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Medicinal and aromatic species of Asteraceae commercialized in the conurbation Buenos Aires-La Plata (Argentina)

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Abstract

The present contribution includes 50 species of Asteraceae whose products are marketed with therapeutic and aromatic purposes in the conurbation Buenos Aires-La Plata, the largest metropolitan area of Argentina. For each species, the scientific and vernacular names, types of products and samples are given. The plant products comprise fresh plants or parts thereof, herbal products, tinctures, and dietary supplements, among others. The uses assigned and the effects scientifically studied are indicated. Also, the ethnobotanical value of the diverse plant products and their commercial circulation are discussed. Circulating products and their uses were studied, both in the restricted context of immigrant segments (Bolivian and Chinese), and in the broader context of general commercial circuit (health food stores, named locally 'dietéticas'). Botanical knowledge of immigrants segments is considered linked to their traditions, and botanical knowledge of general commercial circuit is regarded nontraditional. Research conducted is framed within the urban ethnobotany context. Specially, it addresses some relevant theoretical and methodological topics within discipline: composition of botanical knowledge in urban pluricultural scenarios (linked to traditions, nontraditional), the embodiment of this knowledge in actions (such as selection of products to consume), and the dynamic of changes in urban botanical knowledge (dispersion of products and uses in the commercial circuit and media).

Keywords*: Urban ethnobotany – Asteraceae – Conurbation Buenos Aires-La Plata, Argentina*

Introduction

This contribution presents partial results obtained from a research line about urban ethnobotany, carried out at the Laboratorio de Etnobotánica y Botánica Aplicada (LEBA), Facultad de Ciencias Naturales y Museo, Universidad Nacional de La Plata, Argentina. This research line addresses the study of composition and dynamics of the urban botanical knowledge, a central issue of urban ethnobotany because that knowledge guides the selection of plants, parts thereof and products derived from them in urban pluricultural contexts. The study area comprises the conurbation Buenos Aires-La Plata, the largest metropolitan area of Argentina both in extension and population. It includes two contiguous urban agglomerations: one emerged around Buenos Aires, the capital city of the country, the other around La Plata, the capital city of Buenos Aires province.

The results presented here correspond to 50 species of Asteraceae marketed as medicinal and/or aromatic in the conurbation. Asteraceae is the family of flowering plants with greater diversity worldwide: 1,600 genera and 23,600 species, distributed in all continents, except Antarctica (Stevens 2013), and its economical and medicinal importance has been widely described (Heywood et al. 1977). Asteraceae is the largest plant family in Argentina, with 227 genera and around 1,400 native and adventitious species (Katinas et al. 2007), also it has the greatest number of native taxa used in popular medicine in this country (more than 270 species), followed by Leguminosae and Solanaceae (Barboza et al. 2009).

Framework

Ethnobotany is the study of the complex relations between people and plants, based on the theoretical context of ecology (Albuquerque and Hurrell 2010; Hurrell and Albuquerque 2012). An aspect related to those relationships has acquired a special development: studies about *botanical knowledge* (BK), that it is defined as an ensemble of knowledge and beliefs that people have about the vegetal elements of their surroundings: plants, parts thereof, or products deriving from them (Hurrell et al. 2011a). The BK orients diverse behaviors, like agricultural practices in rural contexts, or selecting vegetal elements consumed in urban scenarios. When we say: 'knowledge orients the actions', we mean that knowledge is embodied in diverse behaviors that become adaptive. In the ethnobotanical work is expected to extrapolate the underlying knowledge from the actions. For example: Why a plant is used in one way and not another? Or: Why a particular use may change over time? The called *embodiment of knowledge* (Martínez 2008; Varela 1990) is a complex concept. In our theoretical framework, we assume that knowledge generates actions, but we also must consider that, in turn, the actions feeds back on knowledge, which generates new patterns of action, and so on. So, the human-plant system evolves. This is a basic premise for ongoing investigations.

Most of the researches on BK are oriented to *traditional botanical knowledge* (TBK), the knowledge and beliefs of culturally homogeneous contexts where there is a direct link between production and consumption: 'those who consume, produce'. The BK of urban agglomerations is considered *nontraditional* in opposition to the TBK: it corresponds to pluricultural contexts where there is an indirect link between production and consumption: 'those who consume do not produce'. This type of BK is likewise adaptive, because it guides the election of the products to consume, while others are discarded (Pochettino et al. 2012a). But *urban botanical knowledge* (UBK) is more than nontraditional knowledge. UBK is a whole composed of different knowledges about plants and its derived products that coexist and interact within the

same pluricultural frame. The entire population of the metropolitan areas is highly heterogeneous, and brings together local inhabitants as well as diverse groups of immigrants from different origins and residence time in the area. Local inhabitants have a mostly nontraditional BK (including scientific knowledge), although many retain certain knowledge linked to their own family traditions. The different segments of immigrants preserve knowledge associated with their traditions of origin. The BK of these segments is linked to traditions, but it does not strictly a TBK, because it is readapted to a new cultural context. While some ethnobotanical researches deal with plants product used by the average consumer segment in urban scenarios (Arenas et al. 2011; Ladio and Molares 2010; Pochettino et al. 2008), most of the papers are devoted to groups of immigrants that preserve a BK linked to their native traditions (Ceuterick et al. 2008; Pieroni et al. 2005; Pochettino et al. 2012a; Sandhu and Heinrich 2005; Volpato et al. 2009).

Consequently, urban ethnobotany must to give answers to two key questions: 1. How is the UBK *composition*? That is: linked to traditions, nontraditional. 2. How is the UBK *dynamics*? That is how the transmission of knowledge about vegetal elements and their uses take place in the urban pluricultural context. Several plants, their parts and products are *visible* for everyone and belong to the general commercial circuit, and their uses are widespread by the mass media. Other plants and products remain restricted to immigrant segments or family traditions, and they are *invisible* for the majority of the local population. Nevertheless, some of these invisible vegetal elements become visible when they enter the general commercial circuit. In terms of the UBK dynamics, a restricted component (linked to traditions) spreads, and it gets generalized through a *visualization process*, in which the mass media play a relevant role (Hurrell et al. 2011a; Pochettino et al. 2012a).

Study area/Involved actors

The conurbation Buenos Aires-La Plata includes the Greater Buenos Aires, an urban agglomeration emerged around Buenos Aires city (Federal District) and the Greater La Plata, a contiguous agglomeration emerged around La Plata city (**Figure 1**). Greater Buenos Aires comprise the Federal District and 24 districts of the Buenos Aires province. Its total area is 3,833 km² (AABA 2013; Gemini 2003). Buenos Aires city has 2,891,082 inhabitants (in an area of 202 km²), while the 24 districts of Buenos Aires province have a total of 9,910,282 inhabitants (INDEC, 2013). In population, Greater Buenos Aires is the largest agglomeration in Argentina, the second in South America (after the metropolitan area of São Paulo, Brazil), the third in Latin America (after the metropolitan areas of Mexico and São Paulo), the fifth of America and the seventeenth worldwide (Forstall et al. 2004). The Greater La Plata is an urban agglomeration constituted by three districts of the Buenos Aires province: La Plata (which includes La Plata city), Berisso and Ensenada. Its total area is of 1,162 km², and its population of 793,365 inhabitants (INDEC 2013).

This conurbation is heterogeneous, and it comprises at least three different spaces: 1. Urban areas themselves; 2. Non-urbanized areas with native vegetation (some sectors correspond to protected natural areas); 3. Periurban areas considered transitional zones between urban and non-urbanized areas, characterized by moving boundaries which fluctuate according to the rhythms of urbanization. In the periurban area an intense horticultural activity is developed, whose production supplies fresh vegetables and fruits to the inhabitants of the conurbation and other urban areas of the country (Barsky 2005, 2010; Hurrell et al. 2011b). The set of homegardens and productive orchards is called *horticultural belt* (Pochettino et al. 2012b).

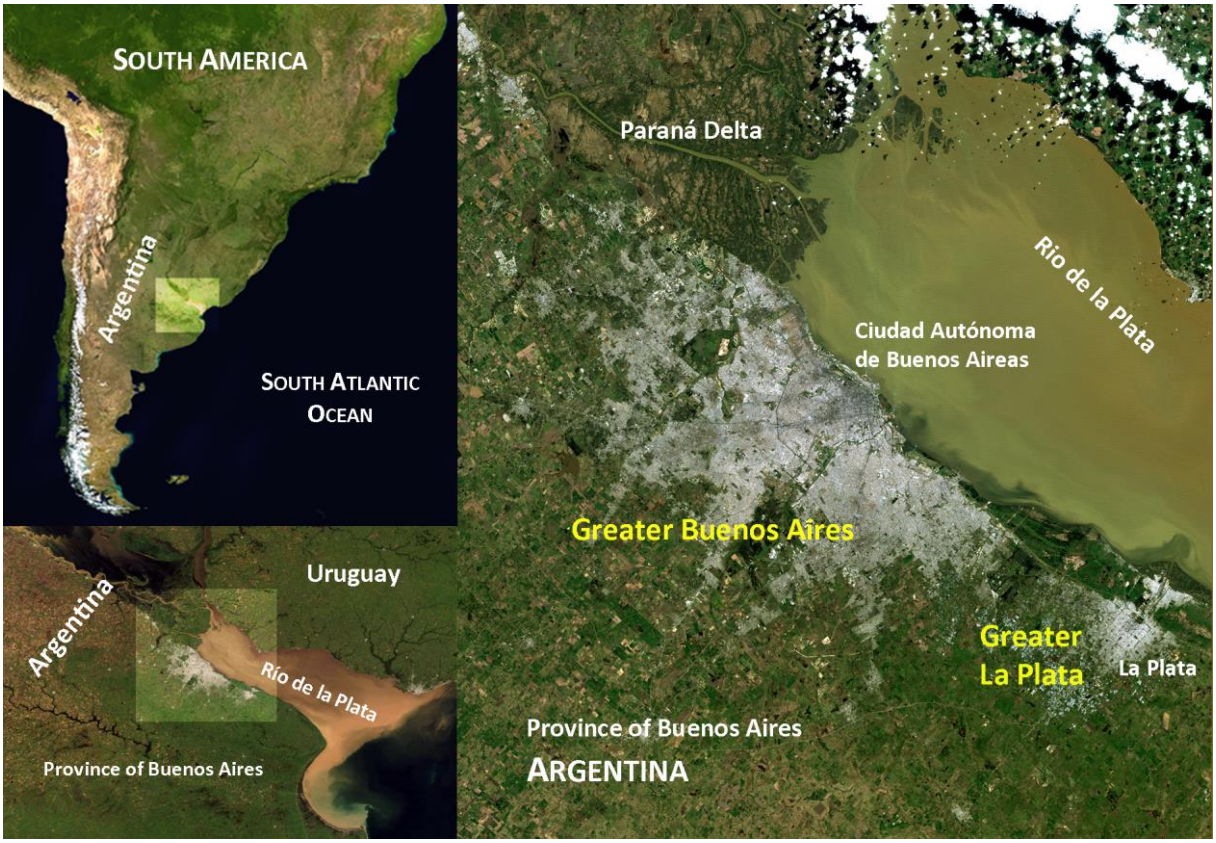

Figure 1. Conurbation Buenos Aires-La Plata, comprising the urban agglomerations of Greater Buenos Aires and Greater La Plata (satellite images from NASA).

Argentina has received massive immigration waves 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 from the total of immigrants registered until 1940 (Cerrutti 2009). 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 was occurred a new recent immigration. It was not massive, and focused in the metropolitan area. These immigrants were oriented towards horticultural practices in periurban areas, as well as towards manufacturing industry, construction and commerce in urban areas themselves. Most of this immigration comes from Paraguay and Bolivia (respectively, 21.22% and 15.24% from all foreigners in 2001). Bolivian immigrants are an example of the pattern that connects the periurban areas (production) with the strictly urban areas (consumption). Immigrants dedicated to horticulture provide food for the urban sector, where other Bolivian immigrants commercialize the products: eg, at Bolivian traditional market of Liniers, a neighborhood of Buenos Aires city (for a specific description of this traditional market nestled in a characteristic urban scenario, see Pochettino et al. 2012a).

Another recent immigration into the conurbation corresponds to Far Eastern countries (Japan, Korea, 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 (INDEC 2013). In the first half of the twentieth century Chinese immigration was low and settled in periurban areas, dedicated to horticulture (such as Bolivian immigrants). In the late twentieth century, these immigrants exceeded in number the Japanese and the Koreans ones,

who previously dominated in the urban sector. At present, the Chinese community in Buenos Aires city has several restaurants, shops and supermarkets concentrated in the named *Barrio Chino*, a sector of neighborhood of Belgrano (Bogado Bordazar 2003). The Chinese supermarkets constitute a center for disseminating its BK linked to their traditions towards the local urban residents. *Barrio Chino* is not a traditional market, such as the Bolivian traditional market of Liniers, but it acts as a relevant visualization agent for the UBK dynamics comprehension.

Materials and Methods

The Bolivian and Chinese immigrants were considered as reference groups for the study of UBK linked to traditions. This knowledge can be extrapolated from the analysis of plants or plant products circulating at the traditional market of Liniers (named *Bolivian market* for the people that does not belong to the immigrant segment), and at *Barrio Chino* supermarkets of Belgrano. Exclusive elements at those markets indicate that are invisible for most of the conurbation inhabitants. On the contrary, plants or plant products found in general commercial circuit stores, or sold via Internet, are visible elements that are linked to nontraditional UBK. Also, if an element is found in those reference markets, and also in general commercial circuit, although less frequently, it is considered as an element *in process of visualization.* From these distinctions, the information about plants and/or their derived products was evaluated.

The ethnobotanical data collection followed the usual qualitative techniques and methods (Albuquerque and Lucena 2004; Alexíades and Sheldon 1996; Martin 2004), such as participant observation, free listings, open-ended and semi-structured interviews. For the Bolivian market, criteria were adjusted according to the studies in traditional markets (Cunningham 2001; Macía et al. 2005).

The partial results presented here correspond to the plant family Asteraceae, comprising numerous species (mostly contain essential oils) used as therapeutic and aromatic (specially as a food and beverage flavoring). In all cases, samples were obtained from plants and their products, which were deposited in the LEBA, and herbarium specimens are found in the Herbarium of Museo de La Plata (LP). The samples were examined according to their characteristics. Plants and parts thereof (such as roots and seeds) were identified from external morphological traits. The dry materials, fragmented or powdered, were identified through the micrographic analysis of external and internal morphological features. From this analysis, possible adulterations will be shortly evaluated.

The field surveys were conducted in diverse outlets of plant products. The procedures always were performed with the consent of the informants. The sellers have been considered as ‘qualified informants’, they are people of both sexes and different ages that demonstrated their knowledge about the properties of the plant products they sell. All of them showed a positive attitude to provide the requested data. In Bolivian market, 30 premises and street stalls (all the outlets) have been visited and 50 sellers have been interviewed. Up to now, the studies in *Barrio Chino* were developed into the 3 major supermarkets, with 12 sellers interviewed. For the general commercial circuit, the main outlets surveyed were the health-food stores, locally called *dietéticas*: 52 of them were relieved and 100 sellers were consulted. In total, 58 outlets surveyed and 162 qualified informants interviewed.

The *dietéticas* are places that concentrate the interest on plants that contribute to health, and are privileged sites chosen by the local people for the supply of healthy food, dietary supplements, mother tinctures, and herbal products for therapeutic

purposes. Decades ago, the sale of herbal products was the patrimony of herbalist shops (called *herboristerías*), but at present these places are almost extinguished, and herbal products are usually sold in *dietéticas* (also in some pharmacies). These shops are furthermore true dispersal centers for plant products (expansion that also enhanced by the mass media). In the surveyed *dietéticas*, the presence of different products coming from the restricted frame of the immigrant segments, both Bolivian and Chinese, has been confirmed (Arenas et al. 2011; Hurrell et al. 2013). Once in the *dietéticas*, those *invisible* products gain the general commercial circuit and become *visible*. In this sense, the *dietéticas* are true visualization agents.

The available literature about the observed species and their uses was revised (in particular: Alonso and Desmarchelier 2005; Barboza et al. 2009; Burgstaller 1968; Freire and Urtubey 1999a,b, 2000a,b,c; Hieronymus 1882; Martínez Crovetto, 1981; Sorarú and Bandoni 1978; Zardini 1984a,b). Also, the information from printed and electronic labels, leaflets and advertisements belonging to many products was evaluated (because it guides people in the selection of products to be consumed). Both the data of these additional sources as those from the literature, together with the obtained in the field work, provide the repertoire of uses assigned for the species under study. Once identified these uses, the biological activity and effects registered in different investigations were explored, in order to make comparisons.

Results and Discussion

Table 1 includes information about 50 species of Asteraceae commercialized as medicinal and aromatic in the study area. Each species is indicated by it scientific name (in alphabetical order). In the first column, its local names, geographical origin, type of products, and samples obtained were also included. The products comprise: dietary supplements (DS), essential oil (EO), fresh plants (FP), fresh roots (FR), herbal products (HP), mother tinctures (MT), ointment (OI); powdered materials (PW), seeds (SE), tea bags (TB) and tea bags with mixture of herbs for medicinal infusions (TM). Second column contains the uses reported from interviews, the data from labels, leaflets, advertisements, catalogs, and the available literature. Besides medicinal (M) and aromatic (A) uses, other recognized local uses are added (O). Third column includes the therapeutic effects and biological activity registered in scientific investigations (the bibliographic sources are indicated in each case). The particular information for each species that emerges from the table is complemented by the main following remarks to get an overview.

Species/Products: The variety of observed products shows the diversity of forms of consumption. For some species also shows their high degree of diffusion and uses (visibility), eg *Matricaria chamomilla*, *Smallanthus sonchifolius, Stevia rebaudiana*. Herbal products are most widespread vegetal elements (43 species: 86% of the total), mainly employed to prepare therapeutic infusions. The abundance of these products also is justified because is the cheapest sold material. Herbals are followed by mother tinctures (50% of the species), likewise used for medicinal reasons. Those tinctures are more expensive than herbal products, but its consumption is easier. The ease in the form of consumption is an important selection criterion for many people when selecting what product is to be used. The same applies for dietary supplements (10% of the species), even more expensive but easier to consume (this product is the most widespread by the massive media). One species is only marketed as a dietary supplement, *Hieracium pilosella* L., however its diffusion is wide because it is sold mostly through the Internet.

Table 1. Medicinal and aromatic Asteraceae commercialized in the study area.

