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PLANTS OF FAMILY LAMIACEAE: A PROMISING HAND FOR NEW ANTIUROLITHIATIC DRUG DEVELOPMENT

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ABSTRACT

Urolithiasis is a common problem afflicted for many centuries with high recurrence. This review covers the forty nine (49) antiurolithiatic plants of family Lamiaceae used in 11 different countries. Hopefully, this review will not only be useful for the general public but also attract the scientific world for antiurolithiatic drug discovery.

KEYWORDS: Urolithiasis, antiurolithiatic, natural products, drug development, Lamiaceae.

INTRODUCTION

Urolithiasis is a common problem afflicted for many centuries with high recurrence. This review covers the forty nine (49) medicinal plants of family Lamiaceae used in 11 different countries such as Algeria, America, India, Iran, Jordan, Malaysia, Mt. Pelion area of Greece, Pakistan, Palestine, Spain and Turkey. Their historical antiurolithiatc background shared in well known books of Dioscorides (10 plants) and Ibn Sina (7 plants). Among the plant parts leaves were noted the most common (38%) followed by whole plant (25%), aerial parts (17%), stem (6%) and fruits, roots and seeds (4%). In terms of preparation, decoction was observed most common (61%), followed by infusion (28%), juices (7%) and extracts (2%). The route of administration is oral in all cases. Hopefully, this review will not only be useful for the general public but also attract the scientific world for antiurolithiatic drug discovery.

ABBREVIATIONS USED

h.= hour.

OD= once daily.

QID = four times a day.

tbsp.= table spoon.

TID= three times a day.

tsp.= tea spoon.

days= days required to dissolve / expel kidney stones.

before breakfast= every morning in empty stomach.

Whewellite: calcium oxalate monohydrate

Struvite: magnesium ammonium phosphate

Table 1: Antiurolithiatic plants of family Lamiaceae.

Plants	Explanation
***Acinos alpinus* Moench.**	**Dioscorides (De Materia Medica):** Whole plant is diuretic.[1]
***Ajuