REVIEW ARTICLE

RECORDS OF PHARMACEUTICAL AND BIOMEDICAL SCIENCES

A Review on Bioactive Phytochemicals of Purslane (*Portulaca oleracea* L.)

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Abstract

Purslane *(Portulaca oleracea* L.) is a ubiquitous medicinal plant belonging to the family Portulacaceae. *Portulaca oleracea* has been utilized as folk medicine by many nations throughout history together with its use as a potherb and for culinary use. The chemical richness and variability of *Portulaca oleracea* gave it a substantial and peerless use as an herbal remedy for a plethora of ailments. It was utilized to heal ulcers, prevent diarrhea, and treat diabetes, fatigue, cancer, postpartum bleeding and intestinal bleeding. “Global panacea” was the name called after *Portulaca oleracea* by the World Health Organization (WHO) as a consequence. This review provides a detailed update on the phytochemical composition of purslane. Flavonoids, homoisoflavonoids, and different classes of alkaloids that have many pharmacological activities are among the main active constituents of P.O. In addition, other classes of active constituents, isolated from purslane including lignans, terpenoids, polysaccharides, cerebrosides, and phenolic and fatty acids are discussed in this review.

Keywords: *Portulaca oleracea*, Alkaloids, Flavonoids, Purslane, Phytochemistry.

1. Introduction

Purslane, also known as *Portulaca oleracea L.*, is an annual herbaceous plant with reddish stems and alternating leaves belonging to the Portulacaceae family that is primarily found in tropical and subtropical regions and is native to South America and Africa (Chowdhary et al., 2013; Iranshahy et al., 2017; K. Li et al., 2024; Zhou et al., 2015). The word Portulaca which indicates the presence of milky juice in the plant, is linguistically originated from the Latin word "Porto" which means "to carry" and "lac" which means "milk" (K. Li et al., 2024; Masoodi et al., 2011).

Various countries utilize purslane as a herbal remedy, as *Portulaca oleracea* (PO) has pharmacological properties such as wound healing, anti-inflammatory properties, skeletal muscle relaxation, antibacterial properties, radical scavenger properties, antioxidant, analgesia, and anti-convulsant properties (K. Li et al., 2024; Zhou et al., 2015). It also acts as an antiseptic, diuretic, vermifuge, febrifuge, and anti-spasmodic (Zhou et al., 2015).

As a result, more and more researchers are focusing on its medicinal properties. To date, a variety of active chemicals have been isolated and identified from the plants, including lignans, alkaloids, flavonoids, organic acids, terpenoids, and others (Zhou et al., 2015). We present comprehensive data on P. oleracea phytochemistry in this paper.

2. Phytochemistry

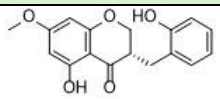
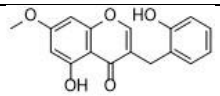
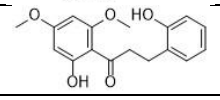
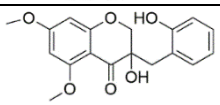
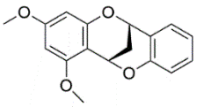
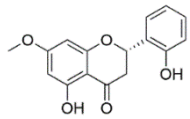
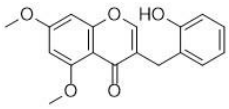
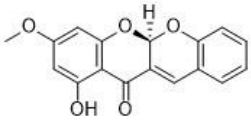
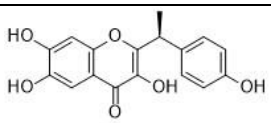
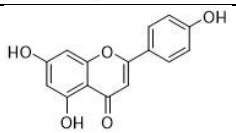
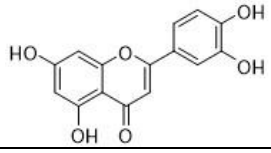
Purslane is a renowned medicinal plant in traditional medicine systems with a variable chemical constituents mainly belong to alkaloid, terpenoid, cerebrosides, fatty acids, flavonoid, organic acid and

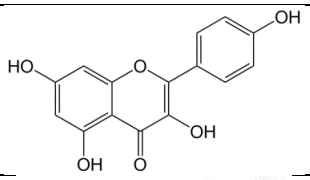
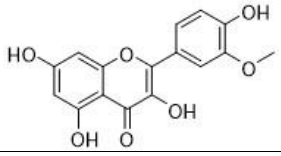
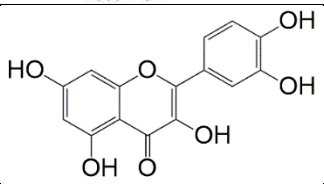
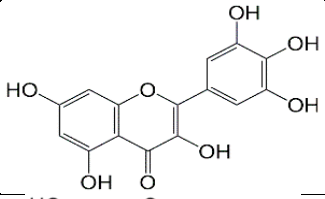
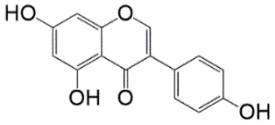
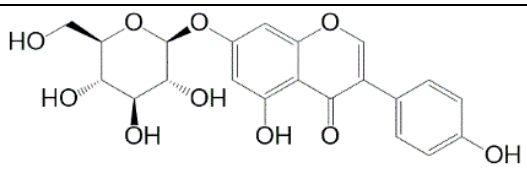
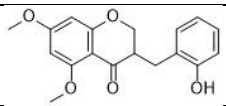
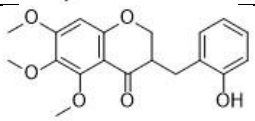
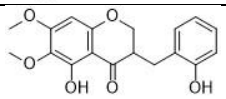
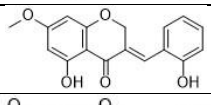
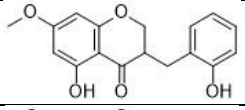
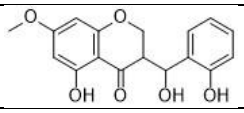
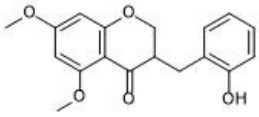
other classes of natural compounds (Gerometta et al., 2020; Zhou et al., 2015).

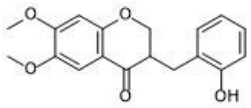
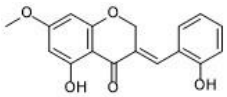
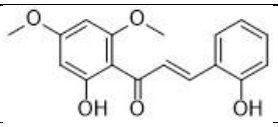
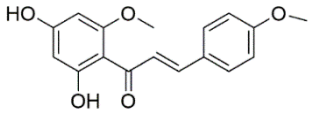
2.1 Flavonoids:

Flavonoids and Homoisoflavonoids are among main active constituents of purslane. Flavonoids amount vary according to plant parts with highest concentration in the root followed by stem and leaf at last (Zhou et al., 2015). Homoisoflavonoids, a special subclass of flavonoids, are 3-benzylchrom-4-ones derivatives with variable pharmacological activities (Yan et al., 2012). Although it can be found in Portulacaceae, Gentianaceae, Orchidaceae, and Polygonaceae families, they are rarely found in nature and existing mainly in Asparagaceae and Fabaceae families (Lin et al., 2014). Table 1 represents a list of flavonoids and homoisoflavonoids isolated and identified from *Portulaca oleracea.*

Table 1. Flavonoids and homoisoflavonoids isolated from *P. oleracea*

Compound		Structure	Reference
Name	**Type**		
Oleracone C	Homoisoflavonoid		(X. Yang et al., 2018)
Oleracone D	Homoisoflavonoid		(X. Yang et al., 2018)
Oleracone E	Chalcone		(X. Yang et al., 2018)
Oleracone Q	Homoisoflavonoid		(J. Liu, Wang, et al., 2024)
5,7-dimethoxy-4-O-2′-cycloflavan	Cycloflavan		(X. Yang et al., 2018)
(2S)-5,2′-dihydroxy-7-methoxyflavanone	Flavanone		(X. Yang et al., 2018)
Oleracone F	Homoisoflavonoid		(X. Yang et al., 2019)
Oleracone G	Homoisoflavonoid		(Duan et al., 2021)
Oleracone P	Chromone alcohol		(Zhang et al., 2024)
Apigenin	Flavone		(Aini et al., 2022; Nayaka et al., 2014)
Luteolin	Flavone		(Aini et al., 2022)

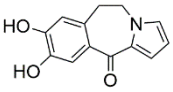
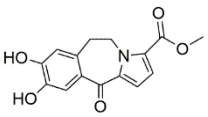
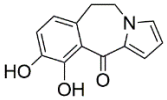
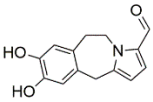
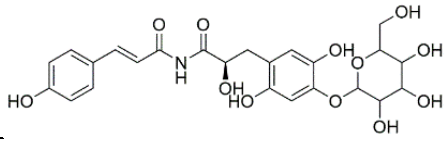
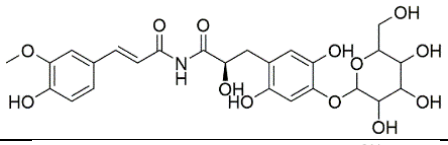
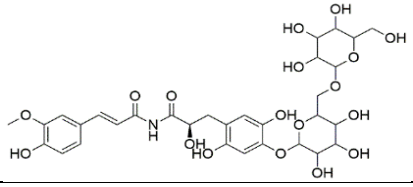
Kaempferol	Flavonol		(X. Xu et al., 2006)
Isorhamnetin	Flavonol		(Aini et al., 2022)
Quercetin	Flavonol		(X. Xu et al., 2006)
Myricetin	Flavonol		(X. Xu et al., 2006)
Genistein	Isoflavone		(Zhu et al., 2010)
Genistin	Isoflavone glycoside		(Zhu et al., 2010)
Portulacanone A	Homoisoflavonoid		(Lee et al., 2019; Yan et al., 2012; X. Yang et al., 2019)
Portulacanone B	Homoisoflavonoid		(Lee et al., 2019; Yan et al., 2012; X. Yang et al., 2019)
Portulacanone C	Homoisoflavonoid		(Lee et al., 2019; Yan et al., 2012; X. Yang et al., 2019)
Portulacanone D	Homoisoflavonoid		(Lee et al., 2019; Yan et al., 2012)
Portulacanone E	Homoisoflavonoid		(Lee et al., 2019)
Portulacanone F	Homoisoflavonoid		(Lee et al., 2019)
5,7-dimethoxy-3-(2′-hydroxybenzyl)-4-chromanone	Homoisoflavonoid		(Park et al., 2019)

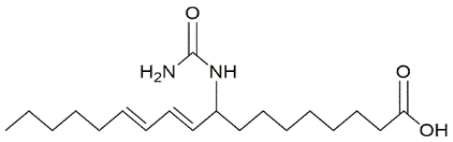
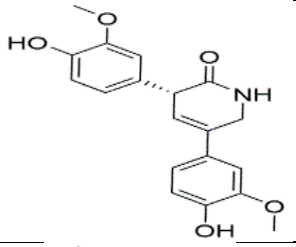
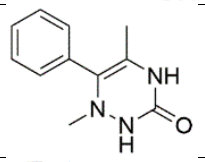
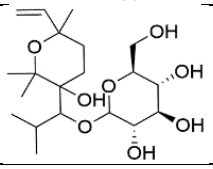
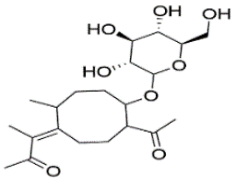
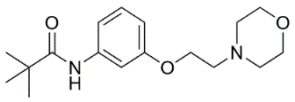
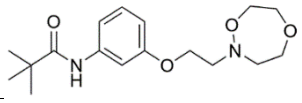
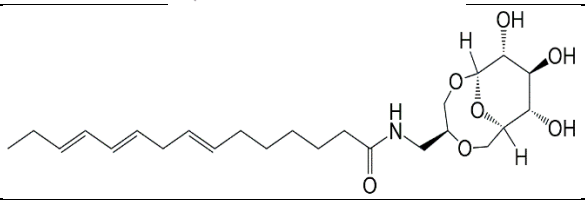
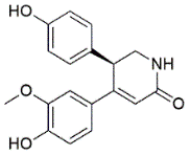
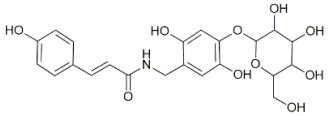
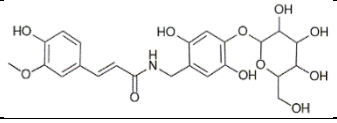
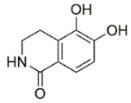
5-hydroxy-6,7-dimethoxy-3-(2′-hydroxybenzyl)-4-chromanone	Homoisoflavonoid		(Park et al., 2019)
(E)-5-hydroxy-7-methoxy-3-(2′-hydroxybenzyl)-4-chromanone	Homoisoflavonoid		(Park et al., 2019)
2,2′-dihydroxy-4′,6′-dimethoxychalcone	Chalcone		(Lee et al., 2019; Yan et al., 2012)
2′,4′-dihydroxy-4,6′-dimethoxychalcone	Chalcone		(X. Yang et al., 2018)