SCIENTIFIC/LOCAL NAMES. GEOGRAPHICAL ORIGIN PRODUCTS [SAMPLES]	**USES REPORTED (INTERVIEWS, LEAFLETS, LABELS, ADVERTISEMENTS, CATALOGS, LITERATURE)**	**BIOLOGICAL ACTIVITIES AND EFFECTS RECORDED (BIBLIOGRAPHICAL REFERENCES)**
Acanthospermum australe (Loefl.) Kuntze **TAPECUÉ** America **HP** [H218] **OI** [P159(*)]	**M**: Hepatic, astringent, antidiarrheal, antiulcerative, antitumor, diuretic, anti-inflammatory, antirheumatic, antiarthritic, febrifuge, antimalarial, sudorific, depurative, sedative, hypnotic, analgesic, antidermatitis, vulnerary, antiseptic, antigonorrheal, contraceptive, abortifacient.	Antitumor (Mirandola et al. 2002), antiviral (Rocha Martins et al. 2011), antifungal (Portillo et al. 2001), antimalarial (Carvalho and Krettli 1991), antioxidant (Desmarchelier et al. 1994), inhibiting fertilization (Barboza et al. 2009).
Acanthostyles buniifolius (Hook. ex Arn.) R.M. King & H. Rob. [= *Eupatorium buniifolium* Hook. & Arn.] **ROMERILLO** Southern South America **HP** [H201] **MT** [H349]	**M**: Hepatic, choleretic, digestive, tonic, antirheumatic, antinephritic, anti-inflammatory, analgesic, sedative, hypnoptic, antiseptic. **O**: Tinctorial, insect repellent.	Immunomodulatory (Fernández et al. 2002), antioxidant (Soria et al., 2008), antimicrobial (Muschietti et al. 2005; Sülsen et al. 2007), antiviral (HIV) (Hnatyszyn et al. 1999), anti-inflammatory (Muschietti et al. 2001), antinociceptive (Miño et al. 2005), hypnoptic, amnesic (Miño et al. 2007).
Achillea millefolium L **MILENRAMA-AQUILEA** Europe and Western Asia **HP** [C001] **MT** [H348]	**M**: Astringent, antispasmodic, carminative, digestive, anthelmintic, laxative, antidiarrheal, cholagogue, choleretic, hepatic, antihaemorrhoidal, diuretic, antinephritic, hypotensive, sedative, anxiolytic, emmenagogue, febrifuge, expectorant, anti-influenza, anti-inflammatory, antirheumatic, antiseptic, vulnerary. [*Matricaria chamomilla* L. adulterant]. **A**: Beverage flavoring, perfumery. **O**: Ornamental, edible (leaves).	Antitumor (Csupor-Löffler et al. 2009), cytoprotective, anti-inflammatory (Zaidi et al. 2012), analgesic (Pires et al. 2009), antioxidant, antimicrobial (Falconieri et al. 2011; Vitalini et al. 2011), hypotensive (Souza et al. 2011), vasoprotective (Dall'Acqua et al. 2011), bronchodilatory (Khan and Gilani 2011), antispasmodic and hepatoprotective (Yaeesh et al. 2006), choleretic (Benedek et al. 2006), anxiolytic (Baretta et al. 2012).
Achyrocline satureoides (Lam.) DC. **MARCELA** Southern South America **HP** [C020] [C139] [H097] **MT** [H345] **TM** [H412]	**M**: Hepatic, carminative, stomachic, tonic, digestive, antispasmodic, antiulcerative, antidiarrheal, anthelmintic, stimulant, febrifuge, antidiabetic, emmenagogue, sedative, antitumor, expectorant, antitussive, antiasthmatic, hypocholesterolemic, anti-inflammatory, analgesic, antiseptic, vulnerary, slimming. **A**: Beverage flavoring. **O**: Insect repellent.	Cytotoxic (Ruffa et al. 2002), immunomodulatory (Cosentino et al. 2008), antimicrobial (Casero et al. 2013), antiviral (Sabini et al. 2012), anti-inflammatory (Barioni et al. 2013), analgesic (Rondina et al. 2008), antioxidant (Gugliucci and Menini 2002), hypoglycemic (Heng et al. 2010), hypocholesterolemic (Espiña et al. 2012), antiulcerative (Santin et al. 2010), muscle relaxant (Hnatyszyn et al. 2004), hepatoprotective (Kadarian et al. 2002), antispasmodic and hypotensive (Petenatti et al. 2004b).
Ambrosia elatior L. [=*A. artemisiifolia* L.] **ALTAMISA** America **HP** [P149]	**M:** Anthelmintic, purgative, emetic, antispasmodic, stomachic, digestive, appetizer, carminative, astringent, antidiarrheal, choleretic, antitussive, febrifuge, antirheumatic, antiarthritic, antidote, antiallergic, analgesic, antineuralgic, anticephalalgic, antinephritic, antilithic, stimulant, emollient, antitumor, antidermatitis, vulnerary, antiseptic, emmenagogue, postpartum recovery, contraceptive, abortifacient. **O**: Oil (seeds), insecticide.	Antitumor (Spjut 2005), cytotoxic, analgesic, anti-inflammatory (Yukes & Balick 2010), antiallergic, immunomodulatory (Broide 2009), antimicrobial (Chalchat et al. 2004), contraceptive (Mats et al. 1987).

Arctium lappa L. **BARDANA** Eurasia **HP** [H282] [H363] **MT** [H352] **FR** [H6880(**)]	**M**: Diuretic, antinephritic, antilithic, hepatic, cholagogue, choleretic, digestive, antispasmodic, astringent, antidiabetic, anti-inflammatory, antiulcerative, antitumor, depurative, vulnerary, antidermatitis, antiaging, antiseborrheic, antialopecic. **O**: Edible (roots).	Antitumor (Machado et al. 2012), antioxidant (Song et al. 2010), anti-inflammatory (Lee et al. 2012), antiulcerative (Silva et al. 2013), gastroprotective (Dos Santos et al. 2008), hypoglycemic (Chan et al. 2011), antispasmodic (Almeida et al. 2013), antiviral (Hayashi et al. 2010).
Arnica montana L. **ÁRNICA** Europe **HP** [H141] **MT** [H355]	**M**: Vulnerary, antidermatitis, anti-inflammatory, analgesic, antiarthritic, antirheumatic, cardiotonic, antiseptic, immunostimulant, astringent, antispasmodic. **A**: Beverage flavoring, perfumery.	Antitumor, antimicrobial, analgesic, anti-inflammatory, antihistamine (Vanaclocha and Cañigueral 2003; Stanciuc et al. 2011), antioxidant (Craciunescu et al. 2012), antiarthritic (Widrig et al. 2007).
Artemisia absinthium L. **AJENJO** Eurasia and Northen Africa **HP** [C005] [P144] **MT** [H356] **FP** [H165(*)]	**M**: Anthelmintic, antispasmodic, appetizer, digestive, stomachic, carminative, antiemetic, cholagogue, hepatic, tonic, antimalarial, febrifuge, diuretic, cardiotonic, hypotensive, hypocholesterolemic, antirheumatic, emmenagogue, mnemonic, hypnotic, antiseptic, aphrodisiac, abortifacient. **A**: Beverage flavoring. **O**: Insecticide, insect repellent.	Antitumor, cytotoxic (Shafi et al. 2012; Wegiera et al. 2012), antimicrobial (Stanciuc et al. 2011), antimalarial (Irshad et al. 2011), anthelmintic (Tariq et al. 2009), hepatoprotective (Amat et al. 2010), antioxidant (Craciunescu et al. 2012), cognitive desorders (Howes et al. 2003), neuroprotective (Bora and Sharma 2010).
Artemisia dracunculus L. **ESTRAGÓN** North America and Eurasia **HP** [C025] [C103] **PW** [C117]	**M**: Hepatic, stomachic, carminative, appetizer, anthelmintic, antiscorbutic, antidiabetic, diuretic, emmenagogue, anti-inflammatory, antigout, hypnotic, antiepileptic. **A**: Condiment, beverage flavoring, perfumery.	Antimicrobial, antioxidant (Benli et al. 2007; Lopes-Lutz et al. 2008), hepatoprotective, anti-inflammatory (Obolskiy et al. 2011), hypoglycemic (Ribnicky et al. 2006), antiplatelet (Tognolini et al. 2006), anticonvulsant (Sayyah et al. 2004).
Artemisia vulgaris L. **ARTEMISA** Eurasia and Northen Africa **HP** [C089] [H072] **MT** [H347]	**M**: Antispasmodic, carminative, appetizer, digestive, anthelmintic, cholagogue, choleretic, diuretic, febrifuge, expectorant, antiasthmatic, astringent, emmenagogue, antiseptic, tonic, anticonvulsant, antidepressant. **A**: Condiment, beverage flavoring. **O**: Insecticide, insect repellent.	Antitumor (Abdelhamed et al. 2013), antimicrobial (Poiată et al. 2009), antiviral (Meneses et al. 2009), antispasmodic, bronchodilatory (Khan and Gilani 2009), antioxidant (Temraz and El-Tantawy 2008), anti-inflammatory (Tigno and Gumila 2000), analgesic (Pires et al. 2009).
Baccharis articulata (Lam.) Pers. **CARQUEJA** Southern South America **HP** [P143] **MT** [H346] **FP** [B416(*)]	**M**: Digestive, hepatic, cholagogue, antispasmodic, hypocholesterolemic, antidiarrheal, anthelmintic, laxative, diuretic, febrifuge, tonic, cardiotonic, depurative, antidiabetic, against urinary and respiratory infections, antirheumatic, vulnerary, antiseptic, antiulcerative, against male impotence and female infertility; aphrodisiac, contraceptive. **A**: Beverage flavoring.	Antioxidant (Verdi et al. 2005), antimicrobial (Simoniato et al. 2008), antiviral (Torres et al. 2011), anti-inflammatory (Gené et al. 1992), hypoglycemic (Kappel et al. 2012).
Baccharis crispa Spreng. **CARQUEJA- CARQUEJA CRESPA** Southern South America **HP** [H362] **MT** [H342]	**M:** Digestive, hepatic, cholagogue, anti-icteric, antilithic, antispasmodic, anthelmintic, tonic, antiasthmatic, antidiabetic, diuretic, antirheumatic, depurative, febrifuge, aphrodisiac, against male impotence and female infertility, antiulcerative, antiseptic, vulnerary, antiacne, antiseborrheic, antidandruff. **A**: Beverage flavoring.	Antioxidant, antimicrobial (Verdi et al. 2005), antiviral (Mangiaterra 2005), anti-inflammatory (Gené et al. 1992).

Baccharis salicifolia (Ruiz & Pav.) Pers. [= *B. glutinosa* Pers.] **CHILCA** America **HP** [H416]	**M**: Anti-inflammatory, antirheumatic, analgesic, astringent, antidiarrheal, antidysenteric, antiulcerative, antiacid, digestive, hepatic, anthelmintic, antiseptic, antisyphilitic, against gynecological disorders, diuretic, antitumor, febrifuge, antialopecic, antidermatitis. **O**: Insecticide, insect repellent.	Anti-inflammatory (Gonzales Dávalos et al. 2007), antimicrobial (Verástegui et al. 1996), anthelmintic (Salazar et al. 2007).
Baccharis trimera (Less.) DC. **CARQUEJA-CARQUEJILLA** Southern South America **HP** [C017] **FP** [B424(*)]	**M**: Digestive, hepatic, cholagogue, antispasmodic, anthelmintic, tonic, antiulcerative, febrifuge, antidiabetic, diuretic, antirheumatic, analgesic, anti-inflammatory, hypotensive, antiseptic, vulnerary, antinephritic, aphrodisiac, against male impotence and female infertility, emmenagogue, against birth and postpartum ailments, neonatal care, abortifacient . [*Baccharis articulata* (Lam.) Pers. and *B. crispa* Spreng. substitute or adulterant].	Antioxidant (Pádua et al. 2010), hepatoprotective, antimutagenic (Verdi et al., 2005), hypoglycemic (Oliveira et al. 2005), antiparasitic (Gianello et al. 2000), immunomodulatory (Paul et al. 2009), antimicrobial, antiviral (Mangiaterra 2005), analgesic, anti-inflammatory (Gené et al. 1992, 1996), vasodilatory (Hnatyszyn et al. 2003).
Calendula officinalis L. **CALÉNDULA** Europe **HP** [C160] [H200] **MT** [H341]	**M**: Emollient, antidermatitis, anti-inflammatory, antiseptic, vulnerary, digestive, antispasmodic, hepatic, cholagogue, choleretic, astringent, antihaemorrhoidal, febrifuge, anti-atherosclerotic, emmenagogue, hypotensive, depurative. **A**: Perfumery. **O**: Ornamental, cosmetics, edible (flowers).	Antitumor (Matić et al. 2012; Wegiera et al. 2012), antimicrobial (Szakiel et al. 2008), antiviral (HIV) (Kalvatchev et al. 1997), antidermatitis (Fonseca et al. 2010), anti-inflammatory (Preethi et al. 2009), hepatoprotective, nephroprotective (Preethi and Kuttan 2009), anti-atherosclerotic (Orekhov 2013), antioxidant (Butnariu and Coradini 2012).
Chamaemelum nobile (L.) All. [= *Anthemis nobilis* L.] **MANZANILLA ROMANA** Eastern Europe and Northwestern Africa **EO** [H440]	**M**: Sedative, anxiolytic, digestive, stomachic, carminative, hepatic, antispasmodic, antiulcerative, antiacid, anthelmintic, appetizer, laxative, antiophthalmic, antiotitis, tonic, antirheumatic, anti-inflammatory emmenagogue, hypotensive, antiseptic, antidermatitis, vulnerary. [*Matricaria chamomilla* L. adulterant]. **A**: Food and beverage flavoring. **O**: Cosmetics, insect repellent.	Antitumor, antioxidant (Guimarães et al. 2013), antimicrobial (Bail et al. 2009; Duarte et al. 2005), hypoglycemic (König et al. 1998), vasorelaxant (Zeggwagh et al. 2013), anti-inflammatory, sedative (Rossi et al. 1988), anxiolytic (Setzer 2009).
Chrysanthemum morifolium Ramat. [= *C. grandiflorum* (Desf.) Dum. Cours.] **CRISANTEMO** Eastern Asia **HP** [H420]	**M**: Hepatic, carminative, febrifuge, anticephalalgic, expectorant, anti-cold, depurative, antiphlebitis, anti-atherosclerotic, anti-inflammatory, antitumor, sedative, hypnotic, antiophthalmic, antiseptic, vulnerary. **A**: Food and beverage flavoring. **O**: Ornamental. Edible (leaves, flowers).	Antitumor (Xie et al. 2009), antiviral (HIV) (Lee et al. 2003), antimicrobial (Akihisa et al. 2005), anti-inflammatory (Ukiya et al. 2001), cardiovascular protective (Lii et al. 2010), antioxidant (Song et al. 2010), neuroprotective (Lin et al. 2010), hypnotic (Kim et al. 2011).
Cichorium intybus L. **ACHICORIA** Eurasia and Northern Africa **HP** [H129] **TM** [H410]	**M**: Hepatic, cholagogue, appetizer, digestive, laxative, antidiarrheal, anthelmintic, anti-icteric, depurative, hipotensive, antimalarial, antidiabetic, anti-inflammatory, antiasthmatic, antisyphilitic, diuretic, antirheumatic, antiophthalmic, vulnerary, slimming. **O**: Edible (roots, leaves, flowers).	Antitumor (Conforti et al. 2008), antibacterial (Aqil and Ahmad 2007), hepatoprotective (Atta et al. 2010), antioxidant (Lavelli 2008), anthelmintic (Foster et al. 2011), anti-inflammatory (Minaiyan et al. 2012), hypoglycemic (Pushparaj et al. 2007), anti-obesity (Vasudeva et al. 2012).

Cnicus benedictus L. [= *Centaurea benedicta* (L.) L.] **CARDO SANTO-CARDO BENDITO** Mediterranean and Asia Minor **HP** [H202] **MT** [H339] **TM** [H413]	**M**: Tonic, carminative, digestive, stomachic, appetizer, emetic, hepatic, cholagogue, astringent, antidiarrheal, diuretic, hypoglycemic, depurative, emmenagogue, anti-inflammatory, antiarthritic, expectorant, febrifuge, antimalarial, antitumor, galactogogue, antiseptic, vulnerary, antidermatitis, contraceptive, abortifacient. **A**: Condiment, beverage flavoring. **O**: Oil (seeds), food (inflorescences).	Antitumor, cytotoxic (Steenkamp and Gouws 2006; Tamayo et al. 2000), antimicrobial (Voon et al. 2012), anti-inflammatory (Mascolo et al. 1987), galactogogue (Westfall 2003).
Conyza bonariensis (L.) Cronquist **YERBA CARNICERA** South America **HP** [H053] **MT** [H359]	**M**: Diuretic, antinephritic, hepatic, stomachic, antiacid, antiulcerative, anthelmintic, astringent, antidiarrheal, antihaemorrhoidal, cardiotonic, febrifuge, expectorant, antitussive, antirheumatic, antigout, analgesic, anti-inflammatory, anticephalalgic, antidermatitis, antiseptic, vulnerary.	Cytotoxic (El Zalabani et al. 2012), antimicrobial (Souza et al. 2004), antiviral (Wachsman et al. 1988), anti-inflammatory (Souza et al. 2003), CNS depressant, cardiotonic (Barboza et al. 2009), antioxidant (Shahwar et al. 2012), anticonstipation, antidiarrheal (Bukhari et al., 2013).
Cyclolepis genistoides D.Don **PALO AZUL** Southern South America. **HP** [H007] **MT** [H358]	**M**: Diuretic, antinephritic, anti-inflammatory, antirheumatic, antigout, analgesic, muscle relaxant, hepatic, cholagogue, antispasmodic, antitussive, depurative.	Antitumor (Yasukawa 1991; Pisha et al. 1995), diuretic, anti-inflammatory (Sosa et al. 2007, 2011), analgesic (Rondina et al. 2008).
Cynara cardunculus L. [= *C. scolymus* L.] **ALCACHOFA** Mediterranean **HP** [H069] **MT** [H333] **TB** [H093(*)] **TM** [H411] **DS** [H094]	**M**: Hepatic, cholagogue, choleretic, anti-icteric, antilithic, antispasmodic, appetizer, digestive, stomachic, antiacid, antirheumatic, diuretic, antinephritic, hypocholesterolemic, antidiabetic, depurative, hypotensive, slimming, aphrodisiac. **A**: Beverage flavoring. **O**: Edible (leaves, inflorescences), tinctorial.	Antitumor (Conforti et al. 2008; Mileo et al. 2012), antioxidant (Falleh et al. 2008), antimicrobial (Zhu et al. 2004), hypoglycemic (Fantini et al. 2011), antispasmodic (Emendörfer et al. 2005), anti-inflammatory (Kammoun et al. 2010), nephroprotective (Turgut et al. 2008), hepatoprotective (Metwally et al. 2011), hypocholesterolemic (Wider et al. 2009).
Echinacea purpurea (L.) Moench **ECHINÁCEA** North America **HP** [H229] [H280] **MT** [H334] **DS** [A-E1]	**M**: Tonic, immunostimulant, antiseptic, antidote, antiallergic, expectorant, anti-influenza, anti-inflammatory, antitumor, depurative, antidiarrheal, antigonorrheal, skin care, vulnerary, aphrodisiac. **O**: Ornamental, cosmetics.	Antitumor (Skaudickas et al. 2009; Tsai et al. 2012), immunostimulant, antioxidant (Hudson 2012; Mishima et al. 2004), antimicrobial (Canlas et al. 2010), antiviral (Pleschka et al. 2009), anti-cold (Nahas and Balla 2011), anti-inflammatory (Yu et al. 2013).
Flaveria bidentis (L.) Kuntze **CONTRAYERBA** Central and South America **HP** [H343]	**M**: Antidote, febrifuge, antitussive, expectorant, stimulant, tonic, sudorific, diuretic, digestive, stomachic, laxative, anthelmintic, emmenagogue, against leukorrhea, vulnerary, antiseptic. **O**: Tinctorial, insecticide.	Anthelmintic (Pastor and Zelada 2006), antibacterial (Bardón et al. 2007), antiviral (Barboza et al. 2009), antithrombotic, anticoagulant (Guglielmone et al. 2012), antioxidant (Dadé et al. 2009).
Gaillardia megapotamica (Spreng.) Baker **TOPASAIRE** Southern South America **HP** [H148] [P153] **MT** [H351]	**M**: Antialopecic, antiseborrheic, antidandruff, antiseptic, analgesic, antineuralgic, anticephalalgic, digestive, stomachic, expectorant, decongestive, anti-influenza, antiasthmatic, hypotensive.	Antitumor (Bongiovanni et al. 2006), antimicrobial (Rosella et al. 2010), antioxidant, gastroprotective (Barboza et al. 2009; Bucciarelli and Skliar 2007; Petenatti et al. 2004a), analgesic (Rondina et al. 2008).
Gnaphalium gaudichaudianum DC. **VIRA VIRA** Southern South America **HP** [H250]	**M**: Digestive, carminative, hepatic, cholagogue, antispasmodic, anti-inflammatory, depurative, antidote, cardiotonic, diuretic, febrifuge, expectorant, antitussive, vulnerary, emmenagogue, anaphrodisiac.	Antimicrobial, antiviral, antispasmodic (Petenatti et al. 2004b).

