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Herbal therapy with application of Brazilian peppertree and Cat's claw

*Mohamad Hesam Shahrajabian**

Department of Agronomy and Plant Breeding, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan 81551-39998, IRAN

*Corresponding author: e-mail: hesamshahrajabian@gmail.com

Abstract. Since ancient times, natural components considerably from plant origin, have routinely been a notable source of therapeutic agents. There are many endemic medicinal plants and herbs in South America, which is known as the region of biodiversity. Due to the lack of economic resources, and insufficient medical attention, application of medicinal herbs and plants in Latin America is a common practice. The systematic review of documents and manuscripts from clinical trials, and scientific societies has been carried out. The surveys of interest were indexed in "PubMed", "Web of Science", and "SciFinder". Relevant literature has been obtained using the keywords "Antioxidant Activity", "Antimicrobial Activity", "Aroeira Fruit", "Medicinal Plant", "Mitraphylline", "Brazilian Peppertree", and "Cat's claw". The selection criterion was to include research papers on the most important topics, using *in vitro* or *in vivo* studies. Duplicate studies and those that do not fall with the scope of the search were excluded. The goal of this review article is a survey about the importance of Brazilian peppertree and cat's claw. Brazilian peppertree (*Schinus terebinthifolia*) is an evergreen tree or shrub with wide-spreading horizontal branches. The most important phytochemicals of *Schinus terebinthifolia* fruit oil are β-pinene, α-pinene, δ-3-carene, α-phellandrene, limonene, *p*-cymene, β-phellandrene, and mono-alcohols, triterpene alcohols, terpinolene, ketones, and sesquiterpene hydrocarbons. Some of the most pharmacological properties of *Schinus terebinthifolia* are antioxidant, antimicrobial, antiinflammatory, anticancer, wound healing, and andtiulcerogenic activity. Cat's claw (*Uncaria tomentosa*) is an important medicinal plant endemic to the tropical forests of South and Central of America, which has been used in wound treatment in traditional medicine with high antibacterial activities. In traditional medicinal sciences in South America, its root and bark have been used for treatment of cancer, inflammation, and infections. It allegedly aids fight a range of ailments, including Alzheimer's disease, arthritis, cancer, and infections. Although, many studies have evaluated the biological properties of these two medicinal plants in South America, little has been done to identify and characterize its chemical constituents, which is certainly a niche that needs to be further explored.

Keywords: antioxidant activity, antimicrobial activity, aroeira fruit, medicinal plant, mitraphylline

INTRODUCTION

The healing potential of many medicinal plants and herbs is because of bioactive components produced by the secondary metabolism of these plants (Sun et al., 2024a,b). The production of secondary metabolites is known as plants strategy for survival and defense. They acting basically in the protection against pest attack, herbivory, negative effects of climatic conditions, ultraviolet radiation, oxidative stress and as signaling components to attract seed dispersants and pollinating insects. A wide range researches and studies have investigated plant extracts as sources of natural products that reduce the risk of toxicity and presents antimicrobial, antioxidant, anticancer, antibacterial, antiviral,

antifungal, antiinflammatory activities, etc. (Shahrajabian, Sun, 2024a,b). Medicinal herbs and plants have been recognized as veritable therapeutic agents since they contain secondary phytochemicals with vast medicinal advantages (Shahrajabian, Sun, 2024c,d,e).

Schinus terebinthifolia Raddi, commonly known as aroeira mansa, aroeira vermelha, Brazilian peppertree and pimento rosa has a variety of applications such as for food purposes and folk medicine (Lamboro et al., 2020), and in traditional medicine, it is used to prepare baths, teas, balms, soaps, and ointments (Linden et al., 2020; Sun et al., 2025a,b,c). It can be also used to treatment of different diseases due to it healing properties, antirheumatic, antimicrobial, and antiinflammatory effects (Oliveira et al., 2020a). It contains saponins, anthraquinones, triterpenes, steroids, flavonoids, and phenols (Rocha et al., 2020; Lima et al., 2022).

