриваются целебные свойства гледичии китайской и лука-шалот, были собраны и проанализированы. Гледичия китайская (*Gleditsia sinensis*) – это многолетнее растение, распространенное в большинстве частей мира, особенно в Китае, является традиционным китайским лечебным растением. Наиболее важными компонентами гледичии китайской являются тритерпеновый сапонин (*Triterpenoid saponin*), тритерпены, флавоноиды, алкалоиды, фенольные кислоты, стеролы и их важные производные, имеющие огромную лечебную силу. Её плоды являются антибактериальными, противогрибковыми, противокашлевыми, вяжущими, рвотными, отхаркивающими, кровоостанавливающими и стимулирующими средствами. Семена растения используют как рвотное, отхаркивающее, противоотечное и слабительное средство, а корень – как глистогонное, так и антифибрильное средство. Наиболее важные преимущества лука-шалот – это высокое содержание антиоксидантов, которые улучшают здоровье сердца, обладают противовоспалительными, антимикробными свойствами, имеют профилактическое действие в отношении рака и диабета, могут быть полезными в борьбе с ожирением, а также помогают предотвращать или лечить аллергию. Полученные результаты свидетельствуют о потенциале гледичии китайской и лука-шалот как в пищевой, так и фармацевтической промышленности. Спрос среди населения на продукты с использованием лука-шалот растет с каждым годом с развитием пищевой промышленности. Есть мнение, что могут потребоваться дополнительные клинические исследования, чтобы раскрыть потенциал этих растений и влияние их многочисленных веществ на общественное здоровье.

Ключевые слова: здоровье населения; укрепление иммунитета работников; гледичия китайская; лук-шалот; традиционная китайская медицина.