



Plant species and products of the Traditional Chinese Phytotherapy in the Ciudad Autónoma de Buenos Aires, Argentina

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ABSTRACT

This paper is focused in medicinal plant species belonging to the Traditional Chinese Phytotherapy whose products are commercialized in the pluricultural context of the Ciudad Autónoma de Buenos Aires, Argentina. The Chinese immigrants segment, like other recent immigrants groups in the study area, introduce their own plant products into the local urban scenario. In this framework, not only enter the new products but also their knowledge and beliefs associated, that become part of the mosaic of the knowledge in the local pluricultural system. Thus, the urban botanical knowledge constitutes a complex that includes the knowledge linked to the origin traditions of the immigrants segments, and the nontraditional one: the knowledge taught and learned, and the transmitted by the media, including scientific knowledge. The plant products incorporated by Chinese immigrants to their own restricted commercial circuit (linked to their traditions) are invisible for the majority of the local inhabitants. However, some of these products enter the general commercial circuit (nontraditional) and become visible for all local population. This visualization of the plant products implies the transmission of its associated knowledge, a process enhanced by the mass media, mainly the Internet. The results are interpreted within this theoretical framework. Also, the main features of the Traditional Chinese Phytotherapy are summarized, due to its differences with our Western medicine. For the species considered the scientific names, botanical families, distribution, Chinese name and Latin denomination of the plant products, and the reference samples are indicated. For each species are included a list of its uses linked to traditions, and a revision work of the biological activity and effects evaluated (the validation context in terms of Western science). In the context of Urban Ethnobotany, the presence alone of invisible species is a significant issue because increases the local biocultural diversity (of useful plants, products, and its associated knowledge). Likewise, the species that become visible make evident the dynamics of changes in their visualization process, an adaptive phenomenon that allow the understanding of the local biocultural system complexity.

Keywords: Urban Ethnobotany – Urban Pluriculturality – Botanical knowledge complexity – Traditional Chinese Medicine, Buenos Aires city

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INTRODUCTION

This contribution presents the results of an ethnobotanical survey on plants of Traditional Chinese Phytotherapy introduced by Chinese immigrants in the pluricultural context of the Ciudad Autónoma de Buenos Aires, Argentina, and its traditional and biomedical uses. Ethnobotany is understood here in a broad sense, as the study of the complexity of the relationships between people and plants (Albuquerque and Hurrell 2010). In this framework, Urban Ethnobotany can be defined as the Ethnobotany of the pluricultural contexts that constitute the urban areas (Hurrell 2014a). Urban pluriculturality (heterogeneity) is enriched by the increasing presence of diverse immigrants segments (immigration both longstanding and recent) which introduce the plants and its associated knowledge into the local scenario.

The Botanical Knowledge (BK) constitutes a complex set of knowledge and beliefs about the plant environment elements: plants, parts thereof, derivative products. In urban areas, BK includes (at least) two subsets that interact in different ways (does not always clear): 1) “nontraditional”, e.g. the knowledge that are taught and learned, and the transmitted by the media, including the scientific one, 2) “linked to traditions”, e.g. local longstanding family traditions, and origin traditions of the immigrants segments (Hurrell and Pochettino 2014; Hurrell et al. 2015a, 2015b; Hurrell 2014a). The latter subset cannot be considered as Traditional Botanical Knowledge (TBK), in a narrow sense, because the TBK mainly corresponds to more homogeneous cultural contexts. Also, to assume that all the urban BK (UBK) is a nontraditional knowledge would be fall into a reductionism, because we would be hiding

the local cultural heterogeneity, i.e. the base of its complexity.

This contribution is framed in a research line on Urban Ethnobotany of the Laboratorio de Etnobotánica y Botánica Aplicada (LEBA), developed for more than a decade in the Área Metropolitana Buenos Aires-La Plata (Hurrell and Pochettino 2014). This framework argues that the UBK is not accessible in a direct way, but can be extrapolated from the actions that this knowledge orients, e.g. strategies of selection, use, and consume of plants or its products. At the same time, these actions become evident through the circulation of plant products inside the local commercial circuits. This methodological proposal involves evaluate: 1) the diffusion of plant products, 2) the action strategies that allow such dissemination, 3) the UBK that guides the whole process (Hurrell 2014a). These theoretical premises are consistent with the distinction established by Ladio and Albuquerque for Urban Ethnobiology, between “tangible” components, i.e. the biological resources (in our context, circulating plant products) and “intangible” components: values, norms, and rules prevailing in each particular worldview, which we identify with the local UBK (Ladio and Albuquerque 2014, 2016).

Plant products circulating inside the general commercial circuit are “visible” to all urban inhabitants (including the different immigrants segments). Plant products circulating inside restricted commercial circuit of each immigrants segment are visible to the members of that particular segment and some urban inhabitants (nonimmigrants and immigrants from other segments) interested in specific plant products. However, in general terms, the products that are exclusive of the commercial circuit of a particular immigrants

segment are “invisible” for the majority of the inhabitants of the local pluricultural context. At times, some invisible plant products (tangible components) and its knowledge linked to traditions (intangible components) become visible when entering the general commercial circuit (nontraditional scenario). In these situations, a “visualization process” occurs: invisible plant products gain visibility (examples of plant species illustrating this process are presented in Results and Discussion). This is a process enhanced by the mass media, especially the Internet that plays a key role in the knowledge transmission in a rapid way and in multiple directions at the same time (Hurrell 2014a). The visualization process implies a contextual change, in which the knowledge linked to the immigrants' traditions becomes a nontraditional knowledge. In this sense, the distinction between traditional and nontraditional components is “complex and often transient”, as had been suggested by Ladio and Albuquerque (2016).

This paper focuses on the segment of Chinese immigrants. In the first half of the twentieth century the Chinese immigration was low and settled in the Buenos Aires Metropolitan Area, but since the late twentieth century, Chinese immigrants outnumbered other groups of Asian immigrants, such as the Japanese and Koreans, who previously dominated. In Argentina, Chinese segment comprising about 120,000 immigrants. It is the fourth largest group of recent immigrants after those from Bolivia, Paraguay, and Peru (Bogado-Bordazar 2003; Cerrutti 2009; Hurrell and Pochettino 2014; Marcos and Mera 2015; Sassone and Mera 2007).

The Traditional Chinese Medicine (TCM) includes a set of therapeutic practices produced from experiences for more than three millennia. TCM and the Ayurveda, the

Traditional Indian Medicine, remain the most ancient yet living traditions from the East (Patwardhan et al. 2005). Both traditions have been spread in the West, though its principles are complex and not always well understood. The main treatment modality of the TCM is the Traditional Chinese Herbal Medicine or Traditional Chinese Phytotherapy (TCP) that is based on herbal products from different plant species, and mainly its combinations. It is founded on clinical practices within an integrative approach: “Therapy is based on understanding relations between part and whole, distinguishing symptom and appearance from true cause, and treating each individual case as unique” (Wu 2005).

Chinese herbal theory assumes that the body is traversed by the vital energy, called Qi (or Chi), which regulates the physical, mental, emotional and spiritual balance. This energy is affected by the opposing forces of Yin and Yang (universal dual principle), and the disease arises from altering the vital energy flow, when an imbalance of Yin-Yang occurs. The Qi circulates through the body by specific channels named “meridians”, that connecting different organs. The Chinese organ system or Zang-fu is based more on organs functions than in their anatomy, e.g., the heart meridian is linked with their specific functions and also conditions like anxiety and/or restlessness. The meridians related to organs include: heart, lung, spleen, gallbladder, liver, kidney, bladder, stomach, small intestine, large intestine. Herbal remedies can be characterized by those meridians, and also by its properties: “temperature” and “flavor”. Temperature includes: hot, warm, neutral, cool, and cold, e.g., “hot and warm herbs” can be useful to treat “cool or cold diseases”, and vice versa. Flavor includes: acrid, bitter, sweet, sour, and salty, it is said that bitter herbs are used

to drain (e.g. purges the bowels) and dry (e.g. in cases as leukorrhea or diarrhea), while the sweet herbs nourish and tonify, e.g., the Qi (Adams and Lien 2013; Leung et al. 2003; Wu 2005; Xutian et al. 2014; Zhu 1998).

MATERIAL AND METHODS

Study area

The study area corresponds to the Ciudad Autónoma de Buenos Aires, federal capital of Argentina. It has 202 km² and 2,890,000 inhabitants, according to the National Census 2010 (INDEC 2016); the population density is about 14,300 inhabitants / km². This city and 24 surrounding districts of Buenos Aires province constitute the Buenos Aires Metropolitan Area, with 2081 km² and about 15,000,000 inhabitants (as of 2014). The population density is about 7200 inhabitants / km². This metropolitan area is the largest in the country in both size and population, the second in South America (after the metropolitan area of São Paulo, Brazil), the third in Latin America (after São Paulo and Mexico DF.), the fifth of America and the seventeenth in the world (Forstall et al. 2009; Hurrell and Pochettino 2014).

Actors involved

Argentina has received massive waves of immigration from the mid-nineteenth century and first half of the twentieth century. Most of these immigrants were of European origin: 44.9% Italian and 31.5% Spaniards on the total of immigrants registered until 1940. These migration flows have helped to shape the country's cultural heritage, and many current "family traditions" have their roots in that early immigration. In

the second half of the twentieth century, a new kind of recent immigration occurred, not massive, mainly from neighboring countries, whose destiny focused in Buenos Aires Metropolitan Area. Another recent immigration in the area corresponds to Far Eastern countries such as Korea, Japan, and China. Asian immigration in 2001 represented almost 2% of all foreigners in the country, meager value compared to 67.96% coming from American countries and 28.22% from European countries (Bogado-Bordazar 2003; Cerrutti 2009; Hurrell and Pochettino 2014; Marcos and Mera 2015; Sassone and Mera 2007). In this context, the research line of the LEBA works with three segments of recent immigrants taken as reference: Bolivian, Paraguayan, and Chinese. For the Bolivian segment, partial results have been presented previously, in which different plant products in visualization process were identified (Pochettino et al. 2012; Puentes and Hurrell 2015). For the Paraguayan segment a preliminary work were recently presented (Hurrell et al. 2016). This time results of ongoing studies for the Chinese immigrants segment are presented. These results are circumscribed to medicinal products belonging to 32 plant species of the Traditional Chinese Phytotherapy. In previous scientific meetings 12 species (Hurrell 2014b) and 10 species (Hurrell and Puentes 2015) were cited. For this paper, the information about the above mentioned 22 species is updated, and 10 new species are added.

Of the total of Chinese immigrants in Argentina, it is estimated that 80% live in Buenos Aires city. The most visible presence of this segment is located in a sector of Belgrano neighborhood, called "Barrio Chino", where restaurants, supermarkets and shops were installed, and various cultural events related to Chinese festivities

are organized. These characteristics replicate the profile of Chinatowns in other large metropolitan areas of the world, like San Francisco, Paris, Sydney, and Toronto, among the main (Sassone and Mera 2007). The supermarkets in the Barrio Chino offer products that satisfy the demands of the community itself, other communities (Japanese, Korean, Arabic), and local residents looking for new specific products. It is estimated that the Barrio Chino receives about 15,000 visitors every weekend. For the Chinese segment it embodies a space for local tourism: restaurants offering Chinese foods oriented to “Argentine taste”. Paradoxically, restaurants that offer dishes preferred by the Chinese immigrants are not located inside the Barrio Chino (Bogado-Bordazar 2003). Nevertheless, mentioned supermarkets introduce a wide variety of novel plant products and constitute true centers for dissemination of products (and its associated botanical knowledge) for local residents. The plant products that sell these supermarkets become visible when enter the general commercial circuit.

Field works

The ethnobotanical survey was focused on five large supermarkets of Barrio Chino, to analyze the restricted commercial circuit of Chinese immigrants (linked to their origin traditions), and 120 health food stores (locally called dietéticas) of the general commercial circuit, in order to evaluate the visibility of plant species and products in the urban local scenario. The surveys followed usual qualitative methods and techniques: participant observation, free listings, semi-structured and free interviews (Albuquerque et al. 2014; Etkin and Ticktin 2010; Quinlan 2005; Stepp 2005). With the prior informed consent, 250 qualified informants were

interviewed, most of them sellers of both sexes and various ages who demonstrated know the properties of the products that sell, and that guide consumers on their forms of employment. In all cases, reference samples were obtained by the authors and deposited in the ethnobotanical collections of the LEBA. Each sample was identified with an alphanumeric code. All the Chinese plant products correspond to packaged dry materials, sometimes fragmented or powdered, corresponding to aerial parts: stems, leaves, barks, flowers, inflorescences, fruits, and seeds, and underground organs such as rhizomes, bulbs, and roots. The species were identified based on the external morphological characters of the samples. The products acquired in the dietéticas include herbal materials and also capsules containing extracts of the species that are listed in the official labels. Descriptive and distributional data of the species were obtained from Flora of China (Wu et al. 1995-2013). For the correct scientific names, The Plant List database (2013) was consulted.

Uses linked to Chinese tradition corresponding to plant products sold in the supermarkets were defined based on data coming from: 1) interviews, 2) the products labels, 3) information available on the Internet. Then, all data were checked with the general available literature (Adams and Lien 2013; Chang et al. 2001; Foster and Yue 1992; Hempen and Fischer 2009; Leung et al. 2003; Li and Wei 2002; Liu et al. 2015c; Tang and Eisenbrand 2013; Wu 2005; Yang 2013; Zhu 1998). Data from all these sources are mostly coincident. It is noteworthy that the Internet constitutes a relevant source of information for the urban scenario. First, because the web constitutes an enhancer agent of the spread of knowledge, as was indicated above. Thus,

the Internet information orients the strategies of selection and consume for many urban residents interested in obtaining new medicinal plant products. Second, the Internet can act as point of direct sale for some consumers. Although not has been considered in this sense for this study, informal searches have allowed us to find the direct sale of fruits of *Lycium barbarum* L., locally known as “goji” (see below) through some web pages. The role of the Internet within the field of Urban Ethnobotany is evidently complex and requires deeper reflections.

Review work

This contribution is complemented by a review of the literature about biological activity and effects evaluated for each species considered. This kind of revision was also performed in previous works (Arenas et al. 2015; Hurrell et al. 2016, 2015a, 2015b; Puentes and Hurrell 2015), and it is pertinent because two main reasons: 1) It is useful information to know what uses have academic support, and/or what uses require more validation studies, 2) The uses assigned by people can proceed from the scientific knowledge diffused in the media, like Internet. This is a relevant aspect for plant products that access to the general commercial circuit. For the literature review various websites, especially the PubMed database (2016), were consulted.

Species excluded

Some plant species belonging to the TCP, like *Ginkgo biloba* L., *Panax ginseng* C.A. Mey., and *Zingiber officinale* Roscoe, have not been included in this contribution because they are widely disseminated through various products in the local general

commercial circuit, i.e., are visible species. The medicinal products of these species include herbal materials but, mainly, dietary supplements (capsules, tablets). Curiously, these products are usually not marketed in the Barrio Chino, probably because its broad distribution in local urban area implies that can be acquired anywhere.

RESULTS AND DISCUSSION

The Table 1 summarizes the results obtained for the 32 species treated, including:

1) the scientific names, botanical family, distribution, Chinese name and Latin denomination of the products, reference samples (alphanumeric code between brackets)

2) uses linked to traditions (flavor, temperature, and meridians that refer to the TCP are indicated in italic)

3) biological activity and effects evaluated (bibliographical sources between parenthesis). Products belonging to the general commercial circuit are indicated with an asterisk.

Table 1. Plant species and products of the Traditional Chinese Phytotherapy (TCP) commercialized in the Ciudad Autónoma de Buenos Aires, Argentina.

| Species and products [samples] | Uses linked to traditions | Biological activity and effects evaluated |
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| Amomum tsaoko Crevost & Lemarié ZINGIBERACEAE China | <i>Acrid. Warm. Stomach and spleen meridians.</i> Epigastric and abdominal distension, dyspepsia: nausea, vomiting, belching, flatulence, heartburn, stomach pain, constipation, diarrhea, appetite loss, anorexia, throat infection, malaria. | Anti-dyspepsia, anti-diarrhea, antimalarial (Hempen and Fischer 2009), anticoagulant (Jeon et al. 2008), anticancer (Yang et al. 2009, 2010), anti-inflammatory (Shih et al. 2015), anti-HIV (Kobayashi et al. 2000), antimicrobial (Dai et al. 2015; Moon et al. 2004; Yang et al. 2008), antioxidant, anti-hyperglycemic, hypolipidemic (Yu et al. 2008; Yu and Suzuki 2007), neuroprotective (Zhang et al. 2014a), sedative, hypnotic (Feng et al. 2009). |
| Cao guo <i>Fructus Amomi Tsaoko</i> Fruits [B013] | | |
| Angelica sinensis (Oliv.) Diels APIACEAE China | <i>Sweet and acrid. Warm. Liver, hearth, and spleen meridians.</i> Blood deficiency: sallow complexion, pale nails, lips, and tongue, palpitations, dizziness, blood stasis: pain and numbness of extremities, anemia, hematoma, psoriasis, ulcerations, rheumatism, arthritis, inflammations, cramps, constipation, anxiety, stress, fatigue, premenstrual and menopausal symptoms, amenorrhea, menorrhagia, dysmenorrhea, irregular menstruation, infertility, sexual female and male dysfunctions. | Hematopoietic, anti-anemia (Bradley et al. 1999), anti-atherosclerotic, anticoagulant, cardioprotective, vasorelaxant, anti-hypertensive, antioxidant, anti-inflammatory (Wu and Hsieh 2011; Zhang et al. 2010; Zhou et al. 2013), immuno-enhancer, antiviral, antimicrobial (Han and Guo 2012; Yang et al. 2012b), antisyphilitic (Drobnik 2016), anticancer (Gao et al. 2012a), hypocholesterolemic, hypolipidemic (Hurrell et al. 2015b), antiulcerative (Wong et al. 2008), neuroprotective: Alzheimer, dementia, mnemonic, antidepressant, sedative, anti-insomnia, anxiolytic (Hurrell et al. 2015a), adaptogenic: anti-fatigue (Liu et al. 2011), emmenagogue (Aramwit and Wirotsaengthong 2013; He et al. 1986), estrogenic (Circosta et al. 2006), sexual enhancer: female sexual dysfunction (Mazaro-Costa et al. 2010), premature ejaculation and erectile dysfunction (Hazard-Vallerand et al. 2016; Hsu et al. 2015). |
| Dang gui <i>Radix Angelicae Sinensis</i> Fragmented roots [H399] | | |
| Astragalus mongholicus Bunge [= <i>Astragalus membranaceus</i> Bunge] LEGUMINOSAE Russia (Siberia, Far East), Kazakhstan, Mongolia, China | <i>Sweet. Slightly warm. Spleen and lung meridians.</i> Fatigue, weakness, apathy, lack of strength, poor appetite, convalescence, infections, fever, diarrhea, dysentery, prolapse of rectum and uterus, sweating, scanty urine, blood deficiency: pale tongue, lips, and complexion, blood stasis: arms pain, numbness of extremities, facial paralysis, hemiplegia after apoplexy, inflammations, sores, edema, abscesses, male sexual disorders. | Adaptogenic: anti-fatigue (Liu et al. 2011), tonic (Asea et al. 2013), antioxidant, immunomodulatory, antimicrobial, antiviral, anticancer, hematopoietic, hypotensive, anti-inflammatory, hepatoprotective, antidiabetic (Jin et al. 2014; Li et al. 2004; McKenna et al. 2002), hypolipidemic, hypocholesterolemic, anti-atherosclerotic (Hurrell et al. 2015b), gastro and cardiovascular protective (Chen et al. 2016c; Ma et al. 2013), anti-osteoporosis (Jung Koo et al. 2014), emmenagogue (He et al. 1986), nephroprotective (Zhong et al. 2013), neuroprotective (Hurrell et al. 2015a), antidepressant, anticonvulsant, anxiolytic, memory and learning enhancer, male fertility enhancer (Singh et al. 2013b), sexual enhancer: erectile dysfunction (Hsu et al. 2015). |
| Huang qi <i>Radix Astragali</i> Fragmented roots [B036] [P183]* Capsules (mixture) [H323]* | | |