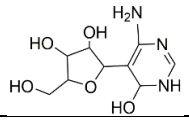
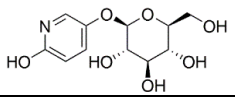
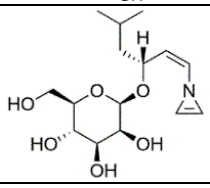
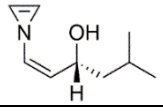
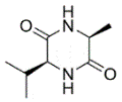
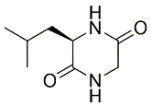
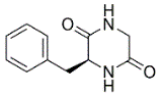
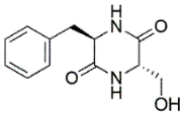
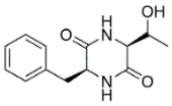
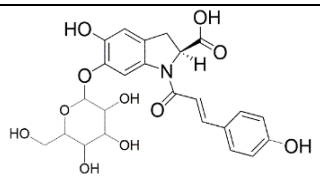
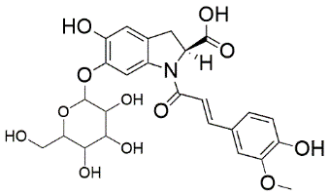
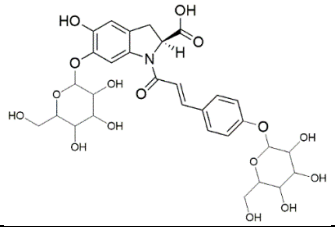
2.2. Alkaloids:

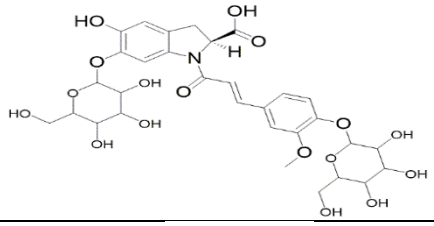
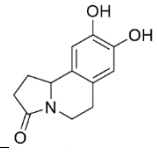
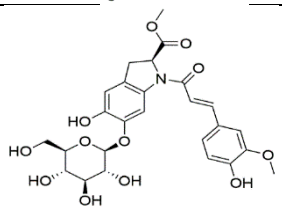
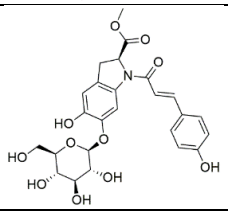
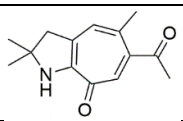
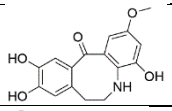
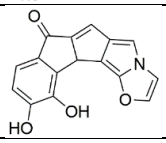
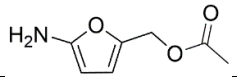
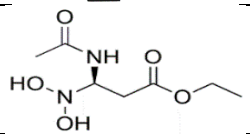
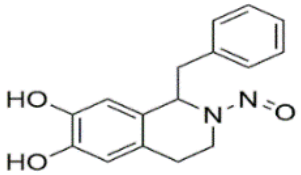
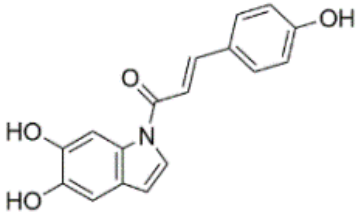
As it comprises immense variable chemical structures, different classes of alkaloids have been isolated and identified from different parts of PO. A variety of alkaloids have been isolated from aerial parts of purslane are listed in Table 2.

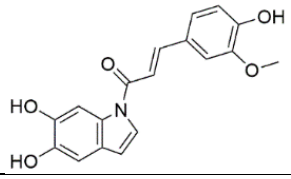
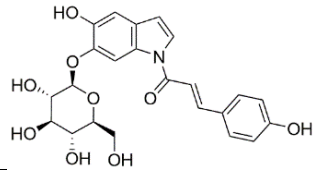
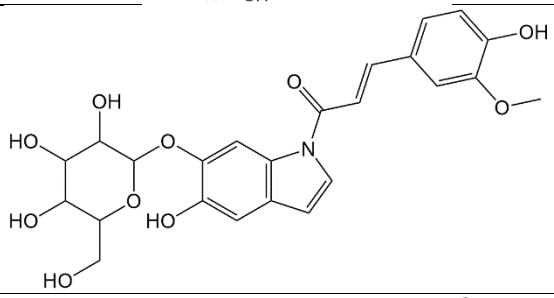
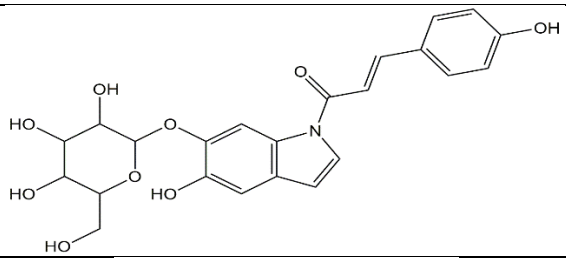
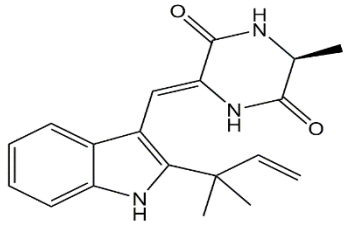
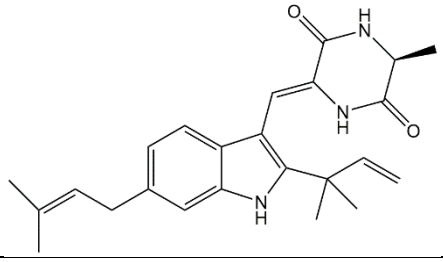
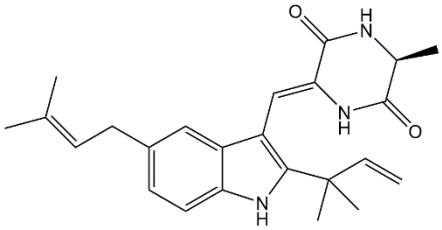
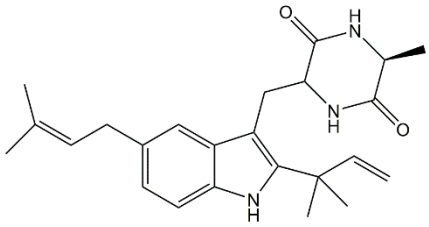
Table 2. Alkaloids isolated from *P. oleracea*