Haplopappus rigidus Phil. **BAILA BIEN** Southern South America **HP** [H096] **MT** [H268]	**M**: Aphrodisiac, against male impotence, hepatic, cholagogue, choleretic, digestive, stomachic, carminative, astringent, antidiarrheal, antidysenteric, antiseptic, antitussive, expectorant, antinephritic, antilithic, antirheumatic, emmenagogue.	Cytotoxic, antitumor (Morales et al. 2009), antimicrobial (Morales et al. 2003), vasodilatory (Hnatyszyn et al. 2003), antilithic, hepatoprotective, uterine relaxant (Alonso 2005).
Helianthus annuus L. **GIRASOL** North America **SE** [H408] [H409]	**M**: Slimming, tonic, antioxidant astringent, emollient, expectorant, antiasthmatic, febrifuge, antidiabetic, hypocholesterolemic, depurative, cardiotonic, hypotensive, stomachic, anthelmintic, cathartic, diuretic, antirheumatic, anti-inflammatory, immunostimulant, anticephalalgic, neuroprotective, antinephritic, analgesic, antiseptic, against urinary and respiratory infections, vulnerary, antidermatitis. **O**: Ornamental, oil, edible (seeds).	Antitumor, immunomodulatory (Plohmann et al. 1997), cytotoxic (Bader et al. 1996), antioxidant, antimicrobial (Giada and Mancini-Filho 2009; Subashini and Rakshitha 2012), antiviral (Oliveira et al. 2009), anti-inflammatory (Akihisa et al. 1996), analgesic (Rondina et al. 2008), antiasthmatic (Heo et al. 2008), hypolipidemic (Saini and Sharma 2011).
Helichrysum italicum (Roth) G. Don **CURRY** Mediterranean **FP** [H439(*)]	**M**: Expectorant, antiasthmatic, antitussive, antispasmodic, digestive, choleretic, hepatic, astringent, diuretic, analgesic, antineuralgic, anticephalalgic, anti-inflammatory, antirheumatic, anticoagulant, sedative, antiallergic, antiseptic, antidermatitis, vulnerary. **A**: Food flavoring, perfumery. **O**: Ornamental, insecticide.	Cytotoxic, antimicrobial, antiseptic (Ríos 2008), antiviral (Nostro et al. 2003), anti-inflammatory, antioxidant (Bauer et al. 2010; Sala et al. 2002).
Hieracium pilosella L. [= *Pilosella officinarum* F.W. Schultz & Sch. Bip.] **VELLOSILLA** Europe **DS** [H364]	**M**: Diuretic, antinephritic, slimming, febrifuge, expectorant, antitussive, antiasthmatic, anti-influenza, anti-inflammatory, stomachic, choleretic, cholagogue, astringent, depurative, cardiotonic, hypotensive, antihemorrhagic, emmenagogue, antiseptic, vulnerary.	Antitumor (Gawronska-Grzywacz et al. 2011), anti-inflammatory (Gawronska-Grzywacz and Krzaczek 2006), diuretic (Beaux et al. 1999), antimicrobial (Frey and Meyers 2010), antioxidant (Stanojević et al. 2009).
Matricaria chamomilla L. [= *M. recutita* L.] **MANZANILLA** Eurasia **HP** [C008] [H089] **MT** [H357] **TB** [H016] [H361] **FP** [B427(*)]	Sedative, anxiolytic, hypnotic, mnemonic, tonic, stimulant, digestive, carminative, antispasmodic, emetic, antidiarrheal, antiulcerative, anthelmintic, anti-inflammatory, analgesic, hypocholesterolemic, emollient, expectorant, antitussive, emmenagogue, antinephritic, hypotensive, cardiotonic, febrifugue, vulnerary, antidermatitis, slimming. [Adulterated with *Anthemis cotula* L., *Chamaemelum nobile* (L.) All., *Cladanthus mixtum* (L.) Chevall., *Tanacetum parthenium* (L.) Sch. Bip.] **A**: Beverage flavoring, perfumery. **O**: Cosmetics.	Antitumor (Srivastava and Gupta 2007), immunomodulatory (Ghonime et al. 2011), antibacterial (Shikov et al. 2008), antifungal (Jamalian et al. 2012), antioxidant, hypoglycemic (Cemek et al. 2008), neuroprotective (Ranpariya et al. 2011), anxiolytic, hypnotic (Sarris et al. 2011), antidepressant (Amsterdam et al. 2012), mnemonic (Adams et al. 2007), antiulcerative (Duarte et al. 2011), anti-inflammatory (Zaidi et al. 2012), nephroprotective (Salama 2012), antiallergic (Chandrashekhar et al. 2011), vulnerary (Nayak et al. 2007).
Mikania periplocifolia Hook. & Arn. **GUACO** Southern South America **HP** [H254]	**M**: Diuretic, astringent, antidiabetic, against respiratory and intestinal disorders, expectorant, antitussive, sedative, febrifuge, antirheumatic, antiarthritic, antihydrophobic, antidote, antidermatitis, vulnerary.	Cytotoxic (Barboza et al. 2009), analgesic (Rondina et al. 2008), antioxidant, antifungal (Alonso and Desmarchelier 2005).

Pluchea sagittalis (Lam.) Cabrera **LUCERA-YERBA LUCERA** Southern South America **HP** [C045]	**M**: Tonic, appetizer, stomachic, carminative, laxative, anthelmintic, antispasmodic, hepatic, cholagogue, choleretic, antidiarrheal, febrifuge, antidysenteric, antitussive, diuretic, expectorant, sedative, antirheumatic, antiphlebitis, antigonorrheal, antiseptic, vulnerary, abortifacient. **A**: Beverage flavoring.	Antioxidant, antimicrobial (Souza et al. 2004), anti-inflammatory (Pérez-García et al. 1996), antinociceptive, gastroprotective (Figueredo et al. 2011), analgesic (Rondina et al. 2008), vulnerary (Schmidt et al. 2009).
Porophyllum ruderale (Jacq.) Cass. **QUIRQUIÑA** Caribbean, Central and South America **FP** [B413(*)]	**M**: Antispasmodic, digestive, anti-inflammatory, antiophthalmic, depurative, hemostatic, sudorific, analgesic, antiseptic, vulnerary. **A**: Condiment.	Cytotoxic, antimicrobial (Takahashi et al. 2013), antispasmodic (Alves 1996), antinociceptive, anti-inflammatory (Lima et al. 2011; Souza et al. 2003).
Schkuhria pinnata (Lam.) Kuntze ex Thell. **CANCHALAGUA** America **HP** [H150]	**M**: Slimming, diuretic, digestive, stomachic, hepatic, depurative, resolutive, against respiratory and urinary tract infections, antimalarial, antidiabetic, anti-inflammatory, antirheumatic, antiseptic, antiacne, antidermatitis. **O**: Insect repellent.	Antitumor (Rodrigo et al. 2010), anti-inflammatory, antifungal (Barboza et al. 2009), antibacterial, antiacne (Bussmann et al. 2008; Wagate et al. 2010), antimalarial (Muthaura et al. 2007), hypoglycemic (Deutschländer et al. 2009).
Senecio eriophyton J. Rémy **CHACHACOMA** Argentina, Chile **HP** [P154]	**M**: Tonic, expectorant, antibronchitis, antitussive, antiasthmatic, digestive, hepatic, antinephritic, hypotensive, cardiotonic, altitude sickness, antiseptic, emmenagogue, sedative, hypnotic, against male impotence. **A**: Food and beverage flavoring.	Antimicrobial (Barboza et al. 2009), vasodilatory (Hnatyszyn et al. 2003).
Senecio filaginoides DC. [= *S. albicaulis* Hook. & Arn.] **MATA MORA- VIRA VIRA** South America **HP** [P150]	**M**: Expectorant, anticatarrhal, antitussive, febrifuge, sudorific, emmenagogue, analgesic (bone pain), antiseptic, vulnerary. **A**: Food flavoring.	Antimicrobial (Arancibia et al. 2013).
Senecio nutans Sch. Bip. [= *S. graveolens* Wedd.] **CHACHACOMA DE LA PUNA** South America **HP** [H230]	**M**: Febrifuge, expectorant, antitussive, antiasthmatic, antibronchitis, anti-influenza, digestive, antispasmodic, tonic, altitude sickness, analgesic (bone pain), hypotensive, cardiotonic, sedative, emmenagogue, vulnerary. **A**: Condiment, beverage flavoring.	Cytotoxic, antioxidant, hemolytic, (Lizarraga et al. 2012), antimicrobial (Pérez et al. 1999), analgesic (Rondina et al. 2008), hypotensive (Alonso and Desmarchelier 2005).
Senecio subulatus D. Don ex Hook. & Arn. var. *erectus* Hook. & Arn. **SALVIA DE LA PUNA** Argentina **HP** [H134] **MT** [H360]	**M**: Expectorant, against catarrh, chronic bronchitis, dyspnoea, influenza, antitussive, antiasthmatic, digestive, antispasmodic, astringent, antihemorrhoidal, cardiotonic, anticephalalgic, antiotitis, antisyphilitic.	No data.
Silybum marianum (L.) Gaertn. **CARDO MARIANO** Mediterranean **SE** [H154] **MT** [H354]	**M**: Hepatic (cirrhosis due to chronic hepatitis and alcoholism), choleretic, cholagogue, antilithic, anti-icteric, antitumor, digestive, stimulant, anti-inflammatory, tonic, astringent, antihaemorrhoidal, diuretic, antidote, expectorant, emmenagogue, galactogogue, vulnerary. **O**: Oil (seeds), edible (roots, leaves, inflorescences)	Antitumor (Cheung et al. 2010), anti-inflammatory (Sharifi et al. 2013), immunomodulatory, antioxidant (Das and Mukherjee 2012), antiviral (Wagoner et al. 2010), hypoglycemic (Zhan et al. 2011), galactogogue (Di Pierro et al. 2008), nephroprotective (Turgut et al. 2008), hepatoprotective, hypocholesterolemic (Krecman et al. 1998; Shaker et al. 2010).

Smallanthus sonchifolius (Poepp. & Endl.) H. Rob. **YACÓN** South America **DS** [H286] [H293] **HP** [H332(**)] **MT** [H285] **FR** [H6891(*)]	**M**: Antidiabetic, stimulant, tonic, antitumor, digestive, stomachic, antidiarrheal, anticonstipation, prebiotic, hypocholesterolemic, antioxidant, anti-atherosclerotic, slimming, diuretic, antinephritic, immunostimulant, hypotensive, improving vision, fortifying bones and teeth (Calcium assimilation), skin antiaging, vulnerary. **O**: Edible (roots).	Antitumor (Moura et al. 2012), hypoglycemic (Ayvar et al. 2001), hypolipidemic (Habib et al. 2011), antioxidant (Aguilar and Bonilla 2009), antimicrobial (Choi et al. 2010), immunostimulant (Delgado et al. 2012), prebiotic (Pedreschi et al. 2003), hepatoprotective (Valentová et al. 2004), nephroprotective (Honoré et al. 2012), Calcium assimilation (Lobo et al. 2007).
Stevia rebaudiana (Bertoni) Bertoni **YERBA DULCE-STEVIA** Southern South America **DS** [H116] [H118] [H317] **HP** [H198] [P147] **MT** [H350] **FP** [B415(*)]	**M**: Antidiabetic, emollient, antitussive, appetizer, digestive, anticonstipation, laxative, antiacid, diuretic, cardiotonic, hypotensive, depurative, slimming, vulnerary, antiseptic, skin antiaging, antidermatitis, immunostimulant, anticaries, contraceptive. **O**: Sweetener.	Antitumor (Yasukawa et al., 2002), antioxidant (Shukla et al. 2009), hypoglycemic (Chen et al. 2005), hypotensive (Liu et al. 2003), nephroprotective (Shivanna et al. 2013), immunomodulatory, anti-inflammatory (Boonkaewwan et al. 2006), antimicrobial (Takaki et al. 1985), antiviral (Oliveira et al. 2013), contraceptive (Gil et al. 2008*)*.
Tagetes minuta L. **HUACATAY-SUICO** America **HP** [H415] **FP** [B403(*)]	**M**: Digestive, carminative, cathartic, antispasmodic, anthelmintic, diuretic, depurative, hypotensive, expectorant, antiasthmatic, against urinary and venereal infections, postpartum ailments, neonatal care, sedative, antidepressant, antidandruff, anti-tick, anti-pediculosis, antialopecic, anti-inflammatory, analgesic, antitumor, aphrodisiac, antiabortifacient. **A**: Condiment, beverage flavoring. **O**: Ornamental, tinctorial, insecticide.	Antitumor (Ickes et al. 1973), antimicrobial (Al-Musayeib et al. 2012; Xu et al. 2012), antiviral (Ghaemi et al. 2004), antioxidant (Tereschuk et al. 1997), hypoglycemic (Ranilla et al. 2010), bronchodilatory, expectorant, spasmolytic, anti-inflammatory, hipotensive (Jawla et al. 2010), analgesic (Rondina et al. 2008), antidepressant (Martijena et al. 1998), anti-tick (Nchu et al. 2012).
Tanacetum parthenium (L.) Sch. Bip. **SANTA MARÍA** Europe **HP** [H223]	**M**: Febrifuge, anticephalalgic, anti-inflammatory, antirheumatic, sedative, analgesic, antispasmodic, digestive, carminative, anthelmintic, antiseptic, hypotensive, emmenagogue. [*Matricaria chamomilla* L. adulterant]. **A**: Condiment, beverage flavoring. **O**: Ornamental, insecticide.	Antitumor (Li et al. 2012; Mathema et al. 2012), antioxidant (Fischedick et al. 2012), antimicrobial (Polatoglu et al. 2010), cardiotonic, antispasmodic (Pareek et al. 2011), anti-inflammatory (Williams et al. 1999), anticephalalgic (Vanaclocha and Cañigueral 2003).
Tanacetum vulgare L. **TANACETO** Eurasia **HP** [H214]	**M**: Anthelmintic, antispasmodic, tonic, digestive, carminative, febrifuge, hypotensive, diuretic, antinephritic, antirheumatic, anticephalalgic, antidermatitis, mnemonic, sedative, emmenagogue, abortifacient. **A**: Food and beverage flavoring. **O**: Ornamental, insecticide.	Antitumor (Spjut 2005), cytotoxic (Wegiera et al. 2012), antibacterial (Smirnova et al. 2012), antiviral (Álvarez et al. 2011), antioxidant (Juan-Badaturuge et al. 2009), immunomodulatory (Xie et al. 2007), hypotensive (Lahlou et al. 2008), anti-inflammatory (Williams et al. 1999).
Taraxacum officinale Weber ex F.H. Wigg. **DIENTE DE LEÓN-AMARGÓN** Europe **HP** [C087] [H100] **MT** [H337]	**M**: Hepatic, cholagogue, antilithic, astringent, laxative, febrifuge, anti-icteric, antihaemorrhoidal, diuretic, antinephritic, expectorant, antitumor, antidiabetic, tonic, antidote, anti-inflammatory, slimming, depurative, hypotensive, emmenagogue, antiophthalmic, antirheumatic, antiarthritic, antiseptic, antidermatitis. **A**: Food and beverage flavoring. **O**: Edible (leaves).	Antitumor, cytotoxic, antioxidant (Chun and Kitts 2003; Koo et al. 2004; Sigstedt et al. 2008), immunostimulant (Lee et al. 2012), antimicrobial (Yarnell and Abascal 2009), anti-inflammatory (Jeon et al. 2008), hypoglycemic (Önal et al. 2005), depurative (Modaresi and Resalatpour 2012), hepatoprotective (Mahesh et al. 2010), hypolipidemic (Choi et al. 2010).

Tessaria integrifolia Ruiz & Pav. **PÁJARO BOBO** South America **HP** [H227] [H335] **MT** [H340]	**M**: Febrifuge, astringent, antitussive, antiasthmatic, expectorant, diuretic, antinephritic, hypocholesterolemic, hepatic, laxative, antiallergic, antiseptic (urinary infections), tonic, anti-inflammatory, antirheumatic, analgesic, antiodontalgic, depurative, against prostate and uterus ailments, antigonorrheal, vulnerary. **O**: Paper pulp, timber, ashes for making soap.	Antimicrobial (Vivot et al. 2007), antiviral (Romio and Gurni 2007), anti-inflammatory (Peluso et al. 1995), antioxidant (Ono et al. 2000).
Trixis divaricata (Kunth) Spreng. subsp. *discolor* (D.Don) Katinas [=*T. antimenorrhoea* (Schrank) Kuntze var. *discolor* (D.Don) Cabrera] **CONTRAYERBA** South America **HP** [P146]	**M**: Antidote, febrifuge, sudorific, tonic, depurative, antidiabetic, expectorant, antitussive, antiasthmatic, rubefacient, hypocholesterolemic, vulnerary, antidermatitis, diuretic, antinephritic, antirheumatic, antiarthritic, against paralysis, antiophthalmic, anti-inflammatory, digestive, antiulcerative, antineuralgic, antiamenorrheic, emmenagogue, abortifacient. **O**: Insecticide.	Antioxidant (Mayhua et al. 2012), antiulcerative (Pereira et al. 2005).
Tussilago farfara L. **TUSILAGO** Eurasia and Northern Africa **HP** [H215]	**M**: Emollient, expectorant, antitussive, antiasthmatic, anticatarrhal, against colds, chronic bronchitis, emphysema, chest complaints and other respiratory illness, antiallergic, antispasmodic, astringent, antidiarrheal, stomachic, against gastric diseases, febrifuge, sudorific, depurative, caridotonic, sedative, antiphlebitis, antirheumatic, anti-inflammatory, stimulant, tonic, antiseptic, antidermatitis, vulnerary, abortifacient. **A**: Food and beverage flavoring. **O**: Edible (leaves, inflorescences).	Neuroprotective (Cho et al. 2005), antioxidant (Song et al. 2010), cardiovascular and respiratory stimulant (Li and Wang 1988), antitussive, expectorant (Li et al. 2013), immunostimulant, anti-inflammatory (Hwangbo et al. 2009), antimicrobial (Kokoska et al. 2002).
Xanthium spinosum L. **CEPA CABALLO** Worldwide temperate zones **HP** [H127] **MT** [H344]	**M**: Diuretic, antinephritic, antilithic, digestive, stomachic, antispasmodic, hepatic, choleretic, cholagogue, laxative, emetic, antidiarrheal, antidysenteric, febrifuge, antimalarial, antiphlebitis, anti-atherosclerotic, hypocholesterolemic, depurative, resolutive, antirheumatic, anti-inflammatory, antitussive, against measles, mumps, lung diseases and prostate ailments, antihydrophobic, antiophthalmic, anticephalalgic, sedative, analgesic, emollient, vulnerary, antidermatitis, antiseptic, antigonorrheal, contraceptive, abortifacient. **O**: Tinctorial, coffee substitute (seeds).	Antitumor (Bhakuni et al. 1976; Rodrigo et al. 2010), antimicrobial (Davicino et al. 2007; Ginesta-Peris et al. 1994), antiseptic, diuretic (Gutiérrez Gutiérrez Durán et al. 2011).