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| <p><i>Atractylodes lancea</i> (Thunb.) DC. [= <i>Atractylis ovata</i> Thunb.] ASTERACEAE Russia (Siberia), China, Korea, Japan</p> | <p><i>Acrid and bitter. Warm. Spleen and stomach meridians.</i> Epigastric and abdominal distension, dyspepsia: nausea, vomiting, heartburn, belching, flatulence, stomach pain, diarrhea, anorexia, edema, fatigue, lassitude, rheumatism, arthritis, leukorrhea, abnormal vaginal discharge, headache, muscles and joints pain, skin diseases.</p> | <p>Gastro-intestinal motility stimulant, antiulcerative, hypotensive, antiplatelet, anticancer, antipyretic, antimicrobial (Koonrunsesomboon et al. 2014), anti-HIV (Kato et al. 2012), hypolipidemic (Hurrell et al. 2015b), anti-obesity (Kang et al 2013b), antioxidant, analgesic, anti-inflammatory (Kakatum et al. 2012), hypoglycemic, antidiabetic (Li et al. 2004; Zhu 1998), anti- eczema (Chan et al. 2008), anti-leucorrhea (Sakamoto et al. 1996), neuroprotective: Alzheimer, dementia, anti-epileptic, anxiolytic, anti-insomnia, memory and learning enhancer (Hurrell et al. 2015a).</p> |
| <p>Cang zhu <i>Rhizoma Atractylodis</i> Fragmented rhizomes [H446]</p> | | |
| <p><i>Chrysanthemum morifolium</i> Ramat. [= <i>Chrysanthemum grandiflorum</i> (Desf.) Dum. Cours.] ASTERACEAE China</p> | <p><i>Sweet and bitter. Mild cold. Lung and liver meridians.</i> Fever, headache, muscles spasms, dizziness, vertigo, cold, flu, cough, allergy, upper respiratory tract infections, pharyngolaryngitis, tonsillitis, hypertension, blood and kidney deficiency, blurred vision, conjunctive congestion with pain and swelling, liver hyperactivity, inflammations, tumors, swellings, furuncles, skin sores.</p> | <p>Antioxidant, anticancer, antimutagenic, cytotoxic, cardiovascular protective, anti- arrhythmic, anti-atherosclerotic, antimicrobial, antiviral, anti-HIV, anti-allergic, anti- hepatotoxic, anti-inflammatory, anti- hypertensive, vasorelaxant, antipyretic, anti- aging, neuroprotective: Parkinson, anti- insomnia (Hurrell and Puentes 2013; Lim 2013; Lin et al. 2015a; Lin and Harnly 2010; Miyazawa and Hisama 2003; Pérez- Hernández et al. 2016; Sun et al. 2010; Zheng et al. 2015a, 2015b), antidiabetic (Yamamoto et al. 2015), hepatoprotective, hypocholesterolemic, anti-hyperlipidemic (Choo et al. 2004; Cui et al. 2014), ophthalmic (Terashima et al. 1991), antimelanogenic (Gui et al. 2014).</p> |
| <p>Ju Hua <i>Flos Chrysanthemi Morifolii</i> Inflorescences [P239] [H420]*</p> | | |
| <p><i>Cinnamomum cassia</i> (L.) J. Presl LAURACEAE China</p> | <p><i>Acrid and sweet. Warm. Heart, lung, and bladder meridians.</i> Kidney, liver, and spleen deficiency, fever, appetite loss, abdominal distension, dyspepsia: nausea, vomiting, flatulence, belching, heartburn, diarrhea, blood deficiency: pale complexion, faint pulse, edema, lack of sweating, abscesses, sores, extremities, knees, and lumbar pain, dribbling urine, profuse night urination, enuresis, infertility, sexual disorders: impotence, frigidity, nocturnal emission, spermatorrhea, dysmenorrhea, amenorrhea.</p> | <p>Anti-dyspepsia, antiulcerative, neuroprotective, hypotensive, vasorelaxant, antimicrobial (Zaidi et al. 2015; Zhu 1998), antiviral (Yeh et al. 2013), immunomodulatory (Lee et al. 2011), cardiovascular protective (Song et al. 2013), antiplatelet (Kim et al. 2010), antioxidant (Yang et al. 2012a), anticancer (Chou et al. 2013; Kim et al. 2015a; Ngoc et al. 2014), osteoblastic (Lee and Choi 2006), antidiabetic (Jia et al. 2003; Yan et al. 2015), anti-obesity (Han et al. 2013), anti-inflammatory (Liao et al. 2012), antipyretic (Kurokawa et al. 1998), hypocholesterolemic, anti-dyslipidemia (Rahman et al. 2013), anti-dermatitis (Shin et al. 2015), anti-Alzheimer (Santos-Neto et al. 2006), antidepressant (Zada et al. 2016), anxiolytic (Jung et al. 2012), sexual enhancer: erectile dysfunction (Goswami et al. 2013, 2014), anti-dysmenorrhea, oligo/amenorrhea (Arentz et al. 2014; Marzouk et al. 2013).</p> |
| <p>Rou gui <i>Cortex Cinnamomi Cassiae</i> Fragmented barks [B001] Powdered bark [H454]</p> | | |

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| <p><i>Codonopsis pilosula</i> (Franch.) Nannf. CAMPANULACEAE Russia (Far East), Mongolia, China, Korea</p> | <p><i>Sweet. Neutral. Spleen and lung meridians.</i></p> | <p>Tonic (Asea et al. 2013), adaptogenic: anti-stress, anti-aging, anti-anorexia, antipyretic, analgesic, hematopoietic, procoagulant, hypotensive, cardiovascular stimulant (Gao et al. 2012b), antioxidant, immunomodulatory, antimicrobial (Luo et al. 2007; Ng et al. 2004; Zheng et al. 2014b), hepatoprotective (Liu et al. 2015a), antiulcerative (Wang et al. 1997), chronic obstructive pulmonary disease (Shergis et al. 2015), antidiabetic (He et al. 2011), anticancer (Xin et al. 2012; Yang et al. 2013a), memory, concentration, and learning enhancer, neuroprotective (Hurrell et al. 2015a), menopause symptoms (Mayo 1999), menorrhagia (Tu et al. 2009), sexual enhancer: erectile dysfunction (Mahajan and Gajare 2012).</p> |
| <p>Dang shen <i>Radix Codonopsis</i> Fragmented roots [P242]</p> | <p>Stomach ailments, loose stool, diarrhea, lack of appetite, anorexia, cough, asthma, wheezing, and dyspnea due to lung deficiency, blood deficiency: palpitations, pale complexion, lips, and tongue, dizziness, weakness of arms and legs, aging, male sexual disorders, stress (tonic: similar to <i>Panax ginseng</i>, but with shorter and milder effect).</p> | |
| <p><i>Coix lacryma-jobi</i> L. POACEAE China, Bhutan, Nepal, India, Sri Lanka, Taiwan, Philippines, South East Asia, New Guinea</p> | <p><i>Sweet. Mild cold. Spleen, stomach, and lung meridians.</i></p> | <p>Adaptogenic: anti-fatigue, antimicrobial, antioxidant, immuno-enhancer, anticancer, antimutagenic, cytotoxic, abortifacient, anti-progestogenic, diuretic, hypolipidemic, anti-obesity, anti-hyperglycemic, antidiabetic, anti-allergic, prebiotic (Chen et al. 2011; Li 2006; Li et al. 2004; Lu et al. 2011; Manosroi et al. 2016), anti-inflammatory, antinociceptive (Choi et al. 2015; Sreekeesoon and Mahomoodally 2014), gastroprotective, anti-emetic, anti-nausea (Chen et al. 2016c), anti-adipogenesis (Kato et al. 2015b), anti-dysmenorrhea: analgesic (Zhang et al. 2000), nephroprotective, anti-hyperuricemia (Taejarernwiriyakul et al. 2015), antisiphilitic (Drobnik 2016)</p> |
| <p>Yi yi ren <i>Semen Coicis</i> <i>Lachryma-Jobi</i> Seeds [H307]</p> | <p>Spleen deficiency, diarrhea, dyspepsia: nausea, vomiting, indigestion, irritability, warts, chapped skin, abscesses, headache, neuralgia, lumbar and tendons pain, muscles spasms, knee weakness, pain and swelling in extremities, rheumatism, arthritis, gout, dysuria, syphilis, infections, abnormal vaginal discharges, fever, physical fatigue.</p> | |
| <p><i>Dioscorea oppositifolia</i> L. [= <i>Dioscorea opposita</i> Thunb.] DIOSCOREACEAE India, Bangladesh, Myanmar, Sri Lanka</p> | <p><i>Sweet. Neutral. Spleen, lung, and kidney meridians.</i></p> | <p>Antioxidant (Paulpriya and Mohan 2012), anti-obesity (Jeong et al. 2016), antidiabetic (Fan et al. 2015; Jia et al. 2003), cardioprotective (Chen et al. 2015), anti-hypertensive (Nagai et al. 2014), anticancer (Chan and Ng 2013), hypocholesterolemic, immunomodulatory, anti-inflammatory, estrogenic (Huang et al. 2010), menopausal syndrome (Wong et al. 2015), progestogenic, anti-progestogenic (Ahmed et al. 2014), female infertility (Ju et al. 2014), neuroprotective (Liu et al. 2013b), memory and learning enhancer (Hsieh et al. 2000), antidepressant (Yeung et al. 2014b).</p> |
| <p>Shan yao <i>Rhizoma Dioscoreae</i> <i>Oppositae</i> Fragmented rhizomes [B031]</p> | <p>Lung deficiency, asthma, cough, dyspnea, spleen disorders, appetite loss, anorexia, thirst, sweating, fatigue, loose stool, chronic diarrhea, enuresis, frequent urination, polyuria, urinary incontinence, leukorrhea, spermatorrhea, and diabetes due to kidney disorders.</p> | |
| <p><i>Eleutherococcus senticosus</i> (Rupr. & Maxim.) Maxim. [= <i>Acanthopanax senticosus</i> (Rupr. & Maxim.) Harms] ARALIACEAE Russia (Siberia, Far East), China, Korea, Japan</p> | <p><i>Acrid and bitter. Warm. Liver and kidney meridians.</i></p> | <p>Adaptogenic: anti-fatigue, antipyretic, hypocholesterolemic, choleric (Davydov and Krikorian 2000; Provino 2010), antioxidant, immunomodulatory, anti-inflammatory, antiulcerative, hypoglycemic, hepatoprotective, anti-osteoporosis, anti-allergic, anticancer, antiviral, antimicrobial (Huang et al. 2011; Tang and Eisenbrand 2013), antinephritic (Wojcikowski et al. 2009), vasorelaxant (Kwan</p> |
| <p>General weakness, physical and/or mental weariness, lack of energy, vigour loss, poor resistance to diseases, adverse stress effects (<i>Panax ginseng</i> substitute), appetite loss, muscles and bones lacking strength, lower back, kidney,</p> | | |