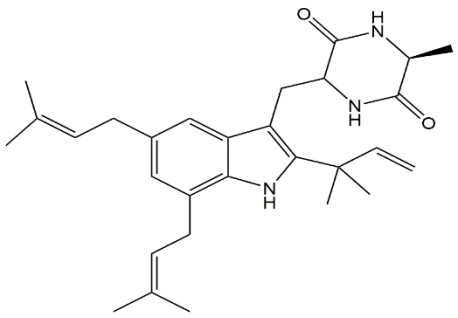
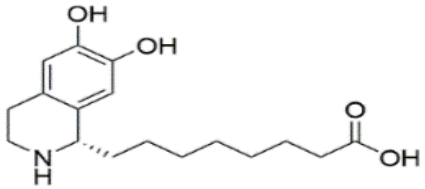
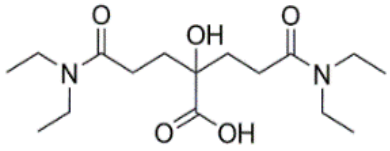
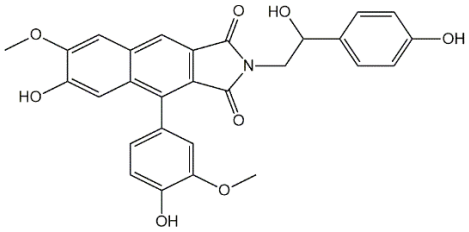
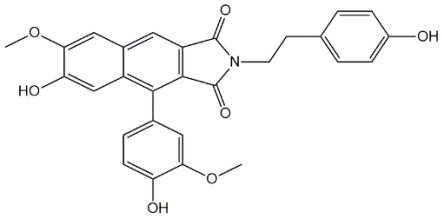
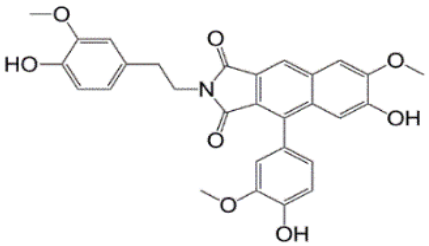
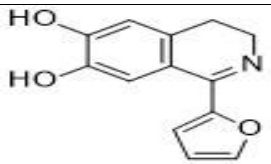
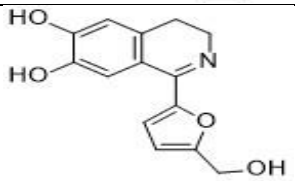
Compound Name	Structure	Reference
Portulacatone		(Jin et al., 2018; Zhao et al., 2018)
Portulacatone A		(Gu et al., 2020)
Portulacatone B		(X. Cui et al., 2021)
Portulacatal		(X. Cui et al., 2021)
Oleracrylimide A		(Song et al., 2022)
Oleracrylimide B		(Song et al., 2022)
Oleracrylimide C		(Song et al., 2022)

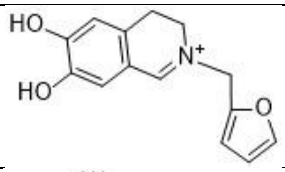
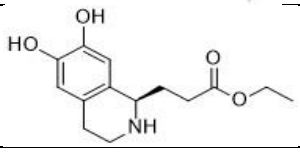
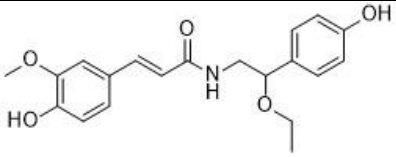
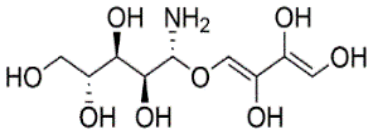
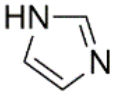
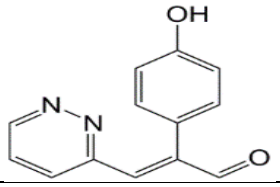
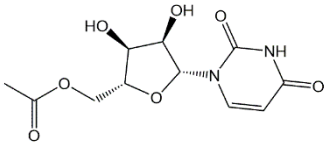
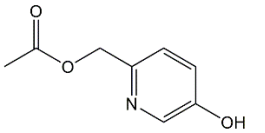
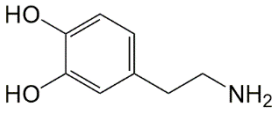
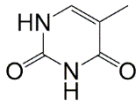
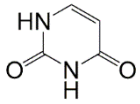
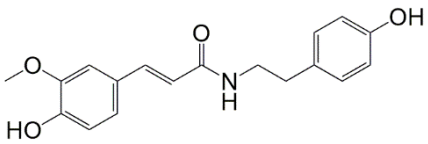
Oleraurea		(Xiu et al., 2018)
(3R)-3,5-bis(3-methoxy-4-hydroxyphenyl)-2,3-dihydro-2(1H)-pyridinone		(J. L. Tian et al., 2014)
1,5-dimethyl-6-phenyl-1,2-dihydro-1,2,4-triazin-3(2H)-one		(J. L. Tian et al., 2014)
Olerapyran A		(J. L. Tian et al., 2014)
Oleraoctyl		(J. L. Tian et al., 2014)
Oleraciamide A		(C. Li et al., 2017)
Oleraciamide B		(C. Li et al., 2017)
Oleraciamide C		(L. Xu et al., 2017)
Oleraciamide D		(Zhao et al., 2018)
Oleraciamide E		(X. Liu et al., 2021)
Oleraciamide F		(X. Liu et al., 2021)
Oleraciamide G		(W. Xu et al., 2021)

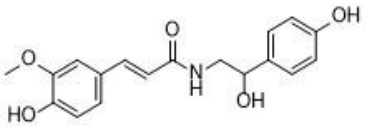
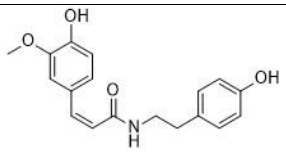
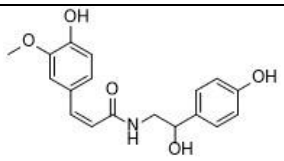
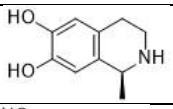
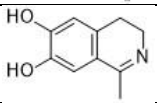
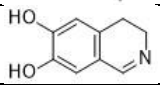
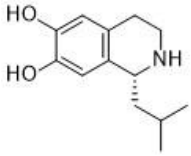
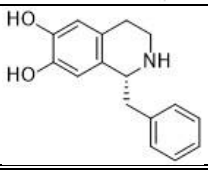
Olerapyrimidine		(J. Liu, Jiu, et al., 2024)
Olerapyridine		(J. Liu, Jiu, et al., 2024)
Olerazirin A		(J. Wang et al., 2024)
Olerazirin B		(J. Wang et al., 2024)
Cyclo (L-Val-L-Ala)		(J. Wang et al., 2024)
Cyclo-(glycyl-L-leucine)		(J. Wang et al., 2024)
Cyclo-(Gly-Phe)		(J. Wang et al., 2024)
Cyclo (Ser-Phe)		(J. Wang et al., 2024)
(3S,6S)-3-[(1R)-1-hydroxyethyl]-6-(phenyl-methyl)-2,5-piperazinedione		(J. Wang et al., 2024)
Oleracein A		(Xiang et al., 2005)
Oleracein B		(Xiang et al., 2005)
Oleracein C		(Xiang et al., 2005)