Cat's claw (*Uncaria tomentosa* DC.) belongs to Rubiaceae family which is rich in phytoconstituents such as anthoxyanidins, phenols, sterols, anthocyanidins, glycosides, and indole alkaloids (Aldayel et al., 2021; Yepes-Perez et al., 2020) with various pharmacological properties such as immune booster, antiinflammatory, antiviral, antipyretic activities and wound healing agent (Bigliani et al., 2013; Kolodziejczyk-Czepas et al., 2021). In many researchers, it is reported that, the medicinal plant is mainly rich in oxindole and indole alkaloids, as well as triterpenoids derived from polyphenols and quinovic acid (Pavei et al., 2012; Montoro et al., 2004; Sheng et al., 2005). It has demonstrated anticancer acitivites, targeting melanoma cell lines and breast cancer (Zari et al., 2021).

This review aims at gathering the information undertaken till date on *Schinus terebinthifolia* (Brazilian peppertree), and *Uncaria tomentosa* (Cat's claw) in order to provide sufficient baseline information for future works and commercial exploitation.

BRAZILIAN PEPPERTREE (*SCHINUS TEREBINTHIFOLIA*)

Brazilian peppertree or aroeira (*Schinus terebinthifolia* Raddi; Anacardiaceae) is a plant native to South America. It is a tall shrub with several trunks and the leaflets are normally a deep glossy green color with reddish veins which grow opposite from each other with one leaflet at the tip. It possesses several characteristics such as rapid recovery after damage, high growth rates and seed production, tolerance of different environmental conditions, pollinated by insects and animal-dispersed seeds (Donnelly et al., 2008; Dlamini et al., 2018). Its fruits have a slight pepper, being extensively used as a culinary condiment (Manrique et al., 2009), a probable source of fatty acids, protein, and antoxidant compounds (Alvares-Carvalho et al., 2015; Tlili et al., 2018). It has antibacterial, antioxidative, antihyperlipidemic, antidiabetic, antihistaminic, antiinflammatory, antihemolytic, and antiatherogenic properties (Dannenberg et al., 2016; Uliana et al., 2016; Da Silva et al., 2017; Feriani et al., 2020; Feriani et al., 2021). In traditional medicinal sciences, the medicinal plant uses for the treatment of diseases such as arthritis, diarrhea, tumors, ulcers, skin sores, respiratory and urinary tract infections as well as rheumatism (Zotti-Sperotto et al., 2021). Its fruits are usually used as spice, whereas its roots, leaves and bark are used in traditional medicine (Feuereisen et al., 2017; Rebolledo et al., 2021). Its antifungal and antitumoral properties have been also reported (Souza et al., 2012; Gois et al., 2016). *Schinus terebinthifolia* leaf extract includes lectin, hydrolysable tannins, and flavonoids (Camaroti et al., 2018). Brazilian peppertree essential oils have been suggested as an efficacious formulation of natural herbicides to suppress germination and initial development of lovegrass (*Eragrostis plana*) (Maldaner et al., 2020). Its essential oil has been considered as a peppery flavor, and is applied in beverages, syrups, and vinegar in Peru as well as Chilean wines (Patocka, Almeida, 2017). It has been used to treat respiratory problems, wounds, ulcers, diarrhea, rheumatism, arthritis, gout, and skin disease in Brazilian folk medicine (Lima et al., 2009; Patocka, Almeida, 2017). Its methanolic extract had both the highest antioxidant activity and polyphenol content (Rebolledo et al., 2021), and antibacterial activity of bioflavonoids from Brazilian peppertree was found (Linden et al., 2020). Extracts from *S. terebenthifolia* successfully controled Zika virus entry in trophoblast cells, and showed a potential early antiviral impact (Oliveira et al., 2020a). The potential antimicrobial and antioxidant activity of Brazilian peppertree extracts is reflected in popular application for urinary tract infection (Uliana et al., 2016; Dannenberg et al., 2019). Its fruits contain different phenolic components such as gallotannins, anthocyanins, and bioflavonoids, and its flavonoids act as a growth regulator, and a constitutive defense against abiotic stresses, and both reddish fruits and leaves are rich in essential oil (Richter et al., 2010). Feuereisen et al. (2017) reported that it contains gallotannins, bioflavonoids, and anthocyanins which have been identified in the exocarp of plants. Reis et al. (2023) reported that its essential oil may show significant and important source of active natural components in traditional Brazilian medicinal science as the main essential oil of ripe pink pepper fruits were α-pinene, sylvestrene, and *l*-phellandrene*.