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| <p>Ci wu jia <i>Radix Eleutherococci</i> Fragmented roots and rhizomes [RF05] [P186]* Capsules (mixture) [P170]*</p> | <p>loins, and knees pains, edema, rheumatism, arthritis, cough, bronchitis, lung ailments, tumors, insomnia, anxiety, concentration and memory loss, sexual disorders.</p> | <p>et al. 2004), cardioprotective (Maslov et al. 2009), anti-edema (Fukada et al. 2016), antitussive (Barth et al. 2015), neuroprotective: Parkinson, ischemia, learning and memory enhancer, antidepressant, anxiolytic (Hurrell et al. 2015a), male anti-infertility (Nantia et al. 2009), sexual desire (libido) enhancer (Debnath et al. 2011), erectile dysfunction due to depressive conditions (Rajput et al. 2011)</p> |
| <p><i>Eucommia ulmoides</i> Oliv. EUCOMMIACEAE China Du zhong <i>Cortex Eucommiae</i> Fragmented barks [H447]</p> | <p><i>Sweet. Warm. Liver and kidney meridians.</i> Aging, hypertension, vertigo, back, waist, ankles, and knees pain, muscles, tendons, bones, and ligaments weakness, arthritis, swelling, frequent urination, overweight, wetness and itching of genitals, male sexual disorders: premature ejaculation, impotence, fetal movement, placental leakage, stress, fatigue.</p> | <p>Anti-aging, antioxidant, anti-obesity, antidiabetic, immunomodulatory, antimicrobial, anti-allergic, hypotensive, anti-inflammatory, anti-osteoporosis, anticancer, cardioprotective, sexual enhancer: erectile dysfunction (He et al. 2014; Hou and Jin 2005; Hussain et al. 2016), hepatoprotective (Lee et al. 2014), hypolipidemic, hypocholesterolemic, anti-atherosclerotic (Hurrell et al. 2015b), progestogenic, anti-progestogenic (Ahmed et al. 2014), osteoblastic (Lee et al. 2016b), anti-osteoarthritis (Xie et al. 2015), memory and learning enhancer, neuroprotective: Parkinson, Alzheimer, antidepressant (Hurrell et al. 2015a), nephroprotective (Li et al. 2012), adaptogenic: anti-fatigue (Panossian 2003).</p> |
| <p><i>Fallopia multiflora</i> (Thunb.) Haraldson [= <i>Polygonum multiflorum</i> Thunb., <i>Reynoutria multiflora</i> (Thunb.) Moldenke] POLYGONACEAE China, Japan, Taiwan</p> | <p><i>Slightly bitter and sweet. Warm. Liver and kidney meridians.</i> Aging, hair graying, alopecia, vertigo, insomnia, dizziness, tinnitus, neurasthenia, skin eruptions, itching, skin sores, furuncles, constipation, blood and bowels deficiency, fever, anemia, lower back and knees pain and weakness, lymphatic tuberculosis, inflammations, scrofula, tumors, malaria, leukorrhea, night sweating, spermatorrhea, prostatitis, weak seminal emission, male infertility, male sexual disorders: impotence.</p> | <p>Tonic (Asea et al. 2013), anti-aging, hematopoietic, antihyperlipidemic, anti-dyslipidemia, hepatoprotective, anti-atherosclerotic, cardiovascular protective, nephroprotective, immunomodulatory, antibacterial, intestinal peristalsis improver, anti-bronchitis, anti-inflammatory, memory and learning enhancer, neuroprotective: neurodegenerative disorders, antipyretic (Foster and Yue 1992; Hou and Jin 2005; Lin et al. 2015b; Ling and Xu 2016; Sun et al. 2016), antidiabetic (Jia et al. 2003), antioxidant (Lv et al. 2014), anticancer (Zhu et al. 2016a), anti-HIV (Lin et al. 2010), hair growth (anti-alopecic), hair blackening (Han et al. 2015; Park et al. 2011), antidepressant (Wang and Zhu 2012), sedative, anti-insomnia, anxiolytic (Bounda and Feng 2015), spermatogenesis enhancer (Chen et al. 2016a), sexual enhancer: erectile dysfunction (Lee et al. 2015c; Singh et al. 2010).</p> |

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| <p><i>Fritillaria cirrhosa</i> D. Don LILIACEAE China, Nepal, Bhutan, India</p> | <p><i>Bitter. Slightly cold. Lung and heart meridians.</i></p> | <p>Antitussive, anti-asthmatic, expectorant, phlegm-relieving, tracheobronchial relaxation, upper respiratory tract infections, anti-tuberculosis, anti-inflammatory, antispasmodic, analgesic, diuretic, anti-hypertensive, antipyretic (Chan et al. 2000, 2011; Chang et al. 2001; Khare 2008; Schröder et al. 2013; Wang et al. 2011, 2016a, 2016b; Wardlaw et al. 1988; Yeum et al. 2007), antioxidant (Li et al. 2013b), anti-HIV (Lam et al. 2000), anticancer (Bokhari and Syed 2015; Kavandi et al. 2015; Wang et al. 2014a).</p> |
| <p>Chuan bei mu <i>Bulbus Fritillariae Cirrhosae</i> Bulbs [H455]</p> | <p>Chronic cough, asthma, dry cough and hemoptysis, dry throat, scanty and bloody phlegm, difficult expectoration pyemesis, cold, bronchitis, pneumonia, chest and heart tightness, atelectasis, lung abscess, pharyngolaryngitis, pulmonary tuberculosis, swelling, scrofula, goiter, mastitis, furuncles, ulcerations, fever, hypertension, low appetite, dysphoria.</p> | |
| <p><i>Gastrodia elata</i> Blume ORCHIDACEAE Russia (Siberia, Far East), China, Korea, Japan, Nepal, Bhutan, India, Taiwan</p> | <p><i>Sweet. Neutral. Liver meridian.</i></p> | <p>Antioxidant, anti-aging, analgesic, anti-vertigo, anti-epileptic, anticonvulsive, antidepressant, sedative, hypnotic: anti-insomnia, anxiolytic, memory and learning enhancer, antipsychotic, neuroprotective, neurodegenerative disorders: Alzheimer, Parkinson, antiviral, anti-inflammatory, cardiovascular protective, anticancer (Hou and Jin 2005; Hurrell et al. 2015a; Zhan et al. 2016), gastroprotective (An et al. 2007), bone protector, anti-osteoporosis (Huang et al. 2015b; Zheng et al. 2014a), anti-migraine (Wang et al. 2015b), antidiabetic (Yang et al. 2016a), anti-asthmatic (Jang et al. 2010), sexual enhancer: erectile dysfunction (Lee et al. 2015c), adaptogenic: anti-fatigue (Zhaobao and Bing 2010).</p> |
| <p>Tian ma <i>Rhizoma Gastrodiae Elatae</i> Fragmented rhizomes [H449]</p> | <p>Liver disorders, dizziness, vertigo, seizures in children, epilepsy, tetanus, paralysis, hemiplegia, neurasthenia, blood stasis: numbness and pain in the extremities, rheumatism, arthritis, muscles spasms, movement restriction, neuralgia, headache, neurodegenerative disorders, male sexual disorders: impotence, aging, lassitude, fatigue.</p> | |
| <p><i>Glehnia littoralis</i> F. Schmidt ex Miq. APIACEAE Russia (Siberia, Far East), China, Korea, Japan, Taiwan</p> | <p><i>Sweet. Slightly cold. Lung and stomach meridians.</i></p> | <p>Antitussive, expectorant, antipyretic (Hou and Jin 2005), antioxidant, anticoagulant, blood circulation enhancer, vasorelaxant, immunomodulatory, antidiabetic, anti-epileptic, anticonvulsive, anti-amnesia (Gairola et al. 2010; Luszczki et al. 2009; Ng et al. 2004; Su et al. 2013), anti-HIV, anticancer, antiproliferative (Kong et al. 2010; de la Cruz et al. 2015; Um et al. 2010), antibacterial, antifungal (Matsuura et al. 1996), anti-inflammatory (Yoon et al. 2010a, 2010b), analgesic (Ishikawa et al. 2001).</p> |
| <p>Bei sha shen <i>Radix Glehniae</i> Fragmented roots [B041]</p> | <p>Chronic bronchitis, pulmonary tuberculosis, dry cough or cough with scanty sputum, hemoptysis, hoarseness, dry throat, dry mouse, fatigue, chest pain, rheumatism, arthritis, joints and muscles pain, migraine, dry tongue, poor appetite, constipation, body fluids disorders, thirst, sweating, febrile diseases.</p> | |
| <p><i>Glycyrrhiza uralensis</i> Fisch. LEGUMINOSAE Russia (Siberia), Kazakhstan, Mongolia, China, Kyrgyzstan, Tajikistan, Afghanistan, Pakistan</p> | <p><i>Sweet. Neutral. Heart, spleen, lung, and stomach meridians.</i></p> | <p>Antitussive, anti-asthmatic, antioxidant, anti-inflammatory, antirheumatic, antithrombotic, hepatoprotective, anti-atherosclerotic, anti-allergic, antimicrobial, antiviral, antimalarial, sweetener, antacid, antiulcerative, antispasmodic, anticancer (Foster and Yue 1992; Ji et al. 2016; Kim et al. 2012; Tang and</p> |

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| <p>Gan cao <i>Radix Glycyrrhizae Uralensis</i> Fragmented roots [B040]</p> | <p>painful stiffness, stomach and duodenal ulcerations, hepatitis, muscle spasms, infections, inflammations, skin diseases, furuncles, abscesses, sexual disorders, hysteria, arrhythmia, palpitations, general weakness, poor appetite, lassitude, stress, fatigue.</p> | <p>Eisenbrand 2013), cardioprotective (Liu et al. 2014), progestogenic, anti-progestogenic (Ahmed et al. 2014), antisiphilitic (Drobnik 2016), detoxificant (Peter et al. 2013), immunomodulatory (Ayeka et al. 2016), anti-dermatitis (Cha et al. 2016), anti-emetic, gastroprotective (Chen et al. 2016c), neuroprotective: Alzheimer, Parkinson (Link et al. 2015; Zarmouh et al. 2016), antidepressant (Rajput et al. 2011), sexual desire (libido) enhancer (Yarnell and Abascal 2013), adaptogenic: anti-fatigue (Corneanu and Corneanu 2013; Shang et al. 2010).</p> |
| <p>Houttuynia cordata Thunb. SAURURACEAE China, Korea, Japan, Taiwan, Bhutan, Nepal, India, Myanmar, Thailand, Indonesia</p> | <p><i>Acrid. Slightly cold. Lung meridian.</i> Respiratory disorders, chest pain, lung abscess with purulent expectoration, cough, dyspnea, rhinitis, sinusitis, pneumonia, bronchitis, inflammations, skin diseases: psoriasis, furuncles, skin sores, measles, epilepsy, nephritis, dysuria, urinary infections, leukorrhea, fever with chills, rheumatism, dysentery, hemorrhoids, edema, stress, fatigue, male sexual disorders: impotence.</p> | <p>Antitussive, anti-bronchitis, anti-sinusitis, severe acute respiratory syndrome, immunomodulatory, antimicrobial, antiviral, anti-allergic, diuretic, vasorelaxant, anti-hypertensive, anti-dermatitis, anti-inflammatory, antipyretic, detoxificant, hepatoprotective, anti-obesity, anticancer (Fu et al. 2013; Kumar et al. 2014a; Tang and Eisenbrand 2013; Zhu 1998), antioxidant (Doi et al. 2014), adaptogenic: physical endurance (Yang et al. 2015b), anthelmintic (Vijaya and Yadav 2016), anti-hyperglycemic (Kumar et al. 2014b), nephroprotective (Kang et al. 2013a), anti-epileptic, antidepressant, neuroprotective (Huh et al. 2014; Jeon et al. 2014; Kim et al. 2015b), sexual enhancer: erectile dysfunction linked to prostatic hyperplasia, anti-prostatitis, androgenic (Kumar et al. 2011; Yarnell and Abascal 2005).</p> |
| <p>Yu xing cao <i>Herba Houttuyniae</i> Fragmented aerial parts [B006]</p> | | |
| <p>Kaempferia galanga L. ZINGIBERACEAE China, Taiwan, India, Cambodia Shan nai <i>Rhizoma Kaempferiae Galangae</i> Fragmented rhizomes [B033]</p> | <p><i>Acrid. Warm. Stomach meridian.</i> Stomach and abdominal pain, dyspepsia, flatulence, diarrhea, constipation, hemorrhoids, cholera, cough, asthma, sore throat, fullness and distention in chest, angina pectoralis, fever, hypertension, migraine, toothache, swelling, tumors, inflammations, overweight, dandruff, skin diseases, bruise, wounds, restlessness, stress, insomnia, anxiety, depression.</p> | <p>Antitussive (Gairola et al. 2010), anti-hypertensive, vasorelaxant, cardiotoxic, anticoagulant, diuretic, anti-inflammatory, analgesic, antinociceptive, antioxidant, anthelmintic, digestive, antipyretic, anti-allergic, antidiabetic, antimicrobial, anti-tuberculosis, antiviral, expectorant, anticancer, cytotoxic, central nervous system stimulant, anti-dermatitis, cicatrizant, insect repellent, larvicidal (Kumar 2014; Lim 2016; Preetha et al. 2013; Singh et al. 2013a; Umar et al. 2011), osteoblastic (Guo et al. 2012); antimalarial (Thiengsusuk et al. 2013), anti-obesity (Lee et al. 2015b), hypolipidemic, hypocholesterolemic, anti-atherosclerotic (Achuthan and Padikkala 1997), anxiolytic, sedative, anti-insomnia (Edewor-Kuponiyi 2013).</p> |

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| <p>Leonurus japonicus Houtt. LAMIACEAE China, Korea, Japan, Taiwan, South East Asia Yi mu cao <i>Herba Leonuri Japonici</i> Fragmented aerial parts [B020]</p> | <p><i>Acrid and bitter. Slightly Cold. Heart, liver, and bladder meridians.</i> Blood stasis: pain and numbness of extremities, hypertension, coronary diseases, hematuria, dysuria, oliguresis, dysmenorrhea, amenorrhea, menorrhagia, abdominal and pelvic pain, difficult labor, edema, skin sores, anxiety, depression, tiredness, insomnia.</p> | <p>Cardioprotective, blood circulation enhancer, hypotensive, vasorelaxant, antiplatelet, antioxidant, antimicrobial, anticancer, diuretic, nephroprotective, anti-menorrhagia, uteronic, emmenagogue, neuroprotective, metabolic syndrome (Foster and Yue 1992; Kuchta et al. 2012; Shang et al. 2014; Yang et al. 2014), hepatoprotective, cytoprotective, cytotoxic (Jiang et al. 2015; Moon 2010), analgesic, anti-inflammatory (Khan et al. 2012), anxiolytic, antidepressant (Rauwald et al. 2015), female fertility enhancer (Hung et al. 2016).</p> |
| <p>Ligusticum striatum DC. [= <i>Ligusticum chuanxiong</i> S.H.Qiu, Y.Q.Zeng, K.Y.Pan, Y.C.Tang & J.M.Xu; = <i>Ligusticum wallichii</i> Franch.] APIACEAE China, Kashmir, Nepal, India Chuan xiong <i>Rhizoma Ligustici Chuanxiong</i> Fragmented rhizomes [B027]</p> | <p><i>Acrid. Warm. Gallbladder, liver, and pericardium meridians.</i> Cardiovascular disorders, hypertension, blood stasis: pain and numbness of extremities, angina pectoris, swelling due to traumatic injury, irregular menstruation, dysmenorrhea, amenorrhea, abdominal pain, numbness muscles, tendons, and joints, arthritis, rheumatic arthralgia, vertigo, migraine, abscesses, syphilis, sexual dysfunction.</p> | <p>Cardioprotective, antithrombotic, hypotensive, vasoprotective, anticancer, anti-atherosclerotic, hypocholesterolemic, muscle contractility enhancer, neuroprotective: neurodegenerative disorders: Alzheimer, anti-inflammatory, analgesic, immunomodulatory (Fu et al. 2015; Hu et al. 2015; Li et al. 2013a; Ran et al. 2011; Zhu 1998), antioxidant (Liu et al. 2015b), gastroprotective (Li et al. 2005), anti-migraine (Wang et al. 2015b), anti-asthmatic (Wei et al. 2016), nephroprotective (Yang et al. 2011), anti-hyperglycemic, antidiabetic (Li et al. 2004; Shih et al. 2015), progestogenic (Lim et al. 2006), anti-dysmenorrhea (Hsu et al. 2006), antisiphilitic (Drobnik 2016), sexual enhancer: erectile dysfunction (Xiao et al. 2010).</p> |
| <p>Lilium brownii F.E.Br. ex Miellez LILIACEAE China Bai he <i>Bulbus Lilii Brownii</i> Bulb scales [B028]</p> | <p><i>Sweet. Slightly Cold. Heart and lung meridians.</i> Chronic cough, dry cough due to lung deficiency, pertussis, asthma, hemoptysis, sore throat, bronchitis, pulmonary tuberculosis, febrile diseases, dizziness, restlessness, rapid pulse, palpitations, and urinary disorders due to heart deficiency, fatigue, dream-disturbed sleep, insomnia.</p> | <p>Antitussive, antioxidant, antidiabetic, anticancer, cytotoxic, immuno-enhancer, anti-inflammatory, antiplatelet, sedative, anti-insomnia (Mimaki et al. 1995, 2001; Sun et al. 2014; Wang et al. 2015c; Wong et al. 2006), respiratory system diseases (Han et al. 2008), antimicrobial (Yeo and Tham 2012), anti-fatigue (He et al. 2009), anti-aging, anti-amnesia, neuroprotective: neurodegenerative disorders, anticonvulsive (Lin et al. 2003), antidepressant (Zhang et al. 2014b).</p> |
| <p>Lonicera japonica Thunb. CAPRIFOLIACEAE China, Korea, Japan, Taiwan</p> | <p><i>Sweet. Cold. Lung, stomach, and large intestine meridians.</i> Upper respiratory infections, pharyngitis, inflammation and sore throat, asthma, cold, flu, hypertension, high fever with red skin patches, irritability, and delirium, acute infectious diseases, pus-forming infections, gastro-intestinal disorders, ulcerations, abdominal pain, diarrhea, dysentery, swellings, skin sores and heat rash, abscesses, furuncles, syphilis.</p> | <p>Anti-asthmatic (Hong et al. 2013), upper respiratory tract infection (Lu et al. 2016), antiseptic, anti-bronchitis (Kim et al. 2015c; Ko et al. 2013), anti-allergic, anti-dermatitis (Tian et al. 2012), antiviral, antimicrobial, antioxidant, cardioprotective, analgesic, anti-inflammatory, antipyretic, hypolipidemic, hepatoprotective, cytoprotective (Mahboob et al. 2016; Ryu et al. 2010; Shang et al. 2011), anticancer (Han et al. 2016), anti-hypertensive (Cheng et al. 1944), antidiabetic, anti-hyperglycemic, anti-obesity (Lee et al. 2016a), antinephritic (Tzeng et al. 2014), anti-arthritis (Huh et al. 2012),</p> |