References:

Products: **DS**, dietary supplement; **EO**, essential oil; **FP**, fresh plant; **FR**, fresh roots; **HP**, herbal product; **MT**, mother tincture; **OI**, ointment; **PW**: powdered material; **SE**, seeds; **TB**, tea bags; **TM**, tea bags with mixture of herbs for medicinal infusions. *Uses:* **A**, aromatic; **M**, medicinal; **O**, others. *Samples:* (*) only in Bolivian traditional market; (**) only in Chinese markets.

Fresh plants or parts thereof (roots) are sold solely in the context of restricted circuit of immigrant segments: 9 species in the Bolivian market (indicated in **Table 1** with *) and 1 species in a *Barrio Chino* supermarket (indicated in **Table 1** with **). The use of these species is related to their origin traditions, eg medicinal and edible roots of *Smallanthus sonchifolius* consumed in the Andean region, and those of *Arctium lappa* employed in China for the same purposes. The case of fresh plants of *Helichrysum italicum* for sale in the Bolivian market is peculiar. Informants report that it is used as a condiment and for medicinal purposes. It was the only place where these uses were registered. For study area, the plant is better known by the urban inhabitants as aromatic ornamental and it is cultivated in gardens.

The ointment of *Acanthospermum australe* and the tea bags of *Cynara cardunculus* are exclusive of the Bolivian market, imported from Bolivia. Regarding the last of these species, it is marketed in *dietéticas* as tea bags, but mixed with other herbs (not Asteraceae) for making hypocholesterolemic infusions. The tea bags are common in the *dietéticas* because consumers choose them for their easy mode of consumption. These products are highly visible within the nontraditional commercial circuit. The tea bags of *Matricaria chamomilla* are the most widely spread because its sedative effects. Other Asteraceae are found in tea bags with mixture of herbs for medicinal infusions: *Achyrocline satureoides* (digestive), *Cnicus benedictus* (against arthritis) and *Cichorium intybus* (hypotensive).

Fifteen species: *Ambrosia elatior*, *Baccharis salicifolia*, *Chrysanthemum morifolium*, *Flaveria bidentis*, *Gnaphalium gaudichaudianum*, *Mikania periplocifolia*, *Pluchea sagittalis*, *Schkuhria pinnata*, *Senecio eriophyton*, *S. filaginoides*, *S. nutans*, *Tanacetum parthenium*, *T. vulgare*, *Trixis divaricata* subsp. *discolor*, and *Tussilago farfara*, are only marketed as herbal products, and they are found only in a few *dietéticas*. Of these species, *Chrysanthemum morifolium*, *Tanacetum parthenium*, *T. vulgare*, and *Tussilago farfara* are not native to Argentina. The two *Tanacetum* species are growing naturalized in the country. *Chrysanthemum morifolium* is often cultivated as an ornamental. The herbal product of *Tussilago farfara* has been found only in one *dietética*, and it is imported. *Chamaemelum nobile* has only been found as essential oil (imported). As powder, only *Artemisia dracunculus* is expended (spice). From *Silybum marianum*, the seeds are mainly marketed (also as mother tincture). From *Helianthus annuus*, only its seeds are sold.

Of the 50 species surveyed, only 7 are included in the *Farmacopea Argentina* (the official Argentine pharmacopoeia): *Baccharis articulata, B. trimera, Calendula officinalis*, *Cynara cardunculus*, *Matricaria chamomilla*, *Silybum marianum* and *Stevia rebaudiana.* Other 3 species, *Achyrocline satureoides, Arnica montana* and *Baccharis crispa*, are recorded as phytomedicines by the ANMAT: Administración Nacional de Medicamentos, Alimentos y Tecnología Médica (‘National Administration of Drugs, Food and Medical Technology’). Moreover, the agency referred considers toxic (prohibited) 3 species for the same purposes: *Artemisia absinthium, Tanacetum vulgare* and *Tussilago farfara*. The CAA, Código Alimentario Argentino ('Argentine Food Code') includes 9 species: *Artemisia dracunculus*, *Cichorium intybus*, *Cnicus benedictus*, *Cynara cardunculus*, *Helianthus annuus*, *Matricaria chamomilla*, *Smallanthus sonchifolius*, *Stevia rebaudiana* and *Taraxacum officinale*. This code prohibits the use of *Artemisia absinthium*. Also, ANMAT approves the use of *Arctium lappa*, *Calendula officinalis* and *Smallanthus sonchifolius* for dietary supplements produced in the country (ANMAT, 2013). Beyond these specifications, the species products mentioned can be purchased in the conurbation or through the Internet.

Products circulation: The origin of the products is partially clear. Certain products carry a laboratory mark, but it is not explicit the raw materials source. In some cases, herbal products and its tinctures are presumably obtained from wild plants from native species or exotic naturalized (eg *Achillea millefolium*, *Taraxacum officinale*). Others products may come from plants grown in homegardens. According to informants interviewed, plants or parts thereof which are sold fresh in the Bolivian market, come from homegardens located in periurban areas of the conurbation (eg *Baccharis* species, *Stevia rebaudiana*). Bolivian immigrants working in horticultural practices in the periurban sector provide fresh plants to other immigrants of the same origin, which commercialized those plants in the market located in the urban sector. It is registered that *Porophyllum ruderale* and *Tagetes minuta* were cultivated in periurban homegardens from seeds brought from Bolivia (Pochettino et al. 2012a). Furthermore, in the Bolivian market of Liniers different products are entered directly from Bolivia, by land and quickly (48 to 72 hours), to the bus terminal of that neighborhood. Some fresh products could in this way get into the conurbation.

Products imported from Bolivia originally covered the demand for Bolivian and Peruvian communities in Buenos Aires, but in a short time some restricted products to immigrants (invisible) entered the general commercial circuit through the *dietéticas*. The most striking example is that of *Smallanthus sonchifolius*, which in less than a decade (Hurrell et al. 2013), and powered by the mass media, invaded the market with various products, specially dietary supplements. Under this type of product this species got his greatest visibility. *Echinacea purpurea* and *Stevia rebaudiana* are similar cases, but became visible in more than a decade. Other products derived from Asteraceae are visible from a long time in the metropolitan area, including the recent immigrants segments, eg *Achyrocline satureioides*, *Arnica montana*, *Baccharis* species and *Matricaria chamomilla*.

Uses assigned/Effects recorded: **Table 1** presents a wide variety of uses assigned, some with roots in folk medicine, other promoted by the dietéticas and the media. It is noteworthy that the diffusion of the products often combines scientific information about the properties evaluated (generally, only some of them) with the nontraditional revaluation of the uses of plants coming from ‘millenary traditions’. This combination of *tradition* and *innovation* apparently aims to capture the accessions of a diverse set of consumers, that is, a proper selling strategy for urban areas. An example is *Smallanthus sonchifolius* that stores fructooligosaccharides (polymers of fructose), carbohydrates with fewer calories than saccharose, so they do not increase the levels of glucose in the blood, resulting suitable for diabetics and low-calorie diets. Scientific studies validate its traditional use (against diabetes) while making possible promoting a new urban use (for slimming).

Most scientific studies on the medicinal plants effects correspond to cases in vitro or in vivo in animals, so that clinical studies are required in humans. However, the assessment of potential effects is promise for future studies on the prevention and treatment of various diseases. For example, *Haplopappus rigidus* and *Senecio eriophyton* are commercialized to treat male sexual impotence. The activity of the extracts of these plants in animals was evaluated, and the results seem to validate their folk medicinal use, and like authors say: 'open new ways in the search for natural products with vasodilatory effects' (Hnatyszyn et al. 2003). It has to be highlighted that the results of many studies refers to the *potential* effects on humans, not the *scientifically proven*. In this context, many uses that are affirmed and diffused, specially through the Internet, contain inaccurate information.

According to informants interviewed, the inquiries made by consumers about the products to be used refer to a wide range of possible effects. Many people flock to the *dietéticas* to acquire plant products to treat specific ailments: digestive, hepatic, diuretic, antidermatitis, antiarthritic, antirheumatic, and anti-inflammatory, among others. But also, many informants considered very relevant some plant products that are in high demand, probably due to the excessive media propaganda: slimming, aphrodisiacs and/or sexual performance optimizers, and against stress. These so widespread uses reveal an underlying set of requirements and interests related to living in large metropolitan areas.

Slimming products relate to the aesthetic aspects as well as therapeutic also, in order to treat obesity. Of the 50 Asteraceae species surveyed, 10 (20%) are used for slimming: *Achyrocline satureoides, Cichorium intybus, Cynara cardunculus, Helianthus annuus, Hieracium pilosella, Matricaria chamomilla, Schkuhria pinnata, Smallanthus sonchifolius, Stevia rebaudiana*, and *Taraxacum officinale.* Of this group only one species, *Cichorium intybus*, has been identified for treatment against obesity (Vasudeva et al. 2012). In the other cases the use as slimming can be linked with other researched effects, eg diuretic, hypoglycemic, and hypolipidemic.

Human sexuality is a complex phenomenon that involves several aspects: biological, psychological, social, cultural. Also, the concept of *aphrodisiac*, as a stimulant of sexual desire, is associated with one or more of these aspects. In general, plant products considered aphrodisiacs are consumed to promote and facilitate sexual unions. Aphrodisiacs are also related with plant products considered sexual performance optimizers, in particular, those who act against male impotence. Of the 50 Asteraceae species surveyed, 8 of them (16%) are used as aphrodisiacs: *Artemisia absinthium, Baccharis articulata, B. crispa, B. trimera, Cynara cardunculus, Echinacea purpurea, Haplopappus rigidus, Tagetes minuta.* Of these species, *Baccharis articulata, B. crispa, B. trimera* and *Haplopappus rigidus* are also used against male impotence. This use is likewise assigned to *Senecio eriophyton*. As mentioned before, only *Haplopappus rigidus* and *Senecio eriophyton* were surveyed about their use related to male impotence. Only one species, *Gnaphalium gaudichaudianum,* is considered anaphrodisiac.

It is noteworthy that sexuality also includes other aspects linked to human reproduction that involve other uses, such as contraceptive, abortifacient, against male and female infertility, against birth and postpartum ailments, postpartum recovery, neonatal care, galactogogue. Uses related to the reproductive organs should be also considered, as emmenagogue, antiamenorrheic, against specific diseases (eg prostate cancer) and venereal infections. This complex system of uses related to human reproduction will be grounds for a future contribution. However, it is remarkable the number of species used as abortifacient and/or contraceptive: *Acanthospermum australe, Ambrosia elatior*, *Artemisia absinthium, Baccharis articulata*, *Baccharis trimera, Cnicus benedictus, Pluchea sagittalis, Stevia rebaudiana*, *Tanacetum vulgare, Trixis divaricata* subsp. *discolor, Tussilago farfara* and *Xanthium spinosum* (12 species: 24% of the total). Only for *Ambrosia elatior* and *Stevia rebaudiana* its contraceptive activity was analyzed. One species, *Tagetes minuta,* is considered antiabortifacient.

Stress is the organism's response to situations perceived as threatening or as increased demands that may cause the appearance of functional anomalies and generate emotional dysfunctions, like mood alterations, nervousness, anxiety, insomnia, lost of memory and lack of concentration, among others. In this context, in treating against stress various uses such as sedative, anxiolytic, antidepressant,

hypnotic, and/or mnemonic are included. These uses are assigned to 18 of the 50 Asteraceae species surveyed (36%): *Achyrocline satureoides, Helichrysum italicum, Mikania periplocifolia, Pluchea sagittalis, Senecio nutans, Tanacetum parthenium, Tussilago farfara, Xanthium spinosum* (sedative), *Acanthospermum australe, Acanthostyles buniifolius, Chrysanthemum morifolium, Senecio eriophyton* (sedative, hypnotic), *Achillea millefolium, Chamaemelum nobile* (sedative, anxiolytic), *Tagetes minuta* (sedative, antidepressant), *Tanacetum vulgare* (sedative, mnemonic), *Artemisia absinthium* (hypnotic, mnemonic), and *Matricaria chamomilla* (sedative, anxiolytic, hypnotic, mnemonic). Of this set of species and uses assigned, the effects have been studied for only 6 species: *Matricaria chamomilla* (sedative, anxiolytic, hypnotic, mnemonic), *Chamaemelum nobile* (sedative, anxiolytic), *Acanthostyles buniifolius* and *Chrysanthemum morifolium* (hypnotic), *Achillea millefolium* (anxiolytic) and *Tagetes minuta* (antidepressant). *Matricaria chamomilla* is the species most widespread and more frequently commercialized for these purposes.

Finally, although it is true that for many of the species assessed there are information about its effects and biological activity (eg *Achyrocline satureoides*, *Matricaria chamomilla*, *Smallanthus sonchifolius*, *Stevia rebaudiana*), for other species would be required different studies to validate the uses assigned to them (eg *Baccharis* and *Senecio* species, *Tessaria integrifolia, Trixis divaricata* subsp. *discolor*). In this sense, it is known that the basic ethnobotanical researches make it possible a register of species and its therapeutic uses, to guide the search of new active principles with pharmacological applications. This is valid for both traditional uses and the uses assigned in urban scenarios. Facing the future, some significant effects scientifically recorded for Asteraceae are: antimicrobial (43 species: 86% of the total), antioxidant (38 species: 76%), antitumor and cytotoxic (35 species: 70%), antiviral (20 species: 40%, including anti-HIV: eg *Acanthostyles buniifolius, Calendula officinalis, Chrysanthemum morifolium*), hypoglycemic and antidiabetic (15 species: 30%), immunomodulatory and immunostimulant (13 species: 26%), hipolipidemic and hypocholesterolemic (6 species: 12%).

Conclusions

This contribution shows results of ongoing research line on urban ethnobotany related to medicinal and/or aromatic Asteraceae in the conurbation Buenos Aires-La Plata, Argentina. **Table 1** itself is a description of the available data on species, its products, uses assigned and effects and biological activity studied. About the species and its products, the data come from fieldwork. Assigned uses are derived from both fieldworks as the literature reviewed and the information presented in different labels, leaflets, catalogs and advertisements. The biological activity and the effects studied come from the literature review.

Data interpretation aims to assess the composition of urban botanical knowledge in relation to plant products circulating. For this, it is assumed that the botanical knowledge guides the selection of those products. The species and products exclusive of the immigrant segments (Bolivian and Chinese) are linked to their traditions of origin, although the same species may be represented in nontraditional commercial circuit through other products. For evaluated Asteraceae, fresh plants or parts thereof of *Arctium lappa, Baccharis articulata* or *Matricaria chamomilla* are examples of exclusive products that are related to knowledge linked to traditions (invisible for most of urban population). But herbal products or tinctures derived of those species are frequent plants products into the *dietéticas*, hence are

visible for most of urban population. *Smallanthus sonchifolius* and *Stevia rebaudiana* are examples of species whose very varied products are sold in the general commercial circuit, ie are *visible*. However the presence of fresh products in the Bolivian market (invisible) suggests that species have gained visibility in the urban scenario. From a temporal standpoint, the visualization process is fast in pluricultural contexts: just in one or two decades the products of those species have invaded the general commercial circuit. Its high demand is due to the mass media, including the Internet, that disseminate its uses. On the other hand, some species remain until now invisible, eg *Porophyllum ruderale*, only found in the Bolivian market, despite having active compounds with diverse interesting effects, like antimicrobial, antinociceptive, anti-inflammatory, cytotoxic.

The role of the media is expansive on the botanical knowledge and guides the selection of plant products. But, at the same time, offer new sale arguments (as new uses derived from scientific studies or from traditional uses little known before) and acquire a recursive role: the knowledge guides the consumption which increases the demand, and this feeds back on knowledge, which reorients the consumption. For example, *Smallanthus sonchifolius* was traditionally used for cases of diabetes, and people know now that it also has hypoglycemic effect and may be considered as slimming, as well as a promising phytotherapic medicine for antitumor treatments. This recursiveness between knowledge and behavior is at the base of the urban botanical knowledge dynamics, in which ancient uses are resignified and new uses are added into the urban context. Thereby, the botanical knowledge system adapts and evolves.

The Asteraceae family, with so diverse applications, particularly as aromatic and/or medicinal plants, is an interesting reference group to obtain information about the composition and dynamic of urban botanical knowledge. As well as it has the major number of native taxa used in popular medicine in Argentina, also it has the highest number of taxa whose products are marketed in the metropolitan Buenos Aires-La Plata. In connection with the uses assigned and the effects analyzed, although many species have been the subject of several evaluations about its principles with biological activity, even many other species need to be evaluated. Data provided by this contribution may encourage further studies in this direction. Thus it may provide a more solid basis for many uses assigned and above all, avoid misinformation about the medicinal properties of many species.

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References

AABA (2013) **Atlas Ambiental de Buenos Aires. Museo Argentino de Ciencias Naturales** [http://www.atlasdebuenosaires.gov.ar] Accessed 25 April 2013.

Abdelhamed S, Yokoyama S, Hafiyani L, Kalauni SK, Hayakawa Y, Awale S, Saiki I (2013) **Identification of plant extracts sensitizing breast cancer cells to TRAIL**. *Oncology Reports* 2013, doi: 10.3892/or.2013.2293.

Adams M, Gmunder F, Hamburger M (2007) **Plants traditionally used in age related brain disorders. A survey of ethnobotanical literature**. *Journal of Ethnopharmacology* 113(3):363-381.

Aguilar F, Bonilla P (2009) **Actividad antioxidante e inmunológica de flavonoides aislados de hojas de *Smallanthus sonchifolius* (yacón)**. *Ciencia e Investigación* 12(1):15-23.

Akihisa T, Yasukawa K, Oinuma H, Kasahara Y, Yamanouchi S, Takido M, Kumaki K, Tamura T (1996) **Triterpene alcohols from the flowers of compositae and their anti-inflammatory effects**. *Phytochemistry* 43(6):1255-1260.

Akihisa T, Franzblau SG, Ukiya M, Okuda H, Zhang F, Yasukawa K, Suzuki T, Kimura Y (2005) **Antitubercular activity of triterpenoids from Asteraceae flowers**. *Biological and Pharmaceutical Bulletin* 28(1):158-160.

Al-Musayeib NM, Mothana RA, Matheeussen A, Cos P, Maes L (2012) **In vitro antiplasmodial, antileishmanial and antitrypanosomal activities of selected medicinal plants used in the traditional Arabian Peninsular region**. *BMC Complementary and Alternative Medicine* 12:49, doi: 10.1186/1472-6882-12-49.

Albuquerque U, Lucena RF (2004) **Métodos e técnicas na pesquisa etnobotânica.** NUPEEA, Recife.

Albuquerque UP, Hurrell JA (2010) **Ethnobotany: one concept and many interpretations**. In: Albuquerque UP, Hanazaki N (eds) Recent developments and case studies in Ethnobotany. SBEE/NUPEEA, Recife, pp. 87-99.

Alexíades MN, Sheldon JW (1996) **Selected guidelines for ethnobotanical research: a field manual.** The New York Botanical Garden, New York.

Almeida AB, Sánchez-Hidalgo M, Martín AR, Luiz-Ferreira A, Trigo JR, Vilegas W, dos Santos LC, Souza-Brito AR, de la Lastra CA (2013) **Anti-inflammatory intestinal activity of *Arctium lappa* L. (Asteraceae) in TNBS colitis model**. *Journal of Ethnopharmacology* 146(1):300-310.

Alonso J (2005) **Monografía: Baylahuén, *Haplopappus rigidus* Phil**. *Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas* 4(3):60-63.

Alonso J. Desmarchelier C (2005) **Plantas medicinales autóctonas de la Argentina**. Lola, Buenos Aires.

Álvarez A, Habtemariam S, Juan-Badaturuge M, Jackson C, Parra F (2011) **In vitro anti HSV-1 and HSV-2 activity of *Tanacetum vulgare* extracts and isolated compounds: An approach to their mechanisms of action**. *Phytotherapy Research* 25(2):296-301.

Alves D (1996) **Estudo fitoquímico e efeitos analgésicos da *Porophyllum ruderale***. Universidade Estadual de Campinas, Piracicaba.

Amat N, Upur H, Blazeković B (2010) **In vivo hepatoprotective activity of the aqueous extract of *Artemisia absinthium* L. against chemically and immunologically induced liver injuries in mice**. *Journal of Ethnopharmacology* 131(2):478-484.

Amsterdam JD, Shults J, Soeller I, Mao JJ, Rockwell K, Newberg AB (2012) **Chamomile (*Matricaria recutita*) may provide antidepressant activity in anxious, depressed humans: an exploratory study**. *Alternative Therapies in Health and Medicine* 18(5):44-49.

Aqil F, Ahmad I (2007) **Antibacterial properties of traditionally used Indian medicinal plants**. *Methods and Findings in Experimental and Clinical Pharmacology* 29(2):79-92.

Arancibia L, Naspi C. Pucci G, Arce M (2013) **Biological activity of a furanoeremophilane isolated from *Senecio filaginoides* var. *filaginoides***. *Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas* 12(1):18-23.

Arenas PM, Cristina I, Puentes JP, Buet Costantino F, Hurrell JA, Pochettino ML (2011) **Adaptógenos: plantas medicinales tradicionales comercializadas como suplementos dietéticos en la conurbación Buenos Aires-La Plata (Argentina)**. *Bonplandia (Corrientes)* 20(2):251-264.

Atta A, Elkoly T, Mouneir S, Kamel G, Alwabel N, Zaher S (2010) **Hepatoprotective effect of methanol extracts of *Zingiber officinale* and *Cichorium intybus***. *Indian Journal of Pharmaceutical Sciences* 72(5):564-570.

Ayvar M, Sánchez Riera A, Grau A, Sánchez S (2001) **Hypoglycemic effect of the water extract of *Smallanthus sonchifolius* (yacon) leaves in normal and diabetic rats**. *Journal of Ethnopharmacology* 74(2):125-132.

Bader G, Plohmann B, Hiller K, Franz G (1996) **Cytotoxicity of triterpenoid saponins. 1: Activities against tumor cells in vitro and hemolytical index**. *Pharmazie* 5(6):414-417.

Bail S, Buchbauer G, Jirovetz L, Denkova Z, Slavchev A, Stoyanova A, Schmidt E, Geissler M (2009) **Antimicrobial activities of Roman Chamomile oil from France and its main compounds**. *Journal of Essential Oil Research* 21(3):283-286.

Barboza G, Cantero J, Nuñez CO, Pacciaroni A, Ariza Espinar L (2009) **Medicinal plants: A general review and a phytochemical and ethnopharmacological screening of the native Argentine Flora**. *Kurtziana* 34(1-2):7-365.

Bardón A, Borkosky S, Ybarra MI, Montanaro S, Cartagena E (2007) **Bioactive plants from Argentina and Bolivia.** *Fitoterapia* 78(3):227-231.

Baretta I, Felizardo R, Bimbato V, dos Santos M, Kassuya C, Gasparotto J, da Silva C, de Oliveira S, Ferreira J, Andreatini R (2012) **Anxiolytic-like effects of acute and chronic treatment with *Achillea millefolium* L. extract**. *Journal of Ethnopharmacology* 140(1):46-54.

Barioni ED, Santin JR, Machado ID, Rodrigues SF, Ferraz-de-Paula V, Wagner TM, Cogliati B, Corrêa Dos Santos M, Machado Mda S, de Andrade SF, Niero R, Farsky SH (2013) ***Achyrocline satureioides* (Lam.) D.C. Hydroalcoholic extract inhibits neutrophil functions related to innate host defense**. *Evid-Based Complementary and Alternative Medicine* 2013, doi: 10.1155/2013/787916.

Barsky A (2005) **El periurbano productivo: un espacio en constante transformación. Introducción al estado del debate y referencias al caso de Buenos Aires**. *Scripta Nova (Barcelona)* 9(194):36 (1 August 2005).

Barsky A (2010) **La agricultura de 'cercanías' a la ciudad y los ciclos del territorio periurbano. Reflexiones sobre el caso de la Región Metropolitana de Buenos Aires**. In Svetlitza de Nemirovsky (ed), Agricultura periurbana en Argentina y globalización. FLACSO, Buenos Aires, pp. 15-29.

Bauer J, Dehm F, Koeberle A, Pollastro F, Appendino G, Rossi A, Sautebin L, Werz O (2010) **In vitro and in vivo evaluation of the anti-inflammatory effects of arzanol from *Helichrysum italicum*.** *Planta Medica* 76:P071, doi: 10.1055/s-0030-1264369.

Beaux D, Fleurentin J, Mortier F (1999) **Effect of extracts of *Orthosiphon stamineus*, *Hieracium pilosella*, *Sambucus nigra* and *Arctostaphylos uva-ursi* in rats**. *Phytotherapy Research* 13(3):222-225.

Benedek B, Geisz N, Jäger W, Thalhammer T, Kopp B (2006) **Choleretic effects of yarrow (*Achillea millefolium* s.l.) in the isolated perfused rat liver**. *Phytomedicine* 13(9-10):702-706.

Benli M, Kaya I, Yigit N (2007) **Screening antimicrobial activity of various extracts of *Artemisia dracunculus* L**. *Cell Biochemistry and Function* 25(6):681-686.

Bhakuni DS, Bittner M, Marticorena C, Silva M, Weldt E, Hoeneisen M (1976) **Screening of Chilean plants for anticancer activity**. *Lloydia* 39:225-243.

Bogado Bordazar L (2003) **Migraciones internacionales: influencia de la migración china en Argentina y Uruguay**. Thesis 12. Facultad de Ciencias Jurídicas y Sociales, Universidad Nacional de La Plata, La Plata.

Bongiovanni G, Luchino N, Palacio L, Eynard A, Cantero J, Goleniowski M (2006) **In vitro antitumoral activity determination of native plant extracts of the central region of Argentina**. *Molecular Medicinal Chemistry* 10:22-23.

Boonkaewwan C, Toskulkao C, Vongsakul M (2006) **Anti-Inflammatory and immunomodulatory activities of stevioside and its metabolite steviol on THP-1 cells**. *Journal of Agricultural and Food Chemistry* 54(3):785-789.

Bora KS, Sharma A (2010) **Neuroprotective effect of *Artemisia absinthium* L. on focal ischemia and reperfusion-induced cerebral injury**. *Journal of Ethnopharmacology* 129(3):403-409.

Broide DH (2009) **Immunomodulation of allergic disease.** *Annual Review of Medicine* 60:279-291.

Bucciarelli A, Skliar MI (2007) **Plantas medicinales de Argentina con actividad gastroprotectora**. *Ars Pharmaceutica* 48(4):361-369.

Bukhari IA, Shah AJ, Khan RA, Meo SA, Khan A, Gilani AH (2013) **Gut modulator effects of *Conyza bonariensis* explain its traditional use in constipation and diarrhea.** *European Review for Medical and Pharmacological Sciences* 17(4):552-558.

Burgstaller CH (1968) **La vuelta a los vegetales**. 2nd ed. Burgstaller, Buenos Aires.

Bussmann RW, Sharon D, Díaz D, Barocio Y (2008) **Peruvian plants canchalagua (*Schkuhria pinnata* (Lam.) Kuntze), hercampuri (*Gentianella alborosea* (Gilg.) Fabris), and corpus way (*Gentianella bicolor* (Wedd.) J. Pringle) prove to be effective in the treatment of acne**. *Arnaldoa* 15(1):149-152**.**

Butnariu M, Coradini C (2012) **Evaluation of biologically active compounds from *Calendula officinalis* flowers using spectro-photometry**. *Chemistry Central Journal* 6(1):35.

Canlas J, Hudson JB, Sharma M, Nandan D (2010) ***Echinacea* and trypanasomatid parasite interactions: Growth-inhibitory and anti-inflammatory effects of *Echinacea***. *Pharmaceutical Biology* 48(9):1047-1052.

Carvalho LH, Krettli AU (1991) **Antimalarial chemotherapy with natural products and chemically defined molecules**. *Memórias do Instituto Oswaldo Cruz* 86(Suppl 2):181-184.

Casero C, Estévez-Braun A, Ravelo AG, Demo M, Méndez-Álvarez S, Machín F (2013) **Achyrofuran is an antibacterial agent capable of killing methicillin-resistant vancomycin-intermediate *Staphylococcus aureus* in the nanomolar range**. *Phytomedicine* 20(2):133-138.

Cemek M, Kağa S, Şimşek N, Büyüko M, Konuk M (2008) **Antihyperglycemic and antioxidative potential of *Matricaria chamomilla* in streptozotocin-induced diabetic rats**. *Journal of Natural Medicines* 62(3):284-293.

Cerrutti M (2009) **Diagnóstico de las poblaciones de inmigrantes en la Argentina**. Dirección Nacional de Población, Buenos Aires.

Ceuterick M, Vandebroek I, Torrya B, Pieroni, A (2008) **Cross-cultural adaptation in urban ethnobotany. The Colombian folk pharmacopoeia in London**. *Journal of Ethnopharmacology* 120(3): 342-359.

Chalchat JC, Maksimović Z, Petrović S, Gorunović M, Đorđević S, Mraović M (2004) **Chemical composition and antimicrobial activity of *Ambrosia artemisiifolia* L. essential oil**. *Journal of Essential Oil Research* 16:270-273.

Chan YS, Cheng LN, Wu JH, Chan E, Kwan YW, Lee SM, Leung GP, Yu PH, Chan SW (2011) **A review of the pharmacological effects of *Arctium lappa***. *Inflammopharmacology* 19(5):245-254.

Chandrashekhar VM, Halagali KS, Nidavani RB, Shalavadi MH, Biradar BS, Biswas D, Muchchandi IS (2011) **Anti-allergic activity of German chamomile (*Matricaria recutita* L.) in mast cell mediated allergy model**. *Journal of Ethnopharmacology* 137(1):336-340.

Chen T, Chen S, Chan P, Chu Y, Yang H, Cheng J (2005) **Mechanism of the hypoglycemic effect of stevioside, a glycoside of *Stevia rebaudiana***. *Planta Medica* 7:108-113.

Cheung C, Gibbons N, Johnson D, Nicol D (2010) **Silibinin, a promising new treatment for cancer**. *Anti-Cancer Agents in Medicinal Chemistry* 10(3):186-195.

Cho J, Kim H, Ryu J, Jeong Y, Lee Y, Jin C (2005) **Neuroprotective and antioxidant effects of the ethyl acetate fraction prepared from *Tussilago farfara* L.** *Biological and Pharmaceutical Bulletin* 28(3):455-460.

Choi JG, Kang OH, Lee YS, Oh YC, Chae HS, Obiang-Obounou B, Park SC, Shin D, Hwang BY, Kwon DY (2010) **Antimicrobial activity of the constituents of *Smallanthus sonchifolius* leaves against methicillin-resistant *Staphylococcus aureus***. *European Review for Medical and Pharmacological Sciences* 14(12):1005-1009.

Choi UK, Lee OH, Yim JH, Cho CW, Rhee YK, Lim SI, Kim YC (2010) **Hypolipidemic and antioxidant effects of dandelion (*Taraxacum officinale*) root and leaf on cholesterol-fed rabbits**. *International Journal of Molecular Sciences* 11(1):67-78.

Chun H, Kitts D (2003) **Antioxidant, pro-oxidant, and cytotoxic activities of solvent-fractionated dandelion flower extracts in vitro**. *Journal of Agricultural and Food Chemistry* 51:301-310.

Conforti F, Ioele G, Statti G, Marrelli M, Ragno G, Menichin F (2008) **Anti-proliferative activity against human tumor cell lines and toxicity test on Mediterranean dietary plants**. *Food and Chemical Toxicology* 46(10):3325-3332.

Cosentino M, Bombelli R, Carcano E, Luini A, Marino F, Crema F, Dajas F, Lecchini S (2008) **Immunomodulatory properties of *Achyrocline satureioides* (Lam.) DC. infusion: a study on human leukocytes**. *Journal of Ethnopharmacology* 116(3):501-507.

Craciunescu O, Constantin D, Gaspar A, Toma L, Utoiu E, Moldovan L (2012) **Evaluation of antioxidant and cytoprotective activities of *Arnica montana* L. and *Artemisia absinthium* L. ethanolic extracts**. *Chemistry Central Journal* 6(1):97.

Csupor-Löffler B, Hajdú Z, Zupkó I, Réthy B, Falkay G, Forgo P, Hohmann J (2009) **Antiproliferative effect of flavonoids and sesquiterpenoids from *Achillea***

***millefolium* on cultured human tumour cell lines**. *Phytotherapy Research* 23(5):672-676.

Cunningham AB (2001) **Etnobotánica Aplicada. Pueblos, uso de plantas silvestres y conservación**. Nordan-Comunidad, Montevideo.

Dadé MM, Fioravanti DE, Schinella GR, Tournier HA (2009) **Total antioxidant capacity and polyphenol content of 21 aqueous extracts obtained from native plants of Traslasierra valley (Argentina)**. *Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas* 8(6):529-539.

Dall'Acqua S, Bolego C, Cignarella A, Gaion RM, Innocenti G (2011) **Vasoprotective activity of standardized *Achillea millefolium* extract**. *Phytomedicine* 18(12):1031-1036.

Das SK, Mukherjee S (2012) **Biochemical and immunological basis of silymarin effect, a milk thistle (*Silybum marianum*) against ethanol-induced oxidative damage**. *Toxicology Mechanisms and Methods* 22(5):409-413.

Davicino R, Mattar M, Casali Y, Correa S, Pettenati E, Micalizzi B (2007) **Actividad antifúngica de extractos de plantas usadas en medicina popular en Argentina**. *Revista Peruana de Biología* 14(2):247-251.

Delgado GT, Thomé R, Gabriel DL, Tamashiro WM, Pastore GM (2012) **Yacon (*Smallanthus sonchifolius*) derived fructooligosaccharides improves the immune parameters in the mouse**. *Nutrition Research* 32(11):884-892.

Desmarchelier C, Novoa Bermúdez MJ, Coussio JD, Nadinic EL, Debenedetti SL, Ciccia C, Boveris A (1994) **Búsqueda de nuevos antioxidantes naturales**. *Anales Sociedad Argentina para la Investigación de Productos Aromáticos* 14:315-319.

Deutschländer M, van de Venter M, Roux S, Louw J, Lal N (2009) **Hypoglycemic activity of four plant extracts traditionally used in South Africa for diabetes**. *Journal of Ethnopharmacology* 124(3):619-624.

Di Pierro F, Callegari A, Carotenuto D, Mollo Tapia M (2008) **Clinical efficacy, safety and tolerability of BIO-C (micronized silymarin) as a galactagogue**. *Acta Biomedica* 79:205-210.

Dos Santos AC, Baggio CH, Freitas CS, Lepieszynski J, Mayer B, Twardowschy A, Missau FC, Santos EP, Pizzolatti MG, Marques MC (2008) **Gastroprotective activity of the chloroform extract of the roots from *Arctium lappa* L.** *Journal of Pharmacy and Pharmacology* 60(6):795-801.

Duarte CM, Quirino MR, Patrocínio MC, Anbinder AL (2011) **Effects of *Chamomilla recutita* (L.) on oral wound healing in rats**. *Medicina Oral, Patologia Oral y Cirugia Bucal* 16(6):e716-e721.

Duarte MC, Figueira GM, Sartoratto A, Rehder VL, Delarmelina C (2005) **Anti-Candida activity of Brazilian medicinal plants**. *Journal of Ethnopharmacology* 97(2):305-311.

El Zalabani SM, Hetta MH, Ismail AS (2012) **Genetic profiling, chemical characterization and biological evaluation of two *Conyza* species growing in Egypt**. *Journal of Applied Pharmaceutical Science* 2(11):054-061.

Emendörfer F, Emendörfer F, Bellato F, Noldin VF, Cechinel-Filho V, Yunes RA, Delle Monache F, Cardozo AM (2005) **Antispasmodic activity of fractions and cynaropicrin from *Cynara scolymus* on guinea-pig ileum**. *Biological and Pharmaceutical Bulletin* 28(5):902-904.

Espiña DC, Carvalho FB, Zanini D, Schlemmer JB, Coracini JD, Rubin MA, Morsch VM, Schetinger MR, Leal DB, Baiotto CR, Jaques JA (2012) **A more accurate**

profile of *Achyrocline satureioides* hypocholesterolemic activity. *Cell Biochemistry and Function* 30(4): 347-353.

Falconieri D, Piras A, Porcedda S, Marongiu B, Gonçalves M, Cabral C, Cavaleiro C, Salgueiro L (2011) **Chemical composition and biological activity of the volatile extracts of *Achillea millefolium***. *Natural Product Communications* 6(10):1527-1430.

Falleh H, Ksouri R, Chaieb K, Karray-Bouraoui N, Trabelsi N, Boulaaba M, Abdelly C (2008) **Phenolic composition of *Cynara cardunculus* L. organs, and their biological activities**. *Comptes Rendus Biologies* 331(5):372-379.

Fantini N, Colombo G, Giori A, Riva A, Morazzoni P, Bombardelli E, Carai MA (2011) **Evidence of glycemia-lowering effect by a *Cynara scolymus* L. extract in normal and obese rats**. *Phytotherapy Research* 25(3):463-466.

Fernández T, Cerdá Zolezzi P, Risco E, Martino V, López P, Clavin M, Hnatyszyn O, Canigueral S, Hajos S, Ferraro G, Alvarez E (2002) **Immunomodulating properties of Argentine plants with ethnomedicinal use**. *Phytomedicine* 9(6):546-552.

Figueredo SM, do Nascimento FP, Freitas CS, Baggio CH, Soldi C, Pizzolatti MG, de Ibarrola Mdel C, Arrua RL, Santos AR (2011) **Antinociceptive and gastroprotective actions of ethanolic extract from *Pluchea sagittalis* (Lam.) Cabrera**. *Journal of Ethnopharmacology* 135(3):603-609.

Fischedick JT, Standiford M, Johnson DA, De Vos RC, Todorović S, Banjanac T, Verpoorte R, Johnson JA (2012) **Activation of antioxidant response element in mouse primary cortical cultures with sesquiterpene lactones isolated from *Tanacetum parthenium***. *Planta Medica* 78(16):1725-1730.

Fonseca Y, Catini C, Vicentini F, Nomizo A, Gerlach R, Fonseca M (2010) **Protective effect of *Calendula officinalis* extract against UVB-induced oxidative stress in skin: evaluation of reduced glutathione levels and matrix metalloproteinase secretion**. *Journal of Ethnopharmacology* 127(3):596-601.