The identified compounds in leaves and fruits of *Schinus terebinthifolia* volatile oil extracted by hydrodistillation (HD) and by supercritical CO_2 at 90 bar 40 °C (SFE) were α-thujene, sabinene, α-pinene, (*E*)-caryophyllene, γ-terpinene, myrcene, β-pinene, β-elemene, α-phellandrene, α-terpinene, *o*-cymene, β-phellandrene, terpinolene, δ-selinene, α-copaene, δ-elemene, β-copaene, *trans*-β-guaiene, α-cadinol, α-himachalene, germa-

* *l*-phellandrene = α-phellandrene

Table 1. Examples of benefits of Brazilian peppertree fruit.

Benefits	Keypoint	Reference
Antimycobacterial activity	Its flavonoids are responsible for antimycobacterial activity.	Bernardes et al., 2014
Antibacterial activity	– Its tetrahydroamentoflavone revealed the highest antibacterial activity. – Its bioflavonoids showed inhibition biofilm formation, and activity against planktonic cells. – Linkage of flavonoids and degree of saturation of the C-ring identified due to its antibacterial activity.	Linden et al., 2020
	α-phellandrene and α-pinene showed promising antibacterial activity.	Salem et al., 2018
	Its essential oil promoted cell damage in all tested bacteria, and promoted the leakage of macromolecules and small ions from bacterial cells.	Dannenberg et al., 2019
Antimicrobial activity	Its bioflavonoids have significant role in the response to microbial infections.	Linden et al., 2020
Antifungal activity	It showed antifungal activity against *Candida albicans*.	Alves et al., 2013
Antiallergic activity	Its ethyl acetate faction showed antiallergic activity.	Cavalher-Machado et al., 2008
Anticancer activity	It has shown anticancer activity and it was found effective in reducing the number of lung tumor nodules.	Matsuo et al., 2011 Silva et al., 2019
Antitumor activity	Its extracts showed potential activity against tumor cell lines such as glioma and kidney.	Silva et al., 2017
Antidiabetic activity	Its extract showed antidiabetic activities because of glycosylated flavonols, gallotannins, and gallic acid.	Rocha et al., 2019
Antiinflammatory activity	Its extracts inhibited cytokine, leukocyte migration and chemokine production which makes it suitable for the treatment of inflammatory diseases.	Fedel-Miyasato et al., 2014 Rosas et al., 2015 Feriani et al., 2021
Antihypertensive activity	It has shown antihypertensive activity due to its phenolic components.	Gloria et al., 2017
Antioxidant activity	It has shown high antioxidant potential due to its high tannins, anthocyanins, flavonoids, and phenolic acids.	Sassi et al., 2020 Barreira et al., 2023
	Its fruit can be considered as a natural food additive due to its high antioxidant activity.	Tlili et al., 2018 De Oliveira et al., 2020a,b Oliveira et al., 2020b
	It is recommended as an alternative to replace synthetic antioxidants in processed food.	Vieira et al., 2023
	Its essential oil reduced contents of primary and secondary ingredients of lipoxidation, and the essential oil of ripe fruits showed antioxidant activity in cheese.	Dannenberg et al., 2016
Insecticidal activity	Its seed flour is toxic to the cowpea weevil (*Callosobruchus maculatus* (F.), larval development, as the seeds are rich in proteins such as chitinases, lipoxygenase, glycinin, 7S globulins, and others.	Oliveira et al., 2022
	Its essential oil shows high insecticidal activity against *Phthorimaea operculella* and *Spodoptera littoralis*.	Ennigrou et al., 2017
	Its fruit essential oil can be used for control of castor bean whitefly (*Trialeurodes ricini* Misra), and sweet potato whitefly (*Bemisia tabaci* Gennadius).	Hussein et al., 2017
	The essential oil of its fruits showed insecitidal activity against *Trialeurodes ricini*, *Bemisia tabaci*, *Culex pipiens*, and *Rhyzopertha dominica*.	Manrique et al., 2008 Camaroti et al., 2018 Bernardi et al., 2024
	Its essential oil can be used against cowpea weevil (*Callosobruchus maculatus* Fabricius).	Torre et al., 2024

crene D, γ-muurolene, β-selinene, bicyclogermacrene, α-muurolene, *trans*-isolongifolanone, γ-cadinene, germacrene A, δ-cadinene, germacrene B, viridiflorol, spathulenol, α-muurolol, *cis*-isolongifolanone, *epi*-α-muurolol, β-eudesmol, and eudesma-4(15),7-dien-1-β-ol (Piras et al., 2017). α-pinene, β-caryophyllene, and germacrene D represents *S. terebinthifolia* dried leaves essential oil principle components, as well as, germacrene D, α-pinene, and β-pinene in the fruit (Cavalcanti et al., 2015; Fagundes et al., 2020). Chemical composition of the essential oil of its fruits are tricyclene, 4-aliloxy-2-methyl-2-pentanol, α-tujene, α-pinene, β-pinene, canfene, δ-3-carene, mircene, β-phelandrene, α-terpineol, bornilene, bornil acetate, germacrene D, and citronelil acetate (Salem et al., 2018; Acacio et al., 2023). On the basis of principal component analysis (PCA), the main compounds, namely limonene, phellandrene, and carene obtained from samples of several geographical locations in Brazil (Ennigrou et al., 2017; Carneiro et al., 2017). More specifically, phenolic compounds like bioflavonoids, gallotannins, and anthocyanins have been discovered in the exocarp of *S. terebinthifolia* fruits (Fedel-Miyasato et al., 2014).

Brazilian peppertree fruit presented better results than synthetic additives against cholesterol thermo-oxidation and the protective impacts of it is connected with the presence of bioactive compounds (De Oliveira et al., 2020a). *Schinus terebinthifolia* Raddi fruit is considered as a natural food additive due to its nutritional values and high antioxidant (De Oliveira et al., 2020b). *Schinus terebinthifolia* significantly mediated through its antioxidant activity, showing a potential therapeutic advantage of this species in the treatment of Parkinson's disease (Sereniki et al., 2016). Antiadherent activity of *S. terebinthifolia* on *in vitro* biofilms shaped by and *Streptococcus mutans* and *Candida albicans* were proved, suggesting the importance of trials about these extracts for therapeutic prevention of oral diseases related to oral biofilms (Barbieri et al., 2014). Antimicrobial activity of Brazilian peppertree was associated with phenolic compounds enriched extract; gallotannins, gallic acids, flavonoids and their derivatives were the major constituents in the extracts (Gomes et al., 2020). Antiallergic characteristics of the acetate fraction of *S. terebinthifolia* leaves was identified, which contained the inhibition of edema formation and histamine release due to mast cell degranulation and eosinophil influx into the pleural cavity possibly reflected by the decreased levels of chemokines in recovered pleural lavage fluid (Cavalher-Machado et al., 2008). Its extract also indicated potent activity against tumor cell lines, especially glioma and kidney (Silva et al., 2017). Rosas et al. (2015) suggested a putative application of *S. terebinthifolia* for the development of phytomedicines to treat inflammatory diseases, such as joint inflammation. *Schinus terebinthifolia* extracts suppressed the activity of the enzyme α-glucosidase and revealed antiglycation activity (Rocha et al., 2019). The monoterpenes β-pinene and α-pinene could be accountable for cytotoxic activity detected in the crude oil from leaves (Santana et al., 2012). Oliveira et al. (2024) reported that the essential oil from the leaves showed higher antibacterial potential against *Staphylococcus aureus* and *Escherichia coli*, and on the basis of the activities of its essential oil, it is recommended to be used as a biopreservative in foods. SteLL, which is a lectin isolated from the leaves has anxiolytic, analgesic, and antitumor acitivites, which is characterized as an *N*-acetylglucosamine binding protein a molecular weight of 12.4 kDA (Nunes et al., 2022). Pharmacological benefits of Brazilian peppertree fruit are shown in Table 1.

CAT'S CLAW (*UNCARIA TOMENTOSA* DC.)

Uncaria tomentosa DC. (Rubiaceae) is a medicinal plant which grows wild in the upper Amazon region of Brazil, Peru. It is commonly known as "Una de Gato", "Cat's Claw", and "Vilcacora" (Alvarenga-Venutolo et al., 2018) and it has been widely applied in folk medicine to treat various health conditions especially cancer (Pilarski et al., 2010; Ciani et al., 2018; Kaiser et al., 2020), and commonly used to treat disorders such as arthritis, gastritis, and osteoarthritis (Calvo et al., 2017), inflammatory processes and tumor (Prado et al., 2007; Goncalves et al., 2005). It has high immunostimulant, antioxidant, antiviral, antioxidant, and antiapoptotic characteristics (Lemaire et al., 1999; Pilarski et al., 2006; Allen-Hall et al., 2007; Reis et al., 2008). It is used in blood purification, its anticoagulant properties are usage in haemorrhage therapy (Kolodziejczyk-Czepas et al., 2021). Secondary metabolites, namely quinovic acid glycosides and alkaloids have noticeable importance in biological activities of *U. tomentosa* (Pavei et al., 2012). Sheng et al. (2005) reported that the efficacy of *U. tomentosa* was connected to oxindole alkaloids and quinic acid esters. Moreover, the antitumor activity of it has been basically related to pentacyclic oxindole alkaloids from stem bark and leaves (Kaiser et al., 2016). Cat's claw bark water-insoluble fractions were active again resistant non-*albicans Candida* isolates, and its high molecular mass polyphenols indicated the maximum antifungal activity (Moraes et al., 2015). Antimutagenic and mutagenic activities of extracts and chromatographic fractions of *Uncaria tomentosa* bark have been discovered (Rizzi et al., 1993). Its root and bark have been traditionally used as a therapy in tropical South America for different conditions, like cancer, inflammations, infections, arthritis, and gastric ulcers as well as unique potential for skin health, asthma, blood purification, fevers, hemorrhages, menstrual irregularity, and possess a normalization activity on body systems (Dreifuss et al., 2013). Many active components have been identified from it, including antioxidants such as flavonoids, procyanidins, carboxyl alkyl esters, triterpenes, tannin, sterols, catechins, and indole and oxindole alkaloids (Aquino et al., 1997; Maria et al., 1997; Kuras et al., 2009). Bioactive components of *U. tomentosa* extracts include oxindole alkaloids, indole alkaloidal glu-

cosides (Montoro et al., 2004), proanthocyanidins (Navarro et al., 2017), quinovic acid glycosides, catechins, polyphenols, proteins, tannins, and beta-sitosterol (Cerri et al., 1988; Aquino et al., 1997). Oxindole alkaloids, separated from its bark are accountable for the biological activity of this herb (Paradowska et al., 2008; Pilarski et al., 2013). The leaves, polyphenolic-enriched compounds and extracts identification, showed that they contain flavan-3-ols, alkaloids, flavalignans, propelargonidins, and procyanidins (Falkiewicz, Lukasiak, 2001; Navarro et al., 2017; Navarro-Hoyos et al., 2017; Navarro-Hoyos et al., 2018). Its antiinflammatory activity was significantly higher using the hydroalcoholic compared with the aqueous extract (Aguilar et al., 2002; Martino et al., 2006; Allen-Hall et al., 2010; Gurrola-Diaz et al., 2011). The primary mechanism for its antiinflammatory actions appears to be immunomodulation via suppression of TNFα synthesis (Sandoval et al., 2000; Rojas-Duran et al., 2012). Cat's claw ethyl acetate extracts' induction of apoptosis in HL-60 cells may make it very important in the development of medicine that can trigger chemopreventive activities (Sandoval et al., 2002; Cheng et al., 2007; Santos et al., 2016; Lima et al., 2020). A standardized aqueous extract of *Uncaria tomentosa* can be considered as important therapeutic intervention against Parkinson's disease, as it can scavenge different types of free radicals, particularly hydroxyl radical and may alleviate the aggregation of α-synuclein (Shi et al., 2013). Hydroethanolic extracts from *U. tomentosa* may be considered promising for the suppression of viral attachment to cell was the significant mechanism of antiherpetic action (Caon et al., 2014). Both antitumoral and antioxidant effects of *Uncaria tomentosa* hydroalcoholic extract was reported (Dreifuss et al., 2010; Neto et al., 2011). *In vivo* assays showed that aqueous bark extract was more appropriate in treating asthmatic inflammation while aqueous leaf extract was more important in controlling respiratory mechanics, and both extracts may have promising alternatives in the phytotherapy of allergic asthma (Junior, Dantas, 2016; Azevedo et al., 2018). The potential effectiveness of *U. tomentosa* as complementary and/or alternative medicine for COVID-19 treatment is proposed (Yepes-Perez et al., 2020). Mitraphylline is the main abundant pentacyclic oxindolic alkaloid from *U. tomentosa* may be the main modulator for promoting the plasticity of monocytes/macrophages and the attenuation of the inflammatory response (Akesson et al., 2003a,b; Jurgensen et al., 2005; Paz et al., 2015). Among its bioactive alkaloids, uncarine F has anticancer activity (Akesson et al., 2005), mitraphylline has antiinflammatory and antioxidant activities (Rojas-Duran et al., 2012; Azevedo et al., 2019), isomitraphylline has antioxidant activity (Azevedo et al., 2019), speciophylline has antineoplastic activity (Dreifuss et al.,

Table 2. Some of the most important health benefits of *Uncaria tomentosa*.

Pharmacological benefits	Keypoint	Reference
Anticancer activity	It contains different types of pentacyclic oxindole alkaloids which have shown anticancer activities against breast cancer, cervical, thyroid, and bladder cells.	Riva et al., 2001 Rinner et al., 2009 Pilarski et al., 2010
	Its extracts decrease the infiltration of T cells into the tumours, and reduced angiogenic markers in cancer cells.	Zari et al., 2021
	It has shown antiproliferative effect against different cell lines, such as neuroblastoma, leukaemia, acute lymphoblastic, breast cancer, promyelocytic leukaemia, and glioma.	Akesson et al., 2003a,b Cheng et al., 2007
Antineoplastic activity	It has immunostimulatory and antitumor activity due to its oxindole alkaloids content.	Piscoya et al., 2001
Antioxidant activity	It has antioxidant activity, and it can be used for treatment of chronic inflammatory diseases.	Sandoval et al., 2000 Piscoya et al., 2001 Araya-Sibaja et al., 2022
	It was discovered to protect against oxidative stress in human erythrocytes.	Sandoval et al., 2002
	It has also the significant cytoprotective effect due to its ability to interact with the injurious oxidant.	Sandoval et al., 2000
Antiinflammatory activity	It has antiinflammatory activity due to its NF-kB inhibition.	Allen-Hall et al., 2010
Antimicrobial activity	It shows antimicrobial activity against *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Enterococcus faecalis*.	Ccahuana-Vasquez et al., 2007
Antiviral activity	It has been examined as a binding factor for the ACE2 receptor at the site where Covid-19 spike protein binds.	Yepes-Perez et al., 2020
	Its extracted alkaloid is useful against dengue virus-2 (DENV) *in vitro*.	Reis et al., 2008 Lima-Junior et al., 2013
Skin health and wound dressing material	Alginate films with its extract could be applied as wound dressings materials.	Elgegren et al., 2021