Oleracein D		(Xiang et al., 2005)
Oleracein E		(Gu et al., 2020; Jin et al., 2018; Xiang et al., 2005)
Oleracein F		(D. Liu et al., 2011)
Oleracein G		(D. Liu et al., 2011)
Oleracone		(Meng et al., 2016)
Oleracone L		(X. Cui et al., 2021)
Oleracone M		(Lan et al., 2023)
Oleracone N		(J. Tian et al., 2023)
Oleracone O		(J. Tian et al., 2023)
Oleraisoquinoline		(P. Liu et al., 2022)
Oleraindole A		(Zhao et al., 2019)

Oleraindole B		(Zhao et al., 2019)
Oleraindole D		(W. Xu et al., 2021)
Oleraindole E		(Lan et al., 2022)
Oleraindole F		(Lan et al., 2022)
(−)-neoechinulin A		(Zhao et al., 2019)
neoechinulin D		(Zhao et al., 2019)
isoechinulin A		(Zhao et al., 2019)
MT-6		(Zhao et al., 2019)

Echinulin		(Zhao et al., 2019)
Oleralkacid A		(Guo et al., 2022)
Oleralkacid B		(Guo et al., 2022)
Oleraisoindole		(Jiang et al., 2018)
Oleraisoindole A		(Ma et al., 2021)
Oleraisoindole B		(Yao et al., 2023)
1-(furan-2-yl)-6,7-dihydroxy-3,4-dihydroisoquinoline		(Jin et al., 2018)
1-(5′-hydroxylmethylfuran-2-yl)-6,7-dihydroxy-3,4-dihydroisoquinoline		(Jin et al., 2018)

2-(furan-2- ylmethyl)-6,7-dihydroxy-3,4-dihydroisoquinolin-2-ium		(Jin et al., 2018)
ethyl 6,7-dihydroxy-1,2,3,4-tetrahydroisoquinoline-1-propanoate		(Jin et al., 2018)
7′-ethoxy-trans-feruloyltyramine		(Jiang et al., 2018; Ying et al., 2020)
(5S, 6 R, 7S, 8R)-5-amino-(2Z,4Z)-1,2,3-trihydroxybuta-2,4-dienyloxy-pentane-6,7,8 ,9-tetraol		(J. Liu, Jiu, et al., 2024)
1H-imidazole		(J. Liu, Jiu, et al., 2024)
Oleradazine		(F. Liu et al., 2022)
((2R,3S,4R,5R)-5-(2,4-dioxo-3,4-dihydropyrimidin1(2H)-yl)-3,4-dihydroxytetrahydrofuran-2-yl)methyl acetate		(Song et al., 2023)
(5-hydroxypyridin-2-yl)methyl acetate		(Song et al., 2023)
Dopamine		(Jin et al., 2018)
Thymine		(Yan et al., 2012)
Uracil		(L. Xu et al., 2017; Yan et al., 2012)
N-trans-feruloyltyramine		(Jiang et al., 2018; J. L. Tian et al., 2014; Yan et al., 2012; Zhao et al., 2018)

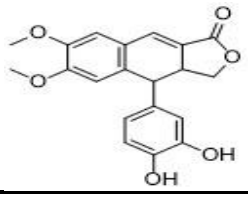
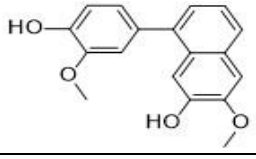
N-trans-feruloyloctopamine		(Yan et al., 2012; Zhao et al., 2018)
N-cis-feruloyltyramine		(Yan et al., 2012)
N-cis-feruloyloctopamine		(Yan et al., 2012)
(S)-(−)-Salsolinol		(Jin et al., 2018)
6,7-dihydroxy-1-methyl-3,4-dihydroisoquinoline		(Jin et al., 2018)
6,7-dihydroxy-3,4-dihydroisoquinoline		(Jin et al., 2018)
1-isobutyl-6,7-dihydroxy-1,2,3,4-tetrahydroisoquinoline		(Jin et al., 2018)
1-benzyl-6,7-dihydroxy-1,2,3,4-tetrahydroisoquinoline		(Jin et al., 2018)

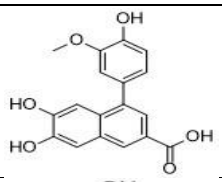
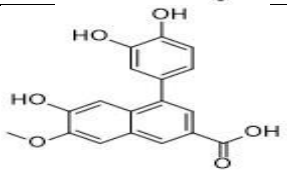
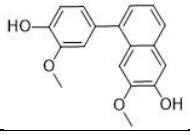
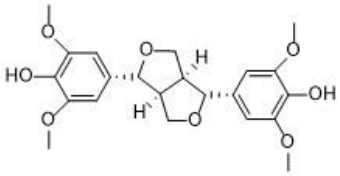
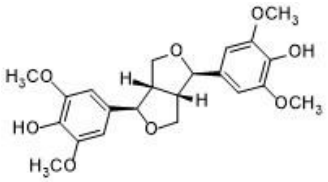
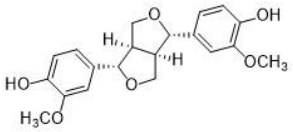
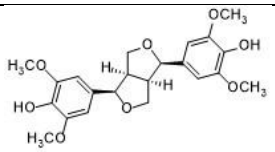
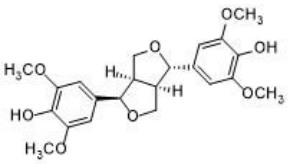
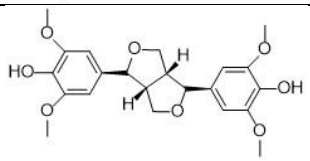
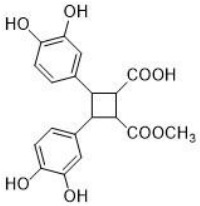
2.3. Lignans

Oxidative dimerization of two or more phenylpropanoid units results in the formation of one of the most abundant plant secondary metabolites with biological activities, lignans (Barker, 2019).

Lignans possess a variety of pharmacological activities, which was attributed to its structural diversity (Q. Cui et al., 2020). Multiple lignan compounds isolated and identified from *Portulaca oleracea* are listed in Table 3.

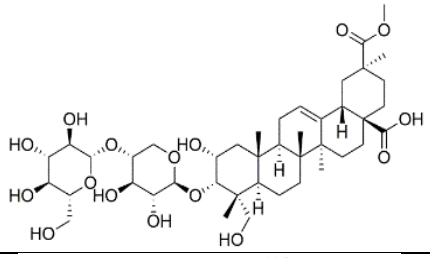
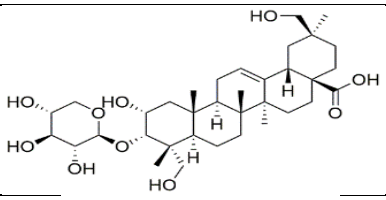
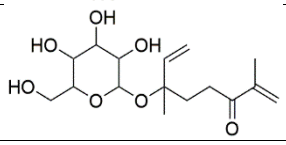
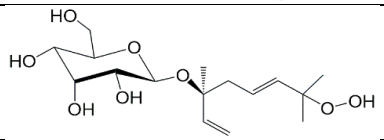
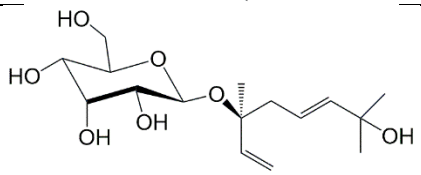
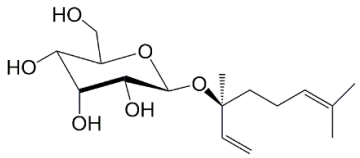
Table 3. Lignans isolated from *P. oleracea*

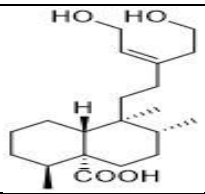
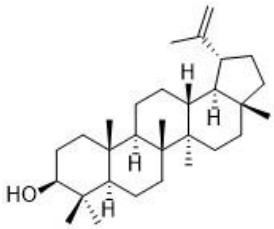
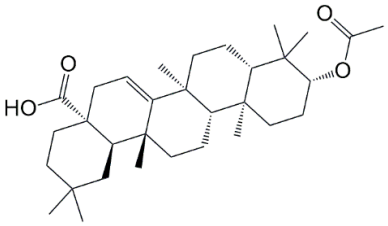
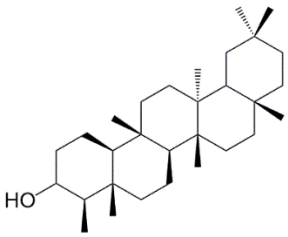
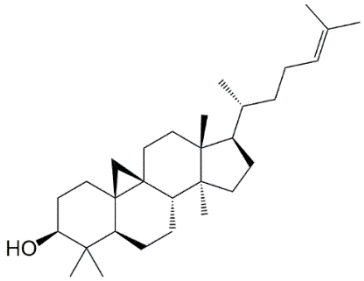
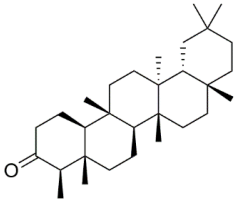
Name Compound	Structure	Reference
Oleralignan A		**(**W. Xu et al., 2022**)**
Oleralignan B		(Duan et al., 2021)

Oleralignan C		(C. Wang et al., 2022)
Oleralignan D		(C. Wang et al., 2022)
Oleralignan		(Ma et al., 2020)
(+)-Syringaresinol		(Ma et al., 2020)
(-)-Syringaresinol		(J. Tian et al., 2022)
(+)-Pinoresinol		(J. Tian et al., 2022)
(+)-diasyringaresinol		(J. Tian et al., 2022)
(+)-Episyringaresinol		(J. Tian et al., 2022)
(+)- Lirioresinol A		(Ma et al., 2020)
Monomethyl 3,3’ ,4,4’ -tetrahydroxy-d-truxinate		(Ma et al., 2020)

2.4. Terpenoids

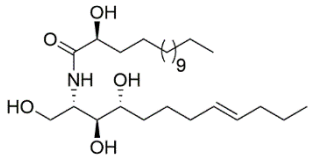
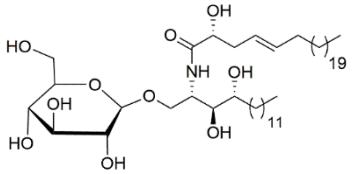
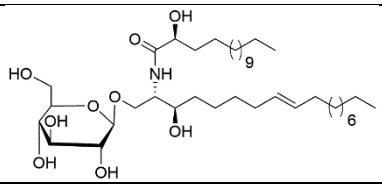
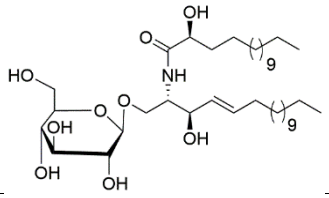
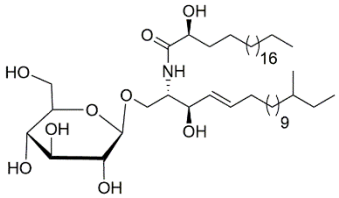
Terpenoids are class of natural products widely distributed in nature with diverse chemical structure. Isoprene unit (C5) is the building unit of terpenoids and according to isoprene unit numbers they are classified into monoterpene (C10), sesquiterpene (C15), diterpene (C20), triterpene (C30) and tetraterpene (C40) (W. Yang et al., 2020). A variety of mono-, di-, and triterpenoids are isolated and identified from *Portulaca oleracea* which are listed in Table 4

Name	Type		
(2α,3α)-3-{[4-O-(β-D-glucopyranosyl)-β-D-xylopyranosyl] oxy}-2,23-dihydroxy-30-methoxy-30-oxoolean-12-en-28-oic acid	Pentacyclic Triterpenoid		(Xin, Xu, et al., 2008)
(2α,3α)-2,23,30-Trihydroxy-3-[(β-D-xylopyranosyl) oxy] olean-12-en-28-oic acid	Pentacyclic Triterpenoid		(Xin, Xu, et al., 2008)
Portuloside A	Monoterpene glycoside		(Sakai et al., 1996)
Portuloside B	Monoterpene glycoside		(Seo et al., 2003)
(3S)-3-O-(β-D-glucopyranosyl)-3,7-dimethylocta-1,5-dien-3,7-diol	Monoterpene glycoside		(Seo et al., 2003)
(3S)-3-O-(β-D-glucopyranosyl)-3,7-dimethylocta-1,6-dien-3-ol	Monoterpene glycoside		(Seo et al., 2003)
Friedelane	Pentacyclic Triterpenoids		(Xin, Xu, et al., 2008)

Portulene	Diterpene		(Elkhayat et al., 2008)
Lupeol	Pentacyclic Triterpenoids		(Elkhayat et al., 2008; Lei et al., 2015)
3-acetylaleuritolic acid	Pentacyclic Triterpenoids		(Lei et al., 2015)
4α-methyl-3β-hydroxylfriedelan	Pentacyclic Triterpenoids		(Lei et al., 2015)
Cycloartenol	Pentacyclic Triterpenoids		(Lei et al., 2015)
Friedelin	Pentacyclic Triterpenoids		(Lei et al., 2015)

2.5. Cerebrosides

One of secondary metabolites isolated from *Portulaca oleracea* is Cerebrosides, which are a type of neutral glycosphingolipids consisting of a sugar molecule (usually glucose or galactose) attached to a ceramide (Barreto-Bergter et al., 2004). Table 5 comprise a list of ceramides isolated from purslane

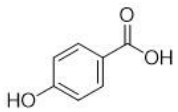
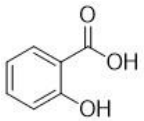
Compound Name	Structure	Reference
Portulaceramide A		(Lei et al., 2015)
Portulacerebroside A		(Xin, Hou, et al., 2008)
Portulacerebroside B		(Lei et al., 2015)
Portulacerebroside C		(Lei et al., 2015)
Portulacerebroside D		(Lei et al., 2015)

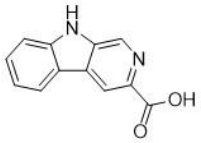
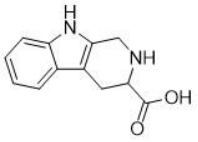
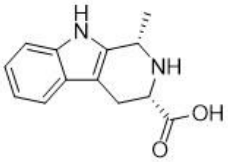
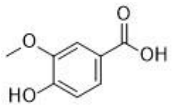
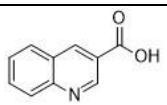
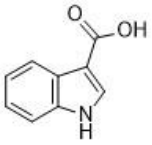
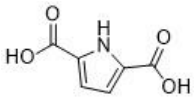
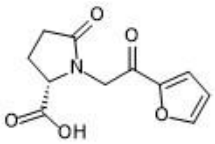
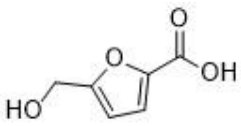
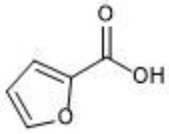
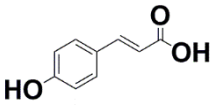
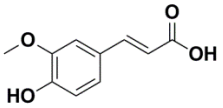
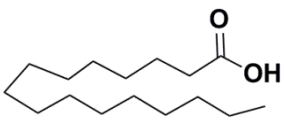
2.6. Organic acids:

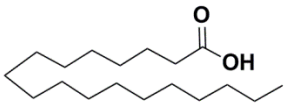
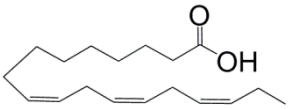
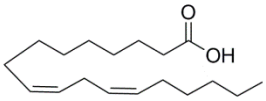
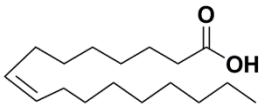
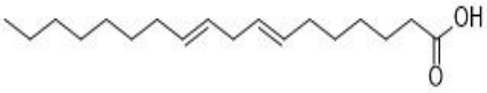
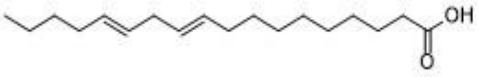
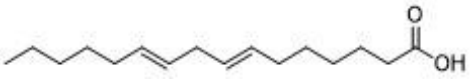
Organic acids, widely distributed in all plants, have one thing in common which is the presence of carbon atoms in their structure (Theron& Lues, 2007).

A plurality of organic acids was isolated and identified from purslane which are listed in Table 6.

Table 6. Organic acids isolated from *P. oleracea*

Compound		structure	Reference
Name	**Type**		
p-hydroxybenzoic acid	Phenolic acid		(Xiu et al., 2018)
salicylic acid	Phenolic acid		(X. Yang et al., 2019)

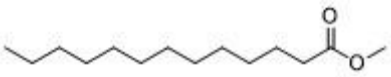
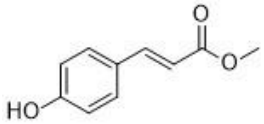
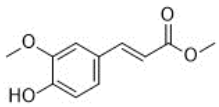
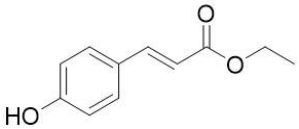
β-Carboline-3-carboxylic acid	Phenolic acid		(Xiu et al., 2018)
2, 3, 4, 9-tetrahydro-1H-pyrido [3, 4-b] indole-3-carboxylic acid	Phenolic acid		(Xiu et al., 2018)
(1S, 3S)-1-methyl-1, 2, 3, 4-tetrahydro-β-carboline-3-carboxylic acid	Phenolic acid		(Xiu et al., 2018)
Vanillic acid	Phenolic acid		(L. Xu et al., 2017)
3-quinolinecarboxylic acid	Phenolic acid		(Yan et al., 2012)
indole-3-carboxylic acid	Phenolic acid		(Yan et al., 2012)
1H-pyrrole-2,5-dicarboxylic acid	Phenolic acid		(P. Liu et al., 2022)
(2 S) −1- [2- (furan-2-yl) − 2-oxoethyl] − 5-oxopyrrolidine-2-carboxylic acid	Phenolic acid		(J. Tian et al., 2022)
5-(hydroxymethyl) furan-2-carboxylic acid	Phenolic acid		(P. Liu et al., 2022)
2-Furoic acid	Phenolic acid		(J. Tian et al., 2022)
p-coumaric acid	Phenolic acid		(Xiang et al., 2005)
Ferulic acid	Phenolic acid		(Xiang et al., 2005)
Palmitic Acid	Fatty acid		(Palaniswamy et al., 2001)

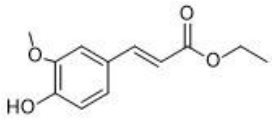
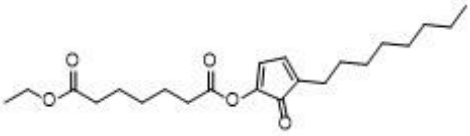
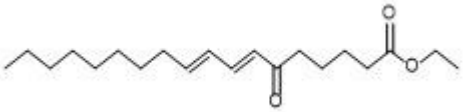
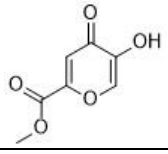
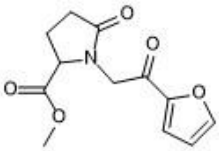
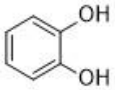
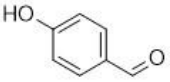
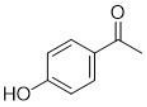
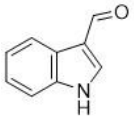
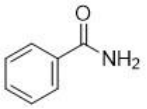
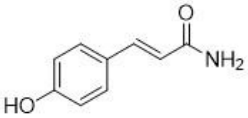
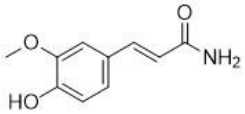
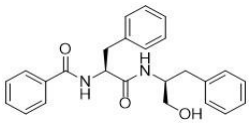
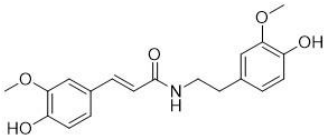
Stearic Acid	Fatty acid		(Palaniswamy et al., 2001)
Linolenic Acid	Fatty acid		(Palaniswamy et al., 2001)
Linoleic Acid	Fatty acid		(Palaniswamy et al., 2001)
Oleic Acid	Fatty acid		(Palaniswamy et al., 2001)
(7E,10E)-octadeca-7,10-dienoic acid	Fatty acid		(P. Liu et al., 2022)
(10E,13E)-octadeca-10,13-dienoic acid	Fatty acid		(P. Liu et al., 2022)
(7E,10E)-hexadeca-7,10-dienoic acid	Fatty acid		(P. Liu et al., 2022)

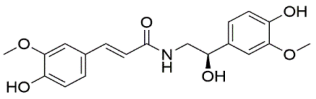
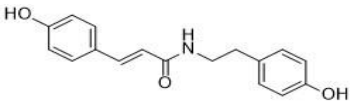
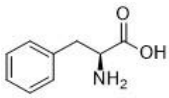
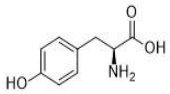
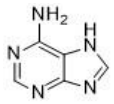
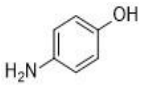
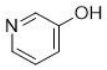
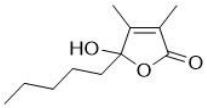
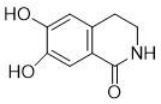
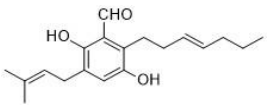
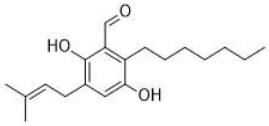
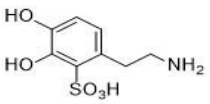
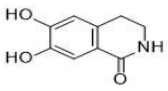
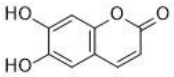
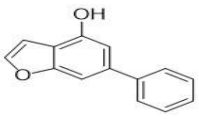
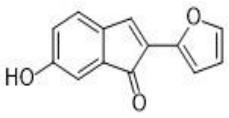
2.7. Miscellaneous compounds

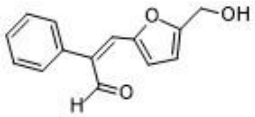
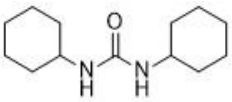
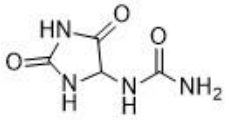
Portulaca oleracea is known to be rich with phytochemical constituents found in many other plants such as vitamins, minerals, amino acids aldehydes, esters and so forth. Table 7 contain name and chemical structures of some of these compounds.

Table 7: Compounds isolated from *P. oleracea*

Compound Name	Structure	Reference
Methyl tridecanoate		(P. Liu et al., 2022)
Methyl (9E,12E)-octadeca-9,12-dienoate		(P. Liu et al., 2022)
Trans-coumaric acid methyl ester		(W. Xu et al., 2022)
Ferulic acid methyl ester		(Jiang et al., 2018)
P-Hydroxy ethyl cinnamate		(X. Yang et al., 2019)

4-Hydroxy-3-methoxy ethyl cinnamate		(X. Yang et al., 2019)
1-Ethyl 7-(4-octyl-5-oxocyclopenta-1,3-dien-1-yl) heptanedioate		(Gu et al., 2021)
Ethyl (7E,9E)-6-oxooctadeca-7,9-dienoate		(Gu et al., 2021)
Methyl 5-hydroxy-4-oxo-4H-pyran-2-carboxylate (Comenic acid methyl ester)		(Jin et al., 2018)
Methyl (2 S) −1[2-(furan-2-yl)-2-oxoethyl] − 5-oxopyrrolidine-2-carboxylate		(J. Tian et al., 2022)
Catechol		(L. Xu et al., 2017)
p-Hydroxybenzaldehyde		(Xiu et al., 2018)
p-Hydroxy acetophenone		(Xiu et al., 2018)
Indole-3- aldehyde		(Zhao et al., 2018)
Benzamide		(Xiu et al., 2018)
(E)-p-Coumaramide		(Xiu et al., 2018)
(E)-Ferulamide		(Xiu et al., 2018)
Aurantiamide		(Jiang et al., 2018; X. Yang et al., 2019)
N-trans-feruloyl-3′-O-methyldopamine		(Zhao et al., 2018)

(7'R)-N-feruloyl normetanephrine		(J. L. Tian et al., 2014)
N-trans-p-coumaroytyramine		(Gu et al., 2020; Jiang, Zhang, Yang, Xiu, Xu, Ying, et al., 2018)
L-phenylalanine		(Jin et al., 2018)
L-tyrosine		(Jin et al., 2018)
Adenine		(Jin et al., 2018)
4-aminophenol		(L. Xu et al., 2017)
3-Hydroxypyridine		(L. Xu et al., 2017)
Hydroxy dihydrobovolide		(L. Xu et al., 2017)
6,7-dihdroxy-3,4-dihydro-2H-isoquinolin-1-one		(Gu et al., 2020)
Isoaspergin		(Gu et al., 2020)
Flavoglaucin		(Gu et al., 2020)
2-sulfonic acid dopamine		(Jin et al., 2018)
Iseluxine		(Jin et al., 2018)
Esculetin		(W. Xu et al., 2022)
Olerabenzofuran		(J. Tian et al., 2022)
Oleraindenone		(J. Tian et al., 2022)

Drynaran		(J. Tian et al., 2022)
N,N-dicyclohexylurea		(Rasheed et al., 2004)
Allantoin		(Rasheed et al., 2004)

3. Conclusion:

Portulaca oleracea, an edible and medicinal plant, is of great impact on human health as it contains a wide variety of chemical constituents with biological activities that can be used as a scaffold for drug development.

Although a plethora of compounds belonging to different classes were isolated and identified from purslane using different chromatographic and spectral techniques, a complete comprehensive profile of purslane secondary metabolites is not fully revealed.

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