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| <p>Jin yin hua <i>Flos Lonicerae Japonicae</i> Buds and flowers [B017]</p> | | <p>cognitive protective, neuroprotective (Weon et al. 2011; Yu et al. 2015), gastroprotective (Huh et al. 2011), bowel diseases (Park et al. 2013), antisiphilitic (Drobnik 2016).</p> |
| <p><i>Lycium barbarum</i> L. SOLANACEAE China</p> | <p><i>Sweet. Neutral. Liver, kidney, and lung meridians.</i> General weakness, lack of energy, fatigue, lassitude, stress, aging, poor vision, cataract, diminished visual acuity, blood disorders, anemia, diabetes, back and joints pains, lung deficiency, chronic cough, tinnitus, headache, neuralgia, dizziness, burns, ulcerations, skin sores, furuncles, nocturnal emission, sperm production deficiency, male infertility, male sexual disorders: impotence.</p> | <p>Adaptogenic: anti-stress, antioxidant, anti-aging, memory and learning enhancer, neuroprotective, anxiolytic, antidepressant, cardioprotective (Hurrell et al. 2013, 2015a), anti-osteoporosis (Jin et al. 2013), anti-arthritis (Liu et al. 2015d), hepatoprotective (Xiao et al. 2012), hypolipidemic, hypocholesterolemic, anti-atherosclerotic (Hurrell et al. 2015b), anti-obesity (Amagase and Nance 2011), nephroprotective, antidiabetic (Du et al. 2016; Li et al. 2004), immunomodulatory (Amagase et al. 2009), anti-inflammatory (Nardi et al. 2016), anticancer (Mao et al. 2011), spermatogenesis enhancer (Qian and Yu 2016), sexual enhancer: erectile dysfunction, testicular and prostatic protective (Patel et al. 2011; Semwal et al. 2013; Sohn et al. 2008).</p> |
| <p>Gou qi zi <i>Fructus Lycii</i> Fruits [H037] [D001] [R169]*</p> | | |
| <p><i>Nelumbo nucifera</i> Gaertn. NELUMBONACEAE Russia (Siberia, Far East), China, Korea, Japan, Nepal, Bhutan, Pakistan, India, Sri Lanka, Philippines, South West Asia, South East Asia, New Guinea, Australia</p> | <p><i>Sweet. Neutral. Spleen, kidney and heart meridians.</i> Enteritis, dyspepsia: nausea, vomiting, flatulence, diarrhea, poor appetite, anorexia, urinary incontinence, leukorrhea, abnormal vaginal discharge, menorrhagia, hypertension, arrhythmia, chest pain, sweating, dizziness, fever, respiratory infections, anxiety, insomnia, poor memory, amnesia, spermatorrhea, nocturnal emissions, male sexual disorders: premature ejaculation.</p> | <p>Antioxidant, antifertility, antipyretic, hypotensive, anti-arrhythmic, antiviral, immunomodulatory, anti-asthmatic, anti-arthritis, anti-inflammatory, anti-dermatitis, anti-atherosclerotic, hepatoprotective, gastroprotective, anticancer (Paudel and Panth 2015), anti-diarrhea (Knipping et al. 2012), antithrombotic (Zhou et al. 2013), antibacterial (Tho et al. 2013), hypoglycemic (Kato et al. 2015a), hypolipidemic, hypocholesterolemic, anti-obesity (Liao and Lin 2013; You et al. 2014), bronchodilator (Tan et al. 2015), neuroprotective, memory and learning enhancer (Jung et al. 2015; Kim et al. 2014), anxiolytic, sedative, antidepressant (Sugimoto et al. 2010), anti-insomnia (Sirisha-Chowdary 2013), anti-estrogenic, antispermatogenic (Chauhan et al. 2009; Mutreja et al. 2008), sexual enhancer: erectile dysfunction (Chen et al. 2008).</p> |
| <p>Lian zi <i>Semen Nelumbinis</i> Seeds [BH20] Lian zi xin <i>Plumula Nelumbinis</i> Plumules [B018]</p> | | |
| <p><i>Ophiopogon japonicus</i> (Thunb.) Ker Gawl. ASPARAGACEAE China, Korea, Japan, Taiwan</p> | <p><i>Sweet and slightly bitter. Slightly cold. Lung, heart, and stomach meridians.</i> Cough, hemoptysis, bronchitis, pharyngolaryngitis, pneumonia, gastric and duodenal ulcers, constipation, dyspepsia: nausea, vomiting, flatulence, back and legs pains, diabetes, thirst, sweating, anxiety, insomnia, memory loss, aging, chronic fatigue.</p> | <p>Antioxidant, antitussive, cardiovascular protective, anti-inflammatory, anticancer, immunomodulatory, antimicrobial (Chen et al. 2016b; Hou and Jin 2005), antinephritic, antidiabetic, anti-hyperglycemic, anti-hyperlipidemic (Jia et al. 2003; Wang et al. 2015d), anti-obesity (Wang et al. 2014c), hepatoprotective (Lu et al. 2014), hematopoietic (Fleischer et al. 2016), anti-osteoporosis (Huang et al. 2015a), antithrombotic (Kou et al. 2006), anti-aging (Sun et al. 2013), neuroprotective (Lin et al. 2015c), anxiolytic (Liu et al. 2015c), anti-</p> |

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| Mai dong <i>Radix Ophiopogonis Japonici</i> Fragmented roots [B039] | | insomnia (Zhao et al. 2008a), anti-fatigue (Chen et al. 2010). |
| <i>Paeonia lactiflora</i> Pall. [= <i>Paeonia albiflora</i> Pall.] PAEONIACEAE Russia (Siberia, Far East), Mongolia, China, Korea, Japan | <i>Bitter and sour. Slightly cold. Liver and spleen meridians.</i> Liver hyperactivity and pain, gastric ulcers, night sweating, spermatorrhea, blood stasis: pain and numbness of extremities, spasms, abnormal vaginal discharge, irregular menstruation, amenorrhea, menorrhagia, mastitis, hypochondrium and abdomen pain, headache, diarrhea, dysentery, weakness, tinnitus, convulsions, dizziness, male sexual disorders: impotence. | Antioxidant, anti-inflammatory, antiviral, antibacterial, immunomodulatory, antidiabetic, cardiovascular protective, anti-atherosclerotic, anti-hyperlipidemic, anti-obesity (He and Dai 2011; Li et al. 2004; Parker et al. 2016; Zhang et al. 2015), anticancer (Lam et al. 2015), antithrombotic (Ye et al. 2016), hematopoietic (Zhu et al. 2016b), anti-dermatitis (Sun et al. 2015), neuroprotective: Alzheimer (Fu et al. 2015), antinociceptive (Zhang et al. 2016), antidepressant (Farahani et al. 2015), uterine relaxant (Hehir and Morrison 2016), anti-amenorrhea (Arentz et al. 2014), breast hyperplasia (Peng et al. 2015), sexual enhancer: erectile dysfunction, prostatic hyperplasia, androgenic (Hetchman 2013; Washida et al. 2009). |
| Bai shao <i>Radix Paeoniae Lactiflorae</i> Fragmented roots [B036] | | |
| <i>Prunella vulgaris</i> L. LAMIACEAE Russia (Siberia), China, Korea, Japan, Taiwan, Kyrgyzstan, Uzbekistan, Kazakhstan, Tajikistan, Turkmenistan, Pakistan, India, Bhutan, Nepal, South West Asia, Europe, Africa, North America | <i>Acrid and bitter. Cold. Liver meridian.</i> Liver deficiency, bloodshot and swollen eyes, painful eyeballs, headache, vertigo, dizziness, anxiety, phlegm, hypertension, hemostasis, inflammations, lymphatic tuberculosis, stomatitis, dysentery, diabetes, acute mastitis, mammary abscess, scrofula, nodules, tumors, swollen sores, painful tendons, red and swollen sore throat, mumps, goiter, herpes, burns, scalds, skin diseases. | Antioxidant, anti-hypertensive, diuretic (Yang et al. 2013b), blood circulation enhancer, cardioprotective, phlegm-relieving, immunomodulatory, antiviral: anti-HIV, anti-herpes, antimicrobial, anti-allergic, anti-inflammatory, analgesic, anti-hyperglycemic, antidiabetic, antilipidemic, hypocholesterolemic, anti-atherosclerotic, antitussive, anticancer, hepatoprotective, systemic anaphylaxis inhibition, UV-photoprotective (Adams and Lien 2013; Hwang et al. 2012; Lam et al. 2000; Li et al. 2015; Meng et al. 2014), breast hyperplasia (Peng et al. 2015), anti-estrogenic (Collins et al. 2009), anti-arthritis (Jung et al. 2001), anti-colitis (Haarberg et al. 2015), anxiolytic (Kwon et al. 2014), memory and learning enhancer, neuroprotective: Alzheimer, schizophrenia (Park et al. 2010, 2015). |
| Xia ku cao <i>Spica Prunellae Vulgaris</i> Fragmented inflorescences [B025] | | |