2013), isopteropodine has antimicrobial activity (Bacher et al, 2006), pteropodine has immunomodulating properties (Kosmider et al., 2017), corynoxeine inhibits aortic vascular smooth muscle cell proliferation (Kim et al., 2008) and rhynchophylline can inhibit the platelet aggregation and thrombosis (Chen et al., 1999). Sowjanya and Rao (2023) also found that the fast dissolving oral films of *Uncaria tomentosa* extract is attractive, novel, and the proposed alternative to the available marketed products which can be used in treatment of osteoarthritis. *Uncaria tomentosa* prevented piroxicam- and ethanol-induced ulceration which can minimize ulcer recurrence and improve gastric healing in rodents (Simomura et al., 2024). It is a source of alkaloids with neuroprotective impacts which can improve memory in the Morris water maze test, and protects against DNA damage (Castilhos et al., 2020). Its extract also could improve hypertension induced by angiotensin II infusion in mice, downregulated antiangiogenic factors in human placenta and human umbilical vein endothelial cells (HUVECs) (Oogaki et al., 2021). Blanck et al. (2022) also concluded that its components have antibacterial potential. Lima et al. (2024) also reported that the extract of *Uncaria tomentosa* has antiviral activity against the chikungunya virus. Sanchez-Hernandez et al. (2022) reported that the aqeous extract of its bark can be used to control crown and fruit rot, gray mold, and verticillium wilt of strawberry. Azevedo et al. (2019) showed that the aqueous leaf extract has antioxidant activity in *Caenorhabditis elegans* as a model organism. Pharmacological benefits of *U. tomentosa* are presented in Table 2.

CONCLUSION

Schinus terebinthifolia Raddi belongs to the Anacardiaceae family, which is commonly known as aroeirinha, aroeira-vermelha, or the Brazilian peppertree. Chemical compounds identified in *Schinus terebinthifolia* are consist of β-pinene, α-pinene, limonene, δ-3-carene, β-phellandrene, α-phellandrene, *p*-cymene, and mono-alcohols, triterpene alcohols, terpinolene, ketones, and sesquiterpene hydrocarbons. The main chemical components in the essential oils extracted from its fruits are α-funebrene, α-pinene, sabinene, β-pinene, Z-salvene, and limonene. *Schinus terebinthifolia* has been used as antipyretic, analgesic, and depurative as well as antimicrobial, antiinflammatory, and antiulcerogenic activity. *Uncaria tomentosa* (Cat's claw) is a plant from South and Central America, which has become relatively prominent in different countries, because of its proven antiinflammatory and immunostimulatory activities as well as its antioxidant and anticancer properties. The most important pharmacological activities of *Uncaria tomentosa* are antiprotozoal activity, antiinflammatory activity, antioxidant activity, antimicrobial activity, antineoplastic activity, and cardiovascular activity. Some of the most notable bioactive alkaloids isolated from *Uncaria tomentosa* are speciophylline, uncarine F, isomitraphylline, mitraphylline, isopteropodine, petropodine, rhynchophylline, and corynoxeine.

Since their widespread popular use as medicinal plants, Brazilian peppertree, and Cat's claw have shown high potential for the development of new herbal products in an organic life style.

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Author ORCID
Mohamad Hesam Shahrajabian 0000-0002-8638-1312

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