Forstall RL, Greene RP, Pick JB (2004) **Which are the largest?** City Futures Conference, University of Illinois, Chicago.

Foster JG, Cassida K, Turner K (2011) **In vitro analysis of the anthelmintic activity of forage chicory (*Cichorium intybus*) sesquiterpene lactones against a predominantly *Haemonchus contortus* egg population**. *Veterinary Parasitology* 180:298-306.

Freire SE, Urtubey E (1999a). **Compuestas Medicinales de la Provincia Biogeográfica Pampeana. Claves para su Determinación e Iconografías. Parte I**. *Acta Farmacéutica Bonaerense* 18(3):191-199.

Freire SE, Urtubey E (1999b). **Compuestas Medicinales de la Provincia Biogeográfica Pampeana. Claves para su Determinación e Iconografías. Parte II**. *Acta Farmacéutica Bonaerense* 18(4):283-294.

Freire SE, Urtubey E (2000a) **Compuestas Medicinales de la Provincia Biogeográfica Pampeana. Claves para su Determinación e Iconografías. Parte III**. *Acta Farmacéutica Bonaerense* 19(1):13-16.

Freire SE, Urtubey E (2000b) **Compuestas Medicinales de la Provincia Biogeográfica Pampeana. Claves para su Determinación e Iconografías. Parte IV**. *Acta Farmacéutica Bonaerense* 19(2):85-90.

Freire SE, Urtubey E (2000c) **Compuestas Medicinales de la Provincia Biogeográfica Pampeana. Claves para su Determinación e Iconografías. Parte V**. *Acta Farmacéutica Bonaerense* 19(3):165-184.

Frey FM, Meyers R (2010) **Antibacterial activity of traditional medicinal plants used by Haudenosaunee peoples of New York State**. *BMC Complementary and Alternative Medicine* 10:64, doi: 10.1186/1472-6882-10-64.

Gawronska-Grzywacz M, Krzaczek T (2006) **Sterol composition from inflorescens of *Hieracium pilosella* L**. *Acta Societatis Botanicorum Poloniae* 75(1):29-32.

Gawronska-Grzywacz M, Krzaczek T, Nowak R, Los, R, Malm A, Cyranka M, Rzeski W (2011) **Biological activity of new flavonoid from *Hieracium pilosella* L**. *Central European Journal of Biology* 6(3):27-404.

Gemini M (2003) **¿Qué es el Gran Buenos Aires?** Instituto Nacional de Estadística y Censos (INDEC), Buenos Aires.

Gené RM, Marin E, Adzet T (1992) **Anti-inflammatory effect of aqueous extracts of three species of the genus *Baccharis***. *Planta Medica* 58:565-566.

Gené RM, Cartaña C, Adzet T, Marin E, Parella T, Cañigueral S (1996) **Anti-Inflammatory and analgesic activity of *Baccharis trimera*: Identification of its active constituents**. *Planta Medica* 62:232-235.

Ghaemi A, Soleimanjahi H, Farsbaf Mogahddam M, Omidbaigi R, Pourbaig MVM (2004) **Antiviral activity of root extracts from *Tagetes minuta* against Herpes simplex virus (HSV-1)**. *Iranian Journal of Pharmaceutical Research* 3(Suppl. 2):72.

Ghonime M, Eldomany R, Abdelaziz A, Soliman H (2011) **Evaluation of immunomodulatory effect of three herbal plants growing in Egypt**. *Immunopharmacology and Immunotoxicology* 33(1):141-145.

Giada MD, Mancini-Filho J (2009) **Antioxidant capacity of the striped sunflower (*Helianthus annuus*) seed extracts evaluated by three in vitro methods**. *International Journal of Food Sciences and Nutrition* 60(5):395-401.

Gianello JC, Cenal JP, Giordano OS, Tonn CE, Petenatti ME, Petenatti EM, Del Vitto LA (2000). **Medicamentos herbarios en el Centro-oeste Argentino. II. 'Carquejas»: control de calidad de las drogas oficiales y sustituyentes**. *Acta Farmacéutica Bonaerense* 19(2):99-103.

Gil JC, Lingan P, Flores C, Chimoy PJ (2008) **Efecto a largo plazo del consumo de *Stevia rebaudiana* (Magnoliopsida, Asteraceae) en la fertilidad de ratones**. *Revista Peruana de Biología* 15(1):85-90.

Ginesta-Peris E, Garcia-Breijo FJ, Primo-Yúfera E (1994) **Antimicrobial activity of xanthatin from *Xanthium spinosum* L**. *Letters in Applied Microbiology* 18:206-208.

Gonzales Dávalos E, Villca Jiménez T, Loza Almanza R (2007) **Evaluación de la actividad antiinflamatoria de ocho especies del género *Baccharis: B. articulata, B. dracunculifolia, B. salicifolia, B. ulicina, B. latifolia, B. pentlandii, B. obtusifolia, B. subulata*.** *Revista Boliviana de Química* 24(1):41-44.

Guglielmone HA, Nuñez-Montoya SC, Agnese AM, Pellizas CG, Cabrera JL, Donadio AC (2012) **Quercetin 3,7,3',4'-tetrasulphated isolated from *Flaveria bidentis* inhibits tissue factor expression in human monocyte**. *Phytomedicine* 19(12):1068-1071.

Gugliucci A, Menini T (2002) **Three different pathways for human LDL oxidation are inhibited in vitro by water extracts of the medicinal herb *Achyrocline satureoides***. *Life Sciences* 71(6):693-705.

Guimarães R, Barros L, Dueñas M, Calhelha RC, Carvalho AM, Santos-Buelga C, Queiroz MJ, Ferreira IC (2013) **Nutrients, phytochemicals and bioactivity**

of wild Roman chamomile: A comparison between the herb and its preparations. *Food Chemistry* 136(2):718-725.

Gutiérrez Durán MP, Limachi Viadez G, Gonzales Dávalos E, Bermejo Benito P (2011) **Control de Calidad del *Xanthium spinosum,* planta medicinal expendida en la ciudad de La Paz, Bolivia**. *BIOFARBO* 19(1):15-21.

Habib NC, Honoré SM, Genta SB, Sánchez SS (2011) **Hypolipidemic effect of *Smallanthus sonchifolius* roots on diabetic rats: Biochemical approach**. *Chemico-Biological Interactions* 194(1):31-39.

Hayashi K, Narutaki K, Nagaoka Y, Hayashi T, Uesato S (2010) **Therapeutic effect of arctiin and arctigenin in immunocompetent and immunocompromised mice infected with influenza A virus**. *Biological and Pharmaceutical Bulletin* 33(7):1199-1205.

Heng S, Harris KM, Kantrowitz ER (2010) **Designing inhibitors against fructose 1,6-bisphosphatase: Exploring natural products for novel inhibitor scaffolds**. *European Journal of Medicinal Chemistry* 45(4):1478-1484.

Heo JC, Woo SU, Kweon MA, Park JY, Lee HK, Son M, Rho JR, Lee SH (2008) **Aqueous extract of the *Helianthus annuus* seed alleviates asthmatic symptoms in vivo**. *International Journal of Molecular Medicine* 21(1):57-61.

Heywood VH, Harborne JB, Turner BL (1977) **The Biology and Chemistry of the Compositae I**. Academic Press, London-New York.

Hieronymus, J (1882) **Plantae Diaphoricae Florae Argentinae**. Kraft, Buenos Aires.

Hnatyszyn O, Broussalis A, Herrera G, Muschietti L, Coussio J, Martino V, Ferraro G, Font M, Monge A, Martínez-Irujo JJ, Sanromán M, Cuevas MT, Santiago E, Lasarte JJ (1999) **Argentine plant extracts active against polymerase and ribonuclease H activities of HIV-1 reverse transcriptase**. *Phytotherapy Research* 13(3):206-209.

Hnatyszyn O, Moscatelli V, Garcia J, Rondina R, Costa M, Arranz C, Balaszczuk A, Ferraro G, Coussio JD (2003) **Argentinian plant extracts with relaxant effect on the smooth muscle of the corpus cavernosum of guinea pig**. *Phytomedicine* 10(8):669-674.

Hnatyszyn O, Moscatelli V, Rondina R, Costa M, Arranz C, Balaszczuk A, Coussio J, Ferraro G (2004) **Flavonoids from *Achyrocline satureioides* with relaxant effects on the smooth muscle of Guinea pig *corpus cavernosum*.** *Phytomedicine* 11:366-369.

Honoré SM, Cabrera WM, Genta SB, Sánchez SS (2012) **Protective effect of yacon leaves decoction against early nephropathy in experimental diabetic rats**. *Food and Chemical Toxicology* 50(5):1704-1715.

Howes MR, Perry NS, Houghton PJ (2003) **Plants with traditional uses and activities, relevant to the management of Alzheimer's disease and other cognitive disorders**. *Phytotherapy Research* 17:1-18.

Hudson JB (2012) **Applications of the phytomedicine *Echinacea purpurea* in infectious diseases**. *Journal of Biomedicine and Biotechnology* 2012, doi: 10.1155/2012/769896.

Hurrell JA, Albuquerque UP (2012). **Is Ethnobotany an Ecological Science? Steps towards a complex Ethnobotany**. *Ethnobiology and Conservation* 1:4 (4 October 2012).

Hurrell JA, Ulibarri, EA, Puentes JP, Buet-Costantino F, Arenas PM, Pochettino ML (2011a) **Leguminosas medicinales y alimenticias utilizadas en la conurbación Buenos Aires-La Plata, Argentina**. *Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas* 10(5):443-455.

Hurrell JA, Buet Costantino F, Puentes JP, Ulibarri EA, Pochettino ML (2011b). **Huertos familiares periurbanos de las costas de Ensenada-Berisso y de la Isla Martín García (Buenos Aires, Argentina)**. *Bonplandia (Corrientes)* 20(2):213-229.

Hurrell JA, Pochettino ML, Puentes JP, Arenas PM (2013) **Del marco tradicional al escenario urbano: Plantas ancestrales devenidas suplementos dietéticos en la conurbación Buenos Aires-La Plata, Argentina**. *Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas* (in press).

Hwangbo C, Lee H, Park J, Choe J, Lee J (2009) **The anti-inflammatory effect of tussilagone, from *Tussilago farfara*, is mediated by the induction of heme oxygenase-1 in murine macrophages**. *International Immunopharmacology* 9(13-14):1578-1584.

Ickes GR, Fong HH, Schiff PL, Perdue RE, Farnsworth NR (1973) **Antitumor activity and preliminary phytochemical examination of *Tagetes minuta* (Compositae).** *Journal of Pharmaceutical Sciences* 62(6):1009-1011.

INDEC. 2013. **Instituto Nacional de Estadística y Censos. República Argentina**. [http://www.indec.gov.ar/] Accessed 25 April 2013.

Irshad S, Mannan A, Mirza B (2011) **Antimalarial activity of three Pakistani medicinal plants**. *Pakistan Journal of Pharmaceutical Sciences* 24(4):589-591.

Jamalian A, Shams-Ghahfarokhi M, Jaimand K, Pashootan N, Amani A, Razzaghi-Abyaneh M (2012) **Chemical composition and antifungal activity of *Matricaria recutita* flower essential oil against medically important dermatophytes and soil-borne pathogens**. *Journal de Mycologie Médicale* 22(4):308-315.

Jawla S, Mogla2 OP, Kumar Y (2010) **Herbal remedies for asthma: An overview**. *Journal of Chemical and Pharmaceutical Research* 2(1): 267-272.

Jeon H, Kang H, Jung H, Kang Y, Lim C, Kim Y, Park E (2008) **Anti-inflammatory activity of *Taraxacum officinale***. *Journal of Ethnopharmacology* 115:82-88.

Juan-Badaturuge M, Habtemariam S, Jackson C, Thomas M (2009) **Antioxidant principles of *Tanacetum vulgare* L. aerial parts**. *Natural Product Communications* 4(11):1561-1564.

Kadarian C, Broussalis A, Miño J, López P, Gorzalczany S, Ferraro G, Acevedo C (2002) **Hepatoprotective activity of *Achyrocline satureioides***. *Pharmacological Research* 45:57-61.

Kalvatchev Z, Walder R, Garzaro D (1997) **Anti-HIV activity of extracts from *Calendula officinalis* flowers**. *Biomedicine and Pharmacotherapy* 51(4):176-180.

Kammoun M, Koubaa I, Ben Ali Y, Jarraya R, Gargouri Y, Damak M, Bezzine S (2010) **Inhibition of pro-inflammatory secreted phospholipase A2 by extracts from *Cynara cardunculus* L**. *Applied Biochemistry and Biotechnology* 162(3):662-670.

Kappel VD, Pereira DF, Cazarolli LH, Guesser SM, da Silva CH, Schenkel EP, Reginatto FH, Silva FR (2012) **Short and long-term effects of *Baccharis articulata* on glucose homeostasis**. *Molecules* 17(6):6754-6768.

Katinas L, Gutiérrez DG, Grossi MA, Crisci JV (2007) **Panorama de la familia Asteraceae (= Compositae) en la República Argentina**. *Boletín Sociedad Argentina de Botánica* 42(1-2):113-129.

Khan AU, Gilani AH (2009) **Antispasmodic and bronchodilator activities of *Artemisia vulgaris* are mediated through dual blockade of muscarinic receptors and calcium influx**. *Journal of Ethnopharmacology* 126:480-486.

Khan AU, Gilani AH (2011) **Blood pressure lowering, cardiovascular inhibitory and bronchodilatory actions of *Achillea millefolium***. *Phytotherapy Research* 25(4):577-583.

Kim JW, Han JY, Hong JT, Li R, Eun JS, Oh KW (2011) **Ethanol extract of the flower *Chrysanthemum morifolium* augments pentobarbital-induced sleep behaviors: Involvement of Cl channel activation**. *Evidence Based Complementary and Alternative Medicine*, doi: 10.1155/2011/109164.

Kokoska L, Polesny Z, Rada V, Nepovim A, Vanek T (2002) **Screening of some Siberian medicinal plants for antimicrobial activity**. *Journal of Ethnopharmacology* 82(1):51-53.

König GM, Wright AD, Keller WJ, Judd RL, Bates S, Day C (1998) **Hypoglycaemic activity of an HMG-containing flavonoid glucoside, chamaemeloside, from *Chamaemelum nobile***. *Planta Medica* 64(7):612-614.

Koo H, Hong S, Song B, Kim C, Kim H (2004) ***Taraxacum officinale* induces cyto-toxicity through TNF-α and IL-1α secretion in Hep G2 cells**. *Life Sciences* 74(9):1149-1157.

Krecman V, Skottova N, Walterova D, Ulrichova J, Simanek V (1998) **Silymarin inhibits the development of diet-induced hypercholesterolemia in rats**. *Planta Medica* 64:138-142.

Ladio AH, Molares S (2010) **Aspectos do estudo da dinâmica do uso de produtos etnobiológicos não tradicionais**. In Albuquerque UP, Lucena RF, Cunha L (eds), Métodos e Técnicas na Pesquisa Etnobiológica e Etnoecológica, NUPEEA, Recife, pp. 267- 278.

Lahlou S, Tangi K, Lyoussi B, Morel N (2008) **Vascular effects of *Tanacetum vulgare* L. leaf extract: in vitro pharmacological study**. *Journal of Ethnopharmacology* 120(1):98-102.

Lavelli V (2008) **Antioxidant activity of processed red chicory (*Cichorium intybus*) evaluated in xanthine oxidase, myeloperoxidase and diaphorase-catalyzed reactions**. *Journal of Agricultural and Food Chemistry* 56:7194-7200.

Lee BR, Lee JH, An HJ (2012) **Effects of *Taraxacum officinale* on fatigue and immunological parameters in mice**. *Molecules* 17(11):13253-13265.

Lee JS, Kim HJ, Lee YS (2003) **A new anti-HIV flavonoid glucuronide from *Chrysanthemum morifolium***. *Planta Medica* 69(9):859-861.

Lee YJ, Choi DH, Cho GH, Kim JS, Kang DG, Lee HS (2012) ***Arctium lappa* ameliorates endothelial dysfunction in rats fed with high fat/cholesterol diets**. *BMC Complementary and Alternative Medicine* 6,12:116, doi: 10.1186/1472-6882-12-116.

Li Y, Zhang Y, Fu M, Yao Q, Zhuo H, Lu Q, Niu X, Zhang P, Pei Y, Zhang K (2012) **Parthenolide induces apoptosis and lytic cytotoxicity in Epstein-Barr virus-positive Burkitt lymphoma**. *Molecular Medicine Report*. 2012, doi: 10.3892/mmr.2012.959.

Li YP, Wang YM (1988) **Evaluation of tussilagone: A cardiovascular-respiratory stimulant isolated from Chinese herbal medicine**. *General Pharmacology* 19(2):261-263.

Li ZY, Zhi HJ, Zhang FS, Sun HF, Zhang LZ, Jia JP, Xing J, Qin XM (2013) **Metabolomic profiling of the antitussive and expectorant plant *Tussilago***

farfara **by nuclear magnetic resonance spectroscopy and multivariate data analysis**. *Journal of Pharmaceutical Biomedical Analysis* 75:158-164.

Lii CK, Lei YP, Yao H, Hsieh YS, Tsai C, Liu KL, Chen HW (2010) ***Chrysanthemum morifolium*** **reduces the oxidized LDL-induced expression of intercellular adhesion molecule-1 and E-selectin in human umbilical vein endothelial cells**. *Journal of Ethnopharmacology* 128(1):213-220.

Lima GM, Bonfim RR, Silva MR, Thomazzi SM, Santos MR, Quintans-Júnior LJ, Bonjardim LR, Araújo AAS (2011) **Assessment of antinociceptive and anti-inflammatory activities of *Porophyllum ruderale*, Asteraceae, aqueous extract**. *Revista Brasileira de Farmacognosia* 21(3):486-490.

Lin GH, Lin L, Liang HW, Ma X, Wang JY, Wu LP, Jiang HD, Bruce IC, Xia Q (2010) **Antioxidant action of a *Chrysanthemum morifolium* extract protects rat brain against ischemia and reperfusion injury.** *Journal of Medicinal Food* 13(2):306-311.

Liu J, Kao P, Chan P, Hsu G, Hou C, Lien G, Hsieh M, Chen Y, Cheng J (2003) **Mechanism of the antihypertensive effect of stevioside in anesthetized dogs**. *Pharmacology* 67:14-20.

Lizarraga E, Castro F, Fernández F, de Lampasona MP, Catalán CA (2012) **Antioxidant, hemolytic and cytotoxic activities of Senecio species used in traditional medicine of Northwestern Argentina**. *Natural Product Communications* 7(5):607-608.

Lobo AR, Colli C, Alvares EP, Filisetti TM (2007) **Effects of fructans-containing yacon (*Smallanthus sonchifolius*) flour on caecum mucosal morphometry, calcium and magnesium balance, and bone calcium retention in growing rats**. *British Journal of Nutrition* 97:776-85.

Lopes-Lutz D, Alviano DS, Alviano CS, Kolodziejczyk PP (2008) **Screening of chemical composition, antimicrobial and antioxidant activities of *Artemisia* essential oils**. *Phytochemistry* 69(8):1732-1738.

Machado FB, Yamamoto RE, Zanoli K, Nocchi SR, Novello CR, Schuquel IT, Sakuragui C, Luftmann H, Ueda-Nakamura T, Nakamura C, Mello JC (2012) **Evaluation of the antiproliferative activity of the leaves from *Arctium lappa* by a bioassay-guided fractionation**. *Molecules* 17(2):1852-1859.

Macía MJ, García E, Vidaurre PJ (2005) **An ethnobotanical survey of medicinal plants commercialized in the markets of La Paz and El Alto, Bolivia**. *Journal of Ethnopharmacology* 97(2):337-350.

Mahesh A, Jeyachandran R, Cindrella L, Thangadurai D, Veerapur VP, Muralidhara Rao D (2010) **Hepatocurative potential of sesquiterpene lactones of *Taraxacum officinale* on carbon tetrachloride induced liver toxicity in mice.** *Acta Biologica Hungarica* 61(2):175-190.

Mangiaterra PA (2005) **Evaluación de parámetros botánicos y fitoquímicos para el control de calidad de «carquejas»**. Tesina 126: 1-46. Universidad de Belgrano, Buenos Aires.

Martijena ID, Garcia DA, Marin RH, Perillo MA, Zygadlo JP (1998) **Anxiogenic-like and antidepressant-like effects of the essential oil from *Tagetes minuta***. *Fitoterapia* 69(2):155-160.

Martin GJ (2004) **Ethnobotany. A methods manual.** Earthscan. London.

Martínez SF (2008) **La cognición corporizada en prácticas: implicaciones para la filosofía de la ciencia**. In: Martínez SF, Huang X, Guillaumin G. (eds) Historia, prácticas y estilos en la filosofía de la ciencia: hacia una epistemología plural. UNAM, México, pp. 212-231.

Martínez Crovetto R (1981) **Las plantas utilizadas en medicina popular en el Noroeste de Corrientes (Argentina)**. Instituto M. Lillo, Tucumán.

Mascolo N, Autore G, Capasso, F. Menghini A, Fasulo MP (1987) **Biological screening of Italian medicinal plants for anti-inflammatory activity**. *Phytotherapy Research* 1(1):28-31.

Mathema V, Koh Y, Thakuri B, Sillanpää M (2012) **Parthenolide, a sesquiterpene lactone, expresses multiple anti-cancer and anti-inflammatory activities**. *Inflammation* 35(2):560-565.

Matić IZ, Juranić Z, Savikin K, Zdunić G, Nađvinski N, Gođevac D (2012) **Chamomile and marigold tea: Chemical characterization and evaluation of anticancer activity**. *Phytotherapy Research* 2012, doi: 10.1002/ptr.4807.

Mats MN, Bogatkina VF, Vishnyakov Yu S (1987) **Contraceptive activity of an extract from *Ambrosia artemisiifolia***. *Rastitel'nye Resursy* 23:125-129.

Mayhua G, Suárez S, del Castillo T (2013). **Capacidad antioxidante in vitro y contenido de polifenoles y flavonoides en el extracto hidroalcóholico de las hojas de *Trixis divaricata* (hank'u chuta)**. *Anales de la Facultad de Medicina (Lima)* 73(1):S37.

Meneses R, Ocazionez RE, Martínez JR, Stashenko EE (2009) **Inhibitory effect of essential oils obtained from plants grown in Colombia on yellow fever virus replication in vitro**. *Annals of Clinical* Microbiology *and Antimicrobials* 8:8, doi: 10.1186/1476-0711-8-8.

Metwally NS, Kholeif TE, Ghanem KZ, Farrag AR, Ammar NM, Abdel-Hamid AH (2011) **The protective effects of fish oil and artichoke on hepatocellular carcinoma in rats**. *European Review for Medical and Pharmacological Sciences* 15(12):1429-1444.

Mileo AM, Di Venere D, Linsalata V, Fraioli R, Miccadei S (2012) **Artichoke polyphenols induce apoptosis and decrease the invasive potential of the human breast cancer cell line MDA-MB231**. *Journal of Cellular Physiology* 227(9):3301-3309.

Minaiyan M, Ghannadi AR, Mahzouni P, Abed AR (2012) **Preventive effect of *Cichorium Intybus* L. two extracts on cerulein-induced acute pancreatitis in mice**. *International Journal of Preventive Medicine* 3(5):351-357.

Miño J, Muschietti L, Ferraro G, Martino V, Acevedo C (2005) **Antinociceptive activity of *Eupatorium buniifolium* aqueous extract**. *Fitoterapia* 76(1):100-103.

Miño J, Muschietti L, Ferraro G, Martino V, Acevedo C (2007) **Neuropharmacological activity of *Eupatorium buniifolium* aqueous extract in mice**. *Phytotherapy Research* 21(4):362-365.

Mirandola L, Justo GZ, Queiroz ML (2002) **Modulation by *Acanthospermum australe* extracts of the tumor induced hematopoietic changes in mice**. *Immunopharmacology and Immunotoxicology* 24(2):275-288.

Mishima S, Saito K, Maruyama H, Inoue M, Yamashita T, Ishida T, Gu Y (2004) **Antioxidant and immuno-enhancing effects of *Echinacea purpurea***. *Biological and Pharmaceutical Bulletin* 27(7):1004-1009.

Modaresi M, Resalatpour N (2012) **The effect of *Taraxacum officinale* hydro-alcoholic extract on blood cells in mice**. *Advances in Hematology* 2012, doi: 10.1155/2012/653412.

Morales G, Sierra P, Mancill A, Paredes A, Loyola L, Gallardo O, Borquez J (2003) **Secondary metabolites from four medicinal plants from northern Chile:**

antimicrobial activity and biotoxicity against *Artemia salina*. *Journal of the Chilean Chemical Society* 48:13-18.

Morales G, Paredes A, Sierra P, Loyola L (2009) **Cytotoxicity, scavenging and lipid peroxidation-inhibiting activities of 5,3',4'-trihydroxy-7-methoxyflavanone isolated from *Haplopappus rigidus***. *Journal of the Chilean Chemical Society* 54(2):105-107.

Moura NA, Caetano BF, Sivieri K, Urbano LH, Cabello C, Rodrigues MA, Barbisan LF (2012) **Protective effects of yacon intake on experimental colon carcinogenesis**. *Food and Chemical Toxicology* 50(8):2902-2910.

Muschietti L, Gorzalczany S, Ferraro G, Acevedo C, Martino V (2001) **Phenolic compounds with anti-inflammatory activity from *Eupatorium buniifolium***. *Planta Medica* 67(8):743-744.

Muschietti L, Derita M, Sülsen V, de Dios Muñoz J, Ferraro G, Zacchino S, Martino V (2005) **In vitro antifungal assay of traditional Argentine medicinal plants**. *Journal of Ethnopharmacology* 102(2):233-238.

Muthaura C, Rukunga G, Chhabra S, Omar S, Guantai A, Mwitari P, Mungai G, Njagi N (2007) **Antimalarial activity of some plants traditionally used in Meru district of Kenya**. *Phytotherapy Research* 21(9):860-867.

Nahas R, Balla A (2011). **Complementary and alternative medicine for prevention and treatment of the common cold**. *Canadian Family Physician* 57(1):31-36.

Nayak BS, Raju SS, Rao AV (2007) **Wound healing activity of *Matricaria recutita* extract**. *Journal of Wound Care* 16(7):298-302.

Nchu F, Magano SR, Eloff JN (2012) **In vitro anti-tick properties of the essential oil of *Tagetes minuta* (Asteraceae) on *Hyalomma rufipes* (Acari: Ixodidae).** *Onderstepoort Journal of Veterinary Research* 79(1):E1-E5.

Nostro A, Cannatelli MA, Marino A, Picerno I, Pizzimenti FC, Scoglio ME, Spataro P (2003) **Evaluation of antiherpesvirus-1 and genotoxic activities of *Helichrysum italicum* extract**. *New Microbiologica* 26(1):125-128.

Obolskiy D, Pischel I, Feistel B, Glotov N, Heinrich M (2011) ***Artemisia dracunculus* (tarragon): A critical review of its traditional use, chemical composition, pharmacology, and safety**. *Journal of Agricultural and Food Chemistry* 59(21):11367-11384.

Oliveira ABS, Dias Filho BP, Nakamura CV, Ueda-Nakamura T (2009) **Antiviral activity and mode of action of a peptide isolated from *Helianthus annus***. *Planta Medica* 75, doi: 10.1055/s-0029-1234650.

Oliveira AC, Endringer DC, Amorim LA, das Graças L Brandão M, Coelho MM (2005) **Effect of the extracts and fractions of *Baccharis trimera* and *Syzygium cumini* on glycaemia of diabetic and non-diabetic mice**. *Journal of Ethnopharmacology* 102(3):465-469.

Oliveira AJ, Cordeiro LM, Gonçalves RA, Ceole LF, Ueda-Nakamura T, Iacomini M (2013) **Structure and antiviral activity of arabinogalactan with (1-6)-β-d-galactan core from *Stevia rebaudiana* leaves**. *Carbohydrate Polymers* 94(1):179-184.

Önal S, Timur S, Okutucu B, Zihnioğlu F (2005) **Inhibition of α-glucosidase by aqueous extracts of some potent antidiabetic medicinal herbs**. *Preparative Biochemistry and Biotechnology* 35(1):29-36.

Ono M, Masuoka C, Odake Y, Ikegashira S, Ito Y, Nohara T (2000) **Antioxidative constituents from *Tessaria integrifolia***. *Food Science and Technology Research* 6(2):106-114.

Orekhov AN (2013) **Direct anti-atherosclerotic therapy; Development of natural anti-atherosclerotic drugs preventing cellular cholesterol retention**. *Current Pharmaceutical Design* 2013, PMID 23438951.

Pádua C, Silva LD, Rossoni Júnior JV, Humberto JL, Chaves MM, Silva ME, Pedrosa ML, Costa DC (2010) **Antioxidant properties of *Baccharis trimera* in the neutrophils of Fisher rats**. *Journal of Ethnopharmacology* 129(3):381-386.

Pareek A, Suthar M, Rathore G, Bansal V (2011) **Feverfew (*Tanacetum parthenium*): A systematic review**. *Pharmacognosy Reviews* 5(9):103-110.

Pastor A, Zelada BR (2006). **Estudio fitoquímico de *Flaveria bidentis* (L.) Kuntze (Asteraceae)**. *Revista de la Sociedad Química del Perú* 72(1):3-11.

Paul EL, Lunardelli A, Caberlon E, de Oliveira CB, Santos RC, Biolchi V, Bastos CM, Moreira KB, Nunes FB, Gosmann G, de Oliveira JR (2009) **Anti-inflammatory and immunomodulatory effects of *Baccharis trimera* aqueous extract on induced pleurisy in rats and lymphoproliferation in vitro**. *Inflammation* 32(6):419-425.

Pedreschi R, Campos D, Noratto G, Chirinos R, Cisneros-Zevallos L (2003) **Andean yacon root fructooligosaccharides as a potential novel source of prebiotics**. *Journal of Agricultural and Food Chemistry* 51(18):5278-5284.

Peluso G, De Feo V, De Simone F, Bresciano E, Vuotto M (1995) **Studies on the inhibitory effects of caffeoylquinic acids on monocyte migration and superoxide ion production**. *Journal of Natural Products* 58(5):639-646.

Pereira, FE, Figueiredo Guimaraes, L, Cerutti SM, Oliveira Rodrigues RF, Pulz Araujo CE (2005). **Análisis preliminar antiulcerogénico y químico de las partes aéreas de *Trixis divaricata* Spreng**. *Acta Farmacéutica Bonaerense* 24(1) 80-84.

Pérez C, Agnese AM, Cabrera JL (1999) **The essential oil of *Senecio graveolens* (Compositae): Chemical composition and antimicrobial activity tests**. *Journal of Ethnopharmacology* 66(1):91-96.

Pérez-García F, Marín E, Cañigueral S, Adzet T (1996) **Anti-inflammatory action of *Pluchea sagittalis*: Involvement of an antioxidant mechanism**. *Life Sciences* 59(24):2033-2040.

Petenatti EM, Petenatti ME, Zallocco Y, Del Vitto, LA. (2004a) **Control de calidad de medicamentos herbarios en el Centro-oeste Argentino. III**. ***Gaillardia megapotamica* (Asteraceae: Helenieae), «topasaire» o «botón de oro»**. *Acta Farmacéutica Bonaerense* 23(4):442-447.

Petenatti EM, Nievas CM, Petenatti ME, Del Vitto LA (2004b) **Medicamentos Herbarios en el Centro-oeste Argentino. IV. «Marcelas» y «vira-viras» en muestras comerciales**. *Acta Farmacéutica Bonaerense* 23(4):484-491.

Pieroni A, Muenz H, Akbulut M, Başer K, Durmuşkahya C (2005) **Traditional phytotherapy and trans-cultural pharmacy among Turkish migrants living in Cologne, Germany**. *Journal of Ethnopharmacology* 102(1):69-88.

Pires J, Mendes F, Negri G, Duarte-Almeida J, Carlini E (2009) **Antinociceptive peripheral effect of *Achillea millefolium* and *Artemisia vulgaris*: Both plants known popularly by brand names of analgesic drugs**. *Phytotherapy Research* 23(2):212-219.

Pisha E, Chai H, Lee I, Chagwedera T, Farnsworth N, Cordell G, Beecher C, Fong H, Kinghorn A, Brown D, Wani M, Wall M, Hieken T, Das Gupta T, Pezzuto J (1995) **Discovery of betulinic acid as a selective inhibitor of human melanoma that functions by induction of apoptosis**. *Nature Medicine* 10:1046-1051.

Pleschka S, Stein M, Schoop R, Hudson JB (2009) **Anti-viral properties and mode of action of standardized *Echinacea purpurea* extract against highly pathogenic avian influenza virus (H5N1, H7N7) and swine-origin H1N1 (S-OIV)**. *Virology Journal* 6:197, doi: 10.1186/1743-422X-6-197.

Plohmann B, Bader G, Hiller K, Franz G (1997) **Immunomodulatory and antitumoral effects of triterpenoid saponins**. *Pharmazie* 52(12): 953-957.

Pochettino ML, Arenas PM, Sánchez D, Correa R (2008) **Conocimiento botánico tradicional, circulación comercial y consumo de plantas medicinales en un área urbana de Argentina.** *Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas* 7(3):141-148.

Pochettino ML, Puentes JP, Buet-Costantino F, Arenas PM, Ulibarri EA, Hurrell JA (2012a) **Functional foods and nutraceuticals in a market of Bolivian inmigrants in Buenos Aires (Argentina).** *Evidence-Based Complementary and Alternative Medicine*, doi:10.1155/2012/320193.

Pochettino ML, Bonicatto M, Buet Costantino F, Hurrell JA (2012b). **La horticultura en un contexto periurbano: estudio comparativo entre huertos familiares y productivos en la provincia de Buenos Aires (Argentina).** *Memorias II Congreso Boliviano de Botánica-III Congreso Latinoamericano de Etnobiología-I Simposio Boliviano de Etnobotánica*, 124. La Paz.

Poiată A, Tuchiluş C, Ivănescu B, Ionescu A, Lazăr MI (2009) **Antibacterial activity of some *Artemisia* species extract**. *Revista Medico-Chirurgicala a Societatii de Medici si Naturalisti din Iasi* 113(3):911-914.

Polatoglu K, Demirci F, Demirci B, Gören N, Başer K (2010) **Antibacterial activity and the variation of *Tanacetum parthenium* essential oils from Turkey**. *Journal of Oleo Science* 59(4):177-184.

Portillo A, Vila R, Freixa B, Adzet T, Cañigueral S (2001) **Antifungal activity of Paraguayan plants used in traditional medicine**. *Journal of Ethnopharmacology* 76(1):93-98.

Preethi K, Kuttan R (2009) **Hepato and reno-protective action of *Calendula officinalis* flower extract**. *Indian Journal of Experimental Biology* 47:163-168.

Preethi K, Kuttan G, Kuttan R (2009) **Anti-inflammatory activity of flower extract of *Calendula officinalis* and mechanism of action**. *Indian Journal of Experimental Biology* 47:113-120.

Pushparaj P, Low H, Manikandan J, Tan B, Tan C (2007) **Anti-diabetic effects of *Cichorium intybus* in streptozotocin-induced diabetic rats**. *Journal of Ethnopharmacology* 111(2):430-434.

Ranilla LG, Kwon YI, Apostolidis E, Shetty K (2010) **Phenolic compounds, antioxidant activity and in vitro inhibitory potential against key enzymes relevant for hyperglycemia and hypertension of commonly used medicinal plants, herbs and spices in Latin America**. *Bioresource Technology* 101(12):4676-4689.

Ranpariya VL, Parmar SK, Sheth NR, Chandrashekhar VM (2011) **Neuroprotective activity of *Matricaria recutita* against fluoride-induced stress in rats**. *Pharmaceutical Biology* 49(7):696-701.

Ribnicky DM, Poulev A, Watford M, Cefalu WT, Raskin I (2006) **Antihyperglycemic activity of Tarralin, an ethanolic extract of *Artemisia dracunculus* L**. *Phytomedicine* 13(8):550-557.

Ríos JL (2008) ***Helichrysum italicum:* una planta mediterránea con potencial terapéutico**. *Revista de Fitoterapia* 8(1):13-20.

Rocha Martins LR, Brenzan MA, Nakamura CV, Dias Filho BP, Nakamura TU, Ranieri Cortez LE, Garcia Cortez DA (2011) **In vitro antiviral activity from *Acanthospermum australe* on herpesvirus and poliovirus**. *Pharmaceutical Biology* 49(1):26-31.

Rodrigo GC, Almanza GR, Akesson B, Duan RD (2010) **Antiproliferative activity of extracts of some Bolivian medicinal plants**. *Journal of Medicinal Plants Research* 4(21):2204-2210.

Romio E, Gurni, A (2007) **Estudio micrográfico preliminar de las estructuras foliares de dos especies palustres americanas con potencial actividad antiviral**. *Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas* 6(5):219-220.

Rondina RDV, Bandoni AL, Coussio JD (2008) **Especies medicinales argentinas con potencial actividad analgésica**. *Dominguezia* 24(1):47-69.

Rosella MA, Rojas Durán R, Aquila SV, del Valle ME, Spegazzini D, Debenedetti S (2010) **Actividad antimicobacteriana in vitro de *Gaillardia cabrerae* y *G. megapotamica* var. *scabiosioides* (Asteraceae)**. *Latin American Journal of Pharmacy* 29:816-819.

Rossi T, Melegari M, Bianchi A, Albasini A, Vampa G (1988) **Sedative, anti-inflammatory and anti-diuretic effects induced in rats by essential oils of varieties of *Anthemis nobilis*: A comparative study**. *Pharmacological Research Communications* 20(Suppl 5):71-74.

Ruffa MJ, Ferraro G, Wagner ML, Calcagno ML, Campos RH, Cavallaro L (2002) **Cytotoxic effect of Argentine medicinal plant extracts on human hepatocellular carcinoma cell line**. *Journal of Ethnopharmacology* 79(3):335-339.

Sabini MC, Escobar FM, Tonn CE, Zanon SM, Contigiani MS, Sabini LI (2012) **Evaluation of antiviral activity of aqueous extracts from *Achyrocline satureioides***. *Natural Products Research* 26(5):405-415.

Saini S, Sharma, S (2011) ***Helianthus annuus* (Asteraceae): A review**. *International Journal of Pharma Professional's Research* 2(4):465-470.

Sala A, Recio M, Giner RM, Máñez S, Tournier H, Schinella G, Ríos JL (2002) **Anti-inflammatory and antioxidant properties of *Helichrysum italicum***. *Journal of Pharmacy and Pharmacology* 54(3):365-371.

Salama RH (2012) ***Matricaria chamomilla* attenuates cisplatin nephrotoxicity**. *Saudi Journal of Kidney Diseases and Transplantation* 23(4):765-772.