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| <p><i>Rehmannia glutinosa</i> (Gaertn.) DC. PLANTAGINACEAE China</p> | <p><i>Sweet. Slightly warm. Liver and kidney meridians.</i> Blood deficiency, epistaxis, hematemesis, hematuria, bloody stools, blood stasis: pain and numbness of extremities, anemia, high fever, amenorrhea, irregular menstruation, menorrhagia, spermatorrhea, nocturnal emissions, stomach and kidney deficiencies, constipation, thirst, pharyngolaryngitis, chest, hypochondrium, and stomach pain, dizziness, legs and low back pains, male sexual disorders; impotence.</p> | <p>Cardiovascular protective, hemostatic, anti-anemia, hematopoietic, diuretic, anti-inflammatory (Chang et al. 2001; Fleischer et al. 2016), antidiabetic, hypoglycemic (Jia et al. 2003; Li et al. 2004; Zhang et al. 2004), nephroprotective (Hsu et al. 2014), hypocholesterolemic, hypolipidemic (Hurrell et al. 2015b), hepatoprotective (Liu et al. 2012), lung protective (Fu et al. 2014), anticancer (Jin et al. 2015), immune enhancer (Huang et al. 2013), anti-osteoporosis (Lim and Kim 2013), anti-dermatitis (Sung et al. 2011), analgesic (Wang et al. 2014b), antioxidant, adaptogenic, neuroprotective: Alzheimer, Parkinson, cerebral ischemia, memory and learning enhancer, antidepressant, anti-insomnia (Hurrell et al. 2015a), sexual enhancer: erectile dysfunction (Feng et al. 2012), prostatic hyperplasia (Shin et al. 2012).</p> |
| <p>Sheng di huang <i>Radix Rehmanniae</i> <i>Glutinosae</i> Fragmented roots [H448]</p> | | |
| <p><i>Scaphium affine</i> (Mast.) Pierre [= <i>Sterculia</i> <i>lychnophora</i> Hance] MALVACEAE South East Asia Pang da hai <i>Semen Sterculiae</i> <i>Lychnophorae</i> Seeds [B035]</p> | <p><i>Sweet. Cold. Lung and large intestine meridians.</i> Chest pain, hoarseness, aphony, pharyngolaryngitis, tonsillitis, cough with viscous sputum, flu, vomiting, fever, mucous inflammation, skin eruption, headache, toothache, constipation, abdominal spasms, cramps, bones pain, bloodshot eyes, nose bleeds, hemorrhoids.</p> | <p>Anti-inflammatory, analgesic, neuroprotective: Alzheimer, laxative (Shetty et al. 2014; Wang et al. 2013; Wu et al. 2007), antifungal, antibacterial, anti-caries (Palve et al. 2015; Yang et al. 2016b), anti-obesity (Zhao et al. 2008b), immunomodulatory, intestinal peristalsis stimulant, antioxidant (Ai et al. 2012), uterotonic, anti-menorrhagia, anti-estrogenic, anticancer (Sharma et al. 2012).</p> |
| <p><i>Schisandra chinensis</i> (Turcz.) Baill. SCHISANDRACEAE Russia (Siberia, Far East), China, Korea, Japan</p> | <p><i>Sour. Warm. Lung, kidney, and heart meridians.</i> Asthma, chronic cough due to lung deficiency, pulmonary asthenia, dyspnea, phlegm, weak pulse, spontaneous and night sweating, headache, liver disorders, hepatitis, chronic diarrhea due to spleen deficiency, dysentery, vomiting due to kidney deficiency, polydipsia, urinary incontinence, frequent urination, palpitations, restlessness, neurasthenia: lassitude, irritability, mental and physical fatigue, anxiety,</p> | <p>Anti-asthmatic, antitussive, respiratory stimulant, expectorant, antibacterial, anti-allergic, eyesight enhancer, uterotonic, anti-diarrhea, antidysenteric, cardiogenic, cardiovascular protective (Chang et al. 2001; Chen et al. 2013; Chun et al. 2014; Lee et al. 2015a), antiseptic (Kook et al. 2015), anticancer (Poornima et al. 2016; Qu et al. 2014), neuroprotective: neurodegenerative disorders, memory and learning enhancer, anxiolytic, anti-insomnia, antidepressant, sedative (Hurrell et al. 2015a), immunomodulatory, anti-inflammatory hepatoprotective, antidiabetic, antioxidant, detoxificant (Adams and Lien 2013; Li et al. 2004), hypocholesterolemic (Hurrell et al.</p> |

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| <p>Wu wei zi <i>Fructus Schisandrae</i> Fruits [RF59] [P208]* Capsules (mixture) [H323]*</p> | <p>nervousness, insomnia, spermatorrhea, male sexual disorders: impotence, premature ejaculation.</p> | <p>2015b), antiulcerative, anti-dermatitis (Foster and Yue 1992), anti-HIV (Xu et al. 2015), anti-fungal (Yang et al. 2015a), gastro-intestinal disorders (Ahn et al. 2015), adaptogenic: anti-fatigue (Asea et al. 2013; Mahajan and Gajare 2012; Panossian 2013, 2003), sexual enhancer: erectile dysfunction (Choo et al. 2014; Han et al. 2012).</p> |
| <p>Siraitia grosvenorii (Swingle) C. Jeffrey ex A.M. Lu & Zhi Y. Zhang [= <i>Momordica</i> <i>grosvenorii</i> Swingle] CUCURBITACEAE China</p> | <p><i>Sweet. Slightly cold. Lung and spleen meridians.</i> Lung deficiency, bronchitis, pulmonary tuberculosis, phthisis, cough, asthma, pharyngolaryngitis, phlegm, sore throat, acuted tonsillitis, aphony, dyspnea, cold, skin diseases, psoriasis, furuncles, gastritis, constipation, overweight, diabetes, aging, fatigue.</p> | <p>Antitussive, phlegm-relieving, antioxidant, hepatoprotective, immunomodulatory, antimicrobial, antiviral, antihistaminic, anti-allergic, antidiabetic, sweetener (Jin and Lee 2012; Li et al. 2014), adaptogenic: anti-fatigue (Liu et al. 2013a), gastro-intestinal stimulant (Wang et al. 2015a), anticancer (Konoshima and Takasaki 2002; Takasaki et al. 2003), anti-obesity (Sun et al. 2012), anti-atherosclerotic (Takeo et al. 2002), hypocholesterolemic, hypolipidemic (Lin et al. 2007).</p> |
| <p>Luo han guo <i>Fructus Momordicae</i> <i>Grosvenorii</i> Fruits [P245]</p> | <p><i>Sweet. Warm. Stomach, spleen, and heart meridians.</i> Stomach disorders, spleen deficiency: emaciation, weakness, overfatigue, dyspnea, diarrhea due to malnutrition, anorexia, constipation, night sweating, blood deficiency: pale complexion, lips, and tongue, hypertension, skin aging, heart deficiency: palpitations, insomnia, anxiety, amnesia, depression, male sexual disorders: impotence.</p> | <p>Antioxidant, anti-inflammatory, neuroprotective: Alzheimer, gastro-intestinal protective, anticancer, cytotoxic, anti-obesity, hepatoprotective, immuno-enhancer, anti-fatigue (Bai et al. 2016; Gao et al. 2013; Lam et al. 2016b; Tahergorabi et al. 2015; Zare-Zardini et al. 2013; Zhang and Wu 2006), antidiabetic (Hemmati et al. 2015; Kaeidi et al. 2015), anti-constipation (Naftali et al. 2008), anti-dyslipidemic (Sabzghabae et al. 2013), hematopoietic (Lam et al. 2016a), mnemonic (Heo et al. 2003), anti-insomnia (Yeung et al. 2012), sedative, anxiolytic, anti-allergic, contraceptive, hypotensive, antinephritic, antimicrobial, antiviral (Mahajan and Chopda 2009), antidepressant (Yeung et al. 2014a), sexual enhancer: erectile dysfunction (Chiou and Chen 2002).</p> |
| <p>Ziziphus jujuba Mill. RHAMNACEAE China</p> | <p><i>Sweet. Warm. Stomach, spleen, and heart meridians.</i> Stomach disorders, spleen deficiency: emaciation, weakness, overfatigue, dyspnea, diarrhea due to malnutrition, anorexia, constipation, night sweating, blood deficiency: pale complexion, lips, and tongue, hypertension, skin aging, heart deficiency: palpitations, insomnia, anxiety, amnesia, depression, male sexual disorders: impotence.</p> | <p>Antioxidant, anti-inflammatory, neuroprotective: Alzheimer, gastro-intestinal protective, anticancer, cytotoxic, anti-obesity, hepatoprotective, immuno-enhancer, anti-fatigue (Bai et al. 2016; Gao et al. 2013; Lam et al. 2016b; Tahergorabi et al. 2015; Zare-Zardini et al. 2013; Zhang and Wu 2006), antidiabetic (Hemmati et al. 2015; Kaeidi et al. 2015), anti-constipation (Naftali et al. 2008), anti-dyslipidemic (Sabzghabae et al. 2013), hematopoietic (Lam et al. 2016a), mnemonic (Heo et al. 2003), anti-insomnia (Yeung et al. 2012), sedative, anxiolytic, anti-allergic, contraceptive, hypotensive, antinephritic, antimicrobial, antiviral (Mahajan and Chopda 2009), antidepressant (Yeung et al. 2014a), sexual enhancer: erectile dysfunction (Chiou and Chen 2002).</p> |

According to the results, 32 species of the TCP are marketed in the Barrio Chino supermarkets. Only for *Nelumbo nucifera* two distinct therapeutic products are discriminated: seeds and plumules; however, its uses linked to traditions and the biological activity overlap considerably, so these products were treated together. It is noteworthy that only three species are exclusively medicinal (*Leonurus japonicus*, *Ligusticum striatum*, and *Prunella vulgaris*), while the remaining 29 are also used for food, as vegetables, condiments, and sweeteners (Facciola 2001). In this regard, these species could be considered functional foods, i.e., foods that are consumed in the daily diet, and are a source of nutrients and important benefits to maintain health or reduce the risk of disease (Ferreira-Montero and Luengo-Fernández 2007; Hardy 2000).

From the viewpoint of the medicinal uses, of the total 32 species only eight (25 %) are considered within the denominated “50 fundamentals herbs” (Wong 1976) of the TCP: *Astragalus mongholicus*, *Cinnamomum cassia*, *Eucommia ulmoides*, *Glycyrrhiza uralensis*, *Leonurus japonicus*, *Ligusticum striatum*, *Rehmannia glutinosa*, and *Schisandra chinensis*. Also, 12 of the 32 treated species (37.5 %) are likewise used in Ayurveda medicine: *Chrysanthemum morifolium*, *Cinnamomum cassia*, *Coix lacryma-jobi*, *Dioscorea oppositifolia*, *Fritillaria cirrhosa*, *Gastrodia elata*, *Glycyrrhiza uralensis*, *Houttuynia cordata*, *Kaempferia galanga*, *Ligusticum striatum*, *Nelumbo nucifera*, and *Prunella vulgaris* (Khalsa and Tierra 2008; Khare 2008, 2011; Pole 2012).

The species used as anti-fatigue, anti-stress (adaptogenic), anti-aging, neuroprotective, and cognitive enhancer are: *Angelica sinensis*, *Astragalus mongholicus*, *Atractylodes lancea*, *Codonopsis pilosula*, *Coix lacryma-jobi*, *Eleutherococcus senticosus*, *Eucommia ulmoides*, *Fallopia multiflora*, *Gastrodia elata*, *Glycyrrhiza uralensis*, *Houttuynia cordata*, *Kaempferia*

galanga, *Leonurus japonicus*, *Lilium brownii*, *Lycium barbarum*, *Nelumbo nucifera*, *Ophiopogon japonicus*, and *Schisandra chinensis* (18 species). The concept of “adaptogenic” has different meanings according to different authors; here it is used in its more restricted sense of anti-fatigue or anti-stress, easier to compare with the traditional uses (Hurrell et al. 2013, 2015a). The species used to treat sexual dysfunctions and genital sickness are: *Angelica sinensis*, *Astragalus mongholicus*, *Cinnamomum cassia*, *Codonopsis pilosula*, *Eleutherococcus senticosus*, *Eucommia ulmoides*, *Fallopia multiflora*, *Gastrodia elata*, *Glycyrrhiza uralensis*, *Houttuynia cordata*, *Ligusticum striatum*, *Nelumbo nucifera*, *Paeonia lactiflora*, *Rehmannia glutinosa*, *Schisandra chinensis* and *Ziziphus jujuba* (16 species). The species used for the respiratory system illnesses are: *Chrysanthemum morifolium*, *Codonopsis pilosula*, *Dioscorea oppositifolia*, *Fritillaria cirrhosa*, *Glehnia littoralis*, *Glycyrrhiza uralensis*, *Houttuynia cordata*, *Kaempferia galanga*, *Lilium brownii*, *Lonicera japonica*, *Lycium barbarum*, *Ophiopogon japonicus*, *Scaphium affine*, *Schisandra chinensis*, and *Siraitia grosvenorii* (15 species). The species mostly used to treat the digestive system disorders are: *Amomum tsaoko*, *Atractylodes lancea*, *Cinnamomum cassia*, *Codonopsis pilosula*, *Coix lacryma-jobi*, *Glycyrrhiza uralensis*, *Kaempferia galanga*, *Lonicera japonica*, *Nelumbo nucifera*, *Ophiopogon japonicus*, *Paeonia lactiflora*, *Prunella vulgaris*, *Rehmannia glutinosa*, *Schisandra chinensis*, and *Ziziphus jujuba* (15 species). For dermatological affections the species mostly used are: *Astragalus mongholicus*, *Chrysanthemum morifolium*, *Cinnamomum cassia*, *Fallopia multiflora*, *Fritillaria cirrhosa*, *Glycyrrhiza uralensis*, *Houttuynia cordata*, *Kaempferia galanga*, *Leonurus japonicus*, *Lonicera japonica*, *Lycium barbarum*, *Prunella vulgaris*, and *Siraitia grosvenorii* (13 species). The species used for the circulatory system disorders are: *Angelica sinensis*, *Astragalus mongholicus*, *Cinnamomum cassia*, *Fritillaria cirrhosa*,

Glycyrrhiza uralensis, *Leonurus japonicus*, *Ligusticum striatum*, *Lycium barbarum*, *Nelumbo nucifera*, *Rehmannia glutinosa*, and *Ziziphus jujuba* (11 species). For osteo-arthro-muscular system affections the species used are: *Angelica sinensis*, *Atractylodes lancea*, *Coix lacryma-jobi*, *Eleutherococcus senticosus*, *Eucommia ulmoides*, *Gastrodia elata*, *Glehnia littoralis*, *Houttuynia cordata*, *Ligusticum striatum*, and *Scaphium affine* (10 species). The species used for the urinary system disorders are: *Chrysanthemum morifolium*, *Cinnamomum cassia*, *Dioscorea oppositifolia*, *Eleutherococcus senticosus*, *Houttuynia cordata*, *Leonurus japonicus*, *Nelumbo nucifera*, *Rehmannia glutinosa*, *Schisandra chinensis* (9 species).

The comparison between the columns of "Uses linked to traditions" and "Biological activity and effects evaluated" shows that mostly uses indicated in the first column have correlative studies listed in the second. Thus, it is possible to assert that the vast majority of uses awarded to the treated species have validation studies for the context of Western science. In the same way, it becomes evident that many effects evaluated exceed the list of uses linked to traditions. These effects generally include: anticancer, antioxidant, immunomodulatory or immuno-enhancer, anti-HIV, cardioprotective, anti-hypertensive, anti-atherosclerotic, hypocholesterolemic, anti-hyperlipidemic, anti-obesity (slimming), antidiabetic, neuroprotective (Alzheimer, Parkinson), cognitive enhancer (memory and learning), anti-insomnia, anxiolytic, antidepressant, adaptogenic (anti-fatigue), and sexual enhancer (libido, frigidity, erectile dysfunction, and premature ejaculation). It is self-evident that these effects are evaluated because they respond to needs that are characteristic of health in the context of our Western societies, particularly, in our extensive metropolitan areas. In correlation,

mass media do focus on this kind of conditions linked to the big cities lifestyle, and spread the scientific knowledge about the ailments, the plants that allow cure them, and the plant products accessible for the urban inhabitants. This complex dynamics in the transmission of botanical knowledge through their products in the urban scenario is reflected in many selling arguments, e.g. "plant products of a millenary tradition (Chinese) with scientifically studied effects". The consumer finds on these arguments two good reasons to select those products: tradition and science. The strategies selection operating on the information transmitted by the media are significant instances of the visualization process.

Heretofore, the visualization of Chinese plant products involves five species, about 15.6 % of the total of surveyed species for the study area: *Astragalus mongholicus*, *Chrysanthemum morifolium*, *Eleutherococcus senticosus*, *Lycium barbarum*, and *Schisandra chinensis*. The other 27 treated species (84.4 %) still remain invisible to most of the local urban population. For the five visible species, the products that are sold in the Barrio Chino are also sold in the general commercial circuit. *C. morifolium* has only been found in one health food store of the general commercial circuit, so its visibility is scarce. By contrast, *L. barbarum* has been found in various outlets, and has wide diffusion in the Internet due to its many effects (adaptogenic, antioxidant, cognitive enhancer, hypocholesterolemic, anti-atherosclerotic, sexual enhancer, anticancer, and antidiabetic, among others), so it is considered that its visibility is very wide. *A. mongholicus*, *E. senticosus*, and *S. chinensis* are also represented in the general commercial circuit through dietary supplements. These are capsules containing extracts of different species marketed specifically to treat the

erectile dysfunction, widely disseminated through the media. In addition to its dissemination as a male sexual enhancer, these three species are usually valued by the same mentioned effects for *L. barbarum*.

The results obtained constitute the first inventory of species of medicinal plants introduced by Chinese immigrants in the study area. The inventory itself is a contribution of this work to the composition of the local botanical knowledge, through the plant products that commercialize this immigrants segment. It should be highlighted that this is the first time that an ethnobotanical work of this nature is carried out on Chinese immigrants in our country. Although this contribution is limited to the TCP plants, it is an important incentive for future works on other useful plants (especially food plants) introduced by the Chinese immigrants in the Buenos Aires Metropolitan Area.

In addition, the distinction between invisible and visible plant products for the majority of local urban inhabitants constitutes not only a conceptual distinction but also a methodological tool to address the study of the visualization process of invisible plant species that become visible: for the case of this contribution, 5 of 32 species surveyed. This is an original methodological tool developed in the research line on Urban Ethnobotany of the Laboratorio de Etnobotánica y Botánica Aplicada (LEBA) that allows evaluate the dynamics of the local botanical knowledge in relation to the circulation of the plant products in the local commercial circuits. Also, this methodological strategy has been satisfactorily tested in different contributions of the mentioned research line for the study area (i.e. Puentes and Hurrell 2015; Pochettino et al. 2012, for the segment of Bolivian immigrants). The value of the plant

products and species inventory, and its associated knowledge, as well as the novel approach of applied methodology, constitutes an effort to provide adequate explanations for the complexity of the inherent phenomena in Urban Ethnobotany. Nevertheless, the results obtained and the discussion about them should not be considered a finished work but the current state of a dynamic process characteristic of pluricultural contexts.

CONCLUSIONS

From the above discussion it is clear that most of the TCP products surveyed in the Barrio Chino of Buenos Aires city still remain invisible to most of the local population, but its presence alone is significant because it increases the local diversity of useful plants, its products, and its associated knowledge. In sum, plant products that were entered through the Chinese immigrants segment into the local pluricultural context increase their biocultural diversity, i.e., the diversity of life, both in its biological dimension (species, plant products) and its cultural dimension (knowledge, beliefs, language, behaviors). In this framework, the biological and cultural dimensions are not separate: do not go on parallel tracks, on the contrary, these dimensions interact in complex ways and co-evolve (Maffi 2001, 2005).

The visualization process, that involves the passage of plant products from the restricted circuit of immigrants to the general commercial circuit, is not only a mercantile movement but a communication process. It is necessary to remember that not only circulate the plant products (tangible or material component), together with these products circulate its associated knowledge (intangible component), i.e., the products work as messages (information source). In

this context, from the circulation of the plant products emerges the information (for that matter, the botanical knowledge), enhanced by the mass media. In turn, that knowledge orients selective strategies of action about the plant products to consume. The entry of new plant products and its associated knowledge orients new strategies for consumption by local people that affect, to a greater or lesser extent, the whole botanical knowledge of the local pluricultural system. In terms of processes, new knowledge (new information) orients new strategies of action that act retroactively on the system of the local botanical knowledge, that is modified and adjusted to the new situations: it adapts, it evolves. In this way, plant products entering by the Chinese immigrants segment remain invisible and increase the biocultural diversity of the local pluricultural system, as noted above, or become visible and change the complex local system of knowledge and strategies of action, making possible its evolution.

The plants of Traditional Chinese Medicine in Buenos Aires city reveal the intrinsic complexity of the local botanical knowledge, especially by the contrast between Eastern traditions and the Western lifestyle of our large cities. However, visible Chinese species indicate that its incorporation to the local pluricultural mosaic is possible. The challenge ahead is to observe the becoming of Chinese plants that still remain invisible, and its role in the dynamic of changes of the local biocultural system.

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