Salazar W, Cárdenas J, Nuñez M, Fernández I, Villegas L, Pacheco L, Untiveros G (2007) **Estudio fitoquímico y de la actividad antihelmíntica de los extractos de *Euphorbia huanchahana* y *Baccharis salicifolia***. *Revista de la Sociedad Química de Perú* 73(3):150-157.

Sandhu DS, Heinrich M (2005) **The use of health foods, spices and other botanicals in the Sikh community in London**. *Phytotherapy Research* 19(7):633-642.

Santin JR, Lemos M, Klein Júnior LC, Niero R, de Andrade SF (2010) **Antiulcer effects of *Achyrocline satureoides* (Lam.) DC. (Asteraceae), a folk medicine plant, in different experimental models**. *Journal of Ethnopharmacology* 130(2):334-339.

Sarris J, Panossian A, Schweitzer I, Stough C, Scholey A (2011) **Herbal medicine for depression, anxiety and insomnia: a review of psychopharmacology and clinical evidence**. *European Neuropsychopharmacology* 21(12):841-860.

Sayyah M, Nadjafnia L, Kamalinejad M (2004) **Anticonvulsant activity and chemical composition of *Artemisia dracunculus* essential oil**. *Journal of Ethnopharmacology* 94(2-3):283-287.

Schmidt C, Fronza M, Goettert M, Geller F, Luik S, Flores EM, Bittencourt CF, Zanetti GD, Heinzmann BM, Laufer S, Merfort I (2009) **Biological studies on Brazilian plants used in wound healing**. *Journal of Ethnopharmacology* 122(3):523-532.

Setzer WN (2009) **Essential oils and anxiolytic aromatherapy**. *Natural Product Communications* 4(9):1305-1316.

Shafi G, Hasan TN, Syed NA, Al-Hazzani A, Alshatwi AA, Jyothi A, Munshi A (2012) ***Artemisia absinthium*: A novel potential complementary and alternative medicine for breast cancer**. *Molecular Biology Reports* 39(7):7373-7379.

Shahwar D, Raza MA, Saeed A, Riasat M, Chattha FI, Javaid M, Ullah S, Ullah S (2012) **Antioxidant potential of the extracts of *Putranjiva roxburghii, Conyza bonariensis, Woodfordia fruiticosa* and *Senecio chrysanthemoids***. *African Journal of Biotechnology* 11(18):4288-4295.

Shaker E, Mahmoud H, Mnaa S (2010) **Silymarin, the antioxidant component and *Silybum marianum* extracts prevent liver damage**. *Food and Chemical Toxicology* 48(3):803-806.

Sharifi R, Pasalar P, Kamalinejad M, Dehpour AR, Tavangar SM, Paknejad M, Mehrabani Natanzi M, Nourbakhsh M, Ahmadi Ashtiani HR, Akbari M, Rastegar H (2013) **The effect of silymarin (*Silybum marianum*) on human skin fibroblasts in an in vitro wound healing model**. *Pharmaceutical Biology* 51(3):298-303.

Shikov A, Pozharitskaya O, Makarov V, Kvetnaya A (2008) **Antibacterial activity of *Chamomilla recutita***. *Phytotherapy Research* 22(2):252-253.

Shivanna N, Naika M, Khanum F, Kaul VK (2013) **Antioxidant, antidiabetic and renal protective properties of *Stevia rebaudiana***. *Journal of Diabetes and its Complications* 27(2):103-113.

Shukla S, Mehta A, Bajpai V, Shukla S (2009) **In vitro antioxidant activity and total phenolic content of ethanolic leaf extract of *Stevia rebaudiana***. *Food and Chemical Toxicology* 47(9):2338-2343.

Sigstedt SC, Hooten CJ, Callewaert MC, Jenkins AR, Romero AE, Pullin MJ, Kornienko A, Lowrey TK, Slambrouck SV, Steelant WF (2008) **Evaluation of aqueous extracts of *Taraxacum officinale* on growth and invasion of breast and prostate cancer cells**. *International* Journal *of Oncology* 32(5):1085-1090.

Silva LM da, Allemand A, Mendes DA, Dos Santos AC, André E, de Souza LM, Cipriani TR, Dartora N, Marques MC, Baggio CH, Werner MF (2013) **Ethanolic extract of roots from *Arctium lappa* L. accelerates the healing of acetic acid-induced gastric ulcer in rats: Involvement of the antioxidant system**. *Food and Chemical Toxicology* 51:179-187.

Simoniato E, Ilha V, Mallmann A, Porto C, Dalcol I, Morel A (2008) **Chemical composition and antimicrobial activity of the volatile oil from *Baccharis articulate* (Lam.) Pers**. *Journal of Essential Oil Research* 20(4):266-368.

Skaudickas D, Kondrotas A, Kevelaitis EC, Venskutonis P (2009) **The effect of *Echinacea purpurea* extract on experimental prostate hyperplasia**. *Phytotherapy Research* 23(10):1474-1478.

Smirnova G, Samoilova Z, Muzyka N, Oktyabrsky O (2012) **Influence of plant polyphenols and medicinal plant extracts on antibiotic susceptibility of *Escherichia coli***. *Journal of Applied Microbiology* 113(1):192-199.

Song FL, Gan RY, Zhang Y, Qin X, Kuan L, Li HB (2010) **Total phenolic contents and antioxidant capacities of selected chinese medicinal plants**. *International Journal of Molecular Sciences* 11(6): 2362-2372.

Sorarú S, Bandoni A (1978) **Plantas de la medicina popular argentina**. Albatros, Buenos Aires.

Soria EA, Goleniowski ME, Cantero JJ, Bongiovanni GA (2008) **Antioxidant activity of different extracts of Argentinian medicinal plants against arsenic-induced toxicity in renal cells**. *Human and Experimental Toxicology* 27(4):341-346.

Sosa A, Fusco M, Petenatti ME, Juárez A, Del Vitto LA, Petenatti EM (2007) **Estudios farmacognósticos y farmacológicos comparativos sobre tres especies diuréticas de amplio uso popular en el Centro-oeste argentino**. *Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas* 6(6):386-338.

Sosa A, Fusco M, Rossomando P, Juárez A, Robles S, Petenatti EM, Pelzer L (2011) **Anti-inflammatory properties from isolated compounds of *Cyclolepis genistoides***. *Pharmaceutical Biology* 49(7):675-678.

Souza G de, Haas A, von Poser G, Schapoval E, Elisabetsky E (2004) **Ethnopharmacological studies of antimicrobial remedies in the south of Brazil**. *Journal of Ethnopharmacology* 90(1):135-143.

Souza MC, Siani AC, Ramos MF, Menezes-de-Lima OJ, Henriques MG (2003) **Evaluation of anti-inflammatory activity of essential oils from two Asteraceae species**. *Pharmazie* 58(8):582-586.

Souza P, Gasparotto A, Crestani S, Stefanello M, Marques M, da Silva-Santos J, Kassuya C (2011) **Hypotensive mechanism of the extracts and artemetin isolated from *Achillea millefolium* (Asteraceae) in rats**. *Phytomedicine* 18(10):819-825.

Spjut RW (2005) **Relationships between plant folklore and antitumor activity. An historical review**. *Sida* 21(4):2205-2241.

Srivastava J, Gupta S (2007) **Antiproliferative and apoptotic effects of chamomile extract in various human cancer cells**. *Journal of Agricultural and Food Chemistry* 55(23):9470-9478.

Stanciuc AM, Gaspar A, Moldovan L, Saviuc C, Popa M, Măruţescu L (2011) **In vitro antimicrobial activity of Romanian medicinal plants hydroalcoholic extracts on planktonic and adhered cells**. *Roumanian Archives of Microbiology and Immunology* 70(1):11-14.

Stanojević L, Stanković M, Nikolić V, Nikolić L, Ristić D, Canadanovic-Brunet J, Tumbas V (2009) **Antioxidant activity and total phenolic and flavonoid contents of *Hieracium pilosella* L. extracts**. *Sensors (Basel)* 9(7):5702-5714.

Steenkamp V, Gouws MC (2006) **Cytotoxicity of six South African medicinal plant extracts used in the treatment of cancer**. *South African Journal of Botany* 72(4):630-633.

Stevens PF (2013) **Angiosperm Phylogeny Website, version 12** [<http://www.mobot.org/MOBOT/research/APweb/] Accessed 15 April 2013.

Subashini R, Rakshitha SU (2012) **Phytochemical screening, antimicrobial activity and in vitro antioxidant investigation of methanolic extract of seeds from *Helianthus annuus* L**. *Chemical Sciences Review Letters* 1(1):30-34.

Sülsen VP, Cazorla SI, Frank FM, Redko FC, Anesini CA, Coussio JD, Malchiodi EL, Martino VS, Muschietti LV (2007) **Trypanocidal and leishmanicidal activities of flavonoids from Argentine medicinal plants**. *The American Journal of Tropical Medicine and Hygiene* 77(4):654-659.

Szakiel A, Ruszkowski D, Grudniak A, Kurek A, Wolska K, Doligalska M, Janiszowska W (2008) **Antibacterial and antiparasitic activity of oleanolic acid and its glycosides isolated from *Calendula officinalis***. *Planta Medica* 74(14):1709-1715.

Takahashi HT, Britta EA, Longhini R, Ueda-Nakamura T, Palazzo de Mello JC, Nakamura CV (2013) **Antileishmanial activity of 5-Methyl-2,2':5',2″-terthiophene Isolated from *Porophyllum ruderale* is related to mitochondrial dysfunction in *Leishmania amazonensis***. *Planta Medica* 79(5):330-333.

Takaki M, de Campos T, Santana G (1985) **Antimicrobial activity in leaves extracts of *Stevia rebaudiana***. *Revista do Instituto Universitário de Pernambuco* 22:33-39.

Tamayo C, Richardson MA, Diamond S, Skoda I (2000) **The chemistry and biological activity of herbs used in Flor-Essence herbal tonic and Essiac**. *Phytotherapy Research* 14:1-14.

Tariq KA, Chishti MZ, Ahmad F, Shawl AS (2009) **Anthelmintic activity of extracts of *Artemisia absinthium* against ovine nematodes**. *Veterinary Parasitology* 160(1-2):83-88.

Temraz A, El-Tantawy WH (2008) **Characterization of antioxidant activity of extract from *Artemisia vulgaris***. *Pakistan Journal of Pharmaceutical Sciences* 21(4):321-326.

Tereschuk ML, Riera MV, Castro GR, Abdala LR (1997) **Antimicrobial activity of flavonoids from leaves of *Tagetes minuta***. *Journal of Ethnopharmacology* 56(3):227-232.

Tigno XT, Gumila E (2000) **In vivo microvascular actions of *Artemisia vulgaris* L. in a model of ischemia-reperfusion injury in the rat intestinal mesentery**. *Clinical Hemorheology and Microcirculation* 23(2-4):159-165.

Tognolini M, Barocelli E, Ballabeni V, Bruni R, Bianchi A, Chiavarini M, Impicciatore M (2006) **Comparative screening of plant essential oils: Phenylpropanoid moiety as basic core for antiplatelet activity**. *Life Sciences* 78(13):1419-32

Torres CV, Domínguez MJ, Carbonari JL, Sabini MC, Sabini LI, Zanon SM (2011) **Study of antiviral and virucidal activities of aqueous extract of *Baccharis articulata* against Herpes virus**. *Natural Product Communications* 6(7):993-994.

Tsai YL, Chiu C, Yi-Fu Chen J, Chan K, Lin S (2012) **Cytotoxic effects of *Echinacea purpurea* flower extracts and cichoric acid on human colon cancer cells through induction of apoptosis**. *Journal of Ethnopharmacology* 143(3):914-919.

Turgut F, Bayrak O, Catal F, Bayrak R, Atmaca AF, Koc A, Akbas A, Akcay A, Unal D (2008) **Antioxidant and protective effects of silymarin on ischemia and reperfusion injury in the kidney tissues of rats.** *International Urology and Nephrology* 40(2):453-460.

Ukiya M, Akihisa T, Yasukawa K, Kasahara Y, Kimura Y, Koike K, Nikaido T, Takido M (2001) **Constituents of Compositae plants. 2. Triterpene diols, triols, and their 3-o-fatty acid esters from edible *Chrysanthemum* flower extract**

and their anti-inflammatory effects. *Journal of Agricultural and Food Chemistry* 49(7):3187-3197.

Valentová K, Moncion A, Waziers I, Ulrichová J (2004) **The effect of *Smallanthus sonchifolius* leaf extracts on rat hepatic metabolism**. *Cell Biology and Toxicology* 20(2):109-120.

Vanaclocha B, Cañigueral S. 2003. **Fitoterapia: vademécum de prescripción**. Masson, Barcelona.

Varela F (1990) **Conocer**.1 ed. Gedisa, Barcelona.

Vasudeva N, Yadav N, Sharma SK (2012) **Natural products: A safest approach for obesity**. *Chinese Journal of Integrative Medicine* 18(6):473-80.

Verástegui MA, Sánchez CA, Heredia NL, García-Alvarado JS (1996) **Antimicrobial activity of extracts of three major plants from the Chihuahuan desert**. *Journal of Ethnopharmacology* 52(3):175-177.

Verdi LG, Brighente IMC, Pizzolatti MG (2005) **Genero *Baccharis* (Asteraceae): aspectos químicos, econômicos e biológicos**. *Química Nova* 28(1):85-94.

Vitalini S, Beretta G, Iriti M, Orsenigo S, Basilico N, Dall'Acqua S, Iorizzi M, Fico G (2011) **Phenolic compounds from *Achillea millefolium* and their bioactivity**. *Acta Biochimica Polonica* 58(2):203-209.

Vivot E, Massa R, Cruañes MJ, Muñoz J, Ferraro G, Gutkind G, Martino V (2007) **Actividad antimicrobiana in vitro de seis especies autóctonas de Entre Ríos (Argentina)**. *Latin American Journal of Pharmacy* 26(4):563-566.

Volpato G, Godínez, D, Beyra A (2009) **Migration and ethnobotanical practices. The case of Tifey among Haitian immigrants in Cuba**. *Human Ecology* 37(1):43-53.

Voon HC, Bhat R, Rusul G (2012) **Flower extracts and their essential oils as potential antimicrobial agents for food uses and pharmaceutical applications**. *Comprehensive Reviews in Food Science and Food Safety* 11:34-55.

Wachsman M, Coto E, Martino V (1988) **Search for antiviral activity in higher plant extracts**. *Fitoterapia* 59:422-424.

Wagate C, Mbaria J, Gakuya D, Nanyingi M, Kareru P, Njuguna A, Gitahi N, Macharia J, Njonge F (2010) **Screening of some Kenyan medicinal plants for antibacterial activity**. *Phytotherapy Research* 24(1):150-153.

Wagoner J, Negash A, Kane O, Martinez I, Nahmias Y, Bourne N, Pécheur E, Graf T, Oberlies N, Lohmann V, CaO F, Tavis J, Polyak S (2010) **Multiple effects of silymarin on the hepatitis C virus lifecycle**. *Hepatology* 51(6):1912-1921.

Wegiera M, Smolarz HD, Jedruch M, Korczak M, Koproń K (2012) **Cytotoxic effect of some medicinal plants from Asteraceae family on J-45.01 leukemic cell line-pilot study**. *Acta Poloniae Pharmaceutica* 69(2):263-268.

Westfall RE (2003). **Galactogogue herbs: A qualitative study and review**. *Canadian Journal of Midwifery Research and Practice* 2(2):22-27.

Wider B, Pittler MH, Thompson-Coon J, Ernst E (2009) **Artichoke leaf extract for treating hypercholesterolaemia**. *Cochrane Database Systematic Reviews* 7(4), doi: 10.1002/14651858.

Widrig R, Suter A, Saller R, Melzer J (2007) **Choosing between NSAID and arnica for topical treatment of hand osteoarthritis in a randomised, double-blind study**. *Rheumatology International* 27(6):585-591.

Williams C, Harborne J, Geiger H, Hoult J (1999) **The flavonoids of *Tanacetum parthenium* and *Tanacetum vulgare* and their anti-inflammatory properties**. *Phytochemistry* 51(3):417-423.

Xie G, Schepetkin I, Quinn M (2007) **Immunomodulatory activity of acidic polysaccharides isolated from *Tanacetum vulgare***. *International Immunopharmacology* 7(13):1639-1650.

Xie YY, Yuan D, Yang JY, Wang LH, Wu CF (2009) **Cytotoxic activity of flavonoids from the flowers of *Chrysanthemum morifolium* on human colon cancer Colon205 cells**. *Journal of Asian Natural Products Research* 11(9):771-778.

Xu LW, Chen J, Qi HY, Shi YP (2012) **Phytochemicals and their biological activities of plants in *Tagetes* L.** *Chinese Herbal Medicines* 4(2):103-117.

Yaeesh S, Jamal Q, Khan AU, Gilani A (2006) **Studies on hepatoprotective, antispasmodic and calcium antagonist activities of the aqueous-methanol extract of *Achillea millefolium***. *Phytotherapy Research* 20(7):546-551.

Yarnell E, Abascal K (2009) **Dandelion (*Taraxacum officinale* and *Taraxacum mongolicum*)**. *Integrative Medicine* 8(2):35-38.

Yasukawa K (1991) **Sterol and triterpene derivatives from plants inhibit the effect of a tumor promotor, and sitosterol and betulinic acid inhibit tumor formation in mouse skin two-stage carcinogenesis**. *Oncology* 48:72-76.

Yasukawa K, Kitanaka S, Seo S (2002) **Inhibitory effect of stevioside on tumor promotion by 12-O-tetradecanoylphorbol-13-acetate in two-stage carcinogenesis in mouse skin**. *Biological & Pharmaceutical Bulletin* 25:1488-1490.

Yu D, Yuan Y, Jiang L, Tai Y, Yang X, Hu F, Xie Z (2013) **Anti-inflammatory effects of essential oil in *Echinacea purpurea***. *Pakistan Journal of Pharmaceutical Sciences* 26(2):403-408.

Yukes JE, Balick MJ (2010) **Dominican medicinal plants: A guide for health care providers**. New York Botanical Garden, New York.

Zaidi S, Muhammad J, Shahryar S, Usmanghani K, Gilani A, Jafri W, Sugiyama T (2012) **Anti-inflammatory and cytoprotective effects of selected Pakistani medicinal plants in *Helicobacter pylori*-infected gastric epithelial cells**. *Journal of Ethnopharmacology* 141(1):403-410.

Zardini EM (1984a) **Etnobotánica de Compuestas argentinas, con especial referencia a su uso farmacológico I**. *Acta Farmacéutica Bonaerense* 3(1):77-99.

Zardini EM (1984b) **Etnobotánica de Compuestas argentinas, con especial referencia a su uso farmacológico II**. *Acta Farmacéutica Bonaerense* 3(2):169-194.

Zeggwagh NA, Michel JB, Eddouks M (2013) **Vascular effects of aqueous extract of *Chamaemelum nobile*: In vitro pharmacological studies in rats**. *Clinical and Experimental Hypertension* 35(3):200-206.

Zhan T, Digel M, Küch E, Stremmel W, Füllekrug J (2011) **Silybin and dehydrosilybin decrease glucose uptake by inhibiting GLUT proteins**. *Journal of Cellular Biochemistry* 112(3):849-859.

Zhu X, Zhang H, Lo R (2004) **Phenolic compounds from the leaf extract of artichoke (*Cynara scolymus* L.) and their antimicrobial activities**. *Journal of Agricultural and Food Chemistry* 52(24):7272-7278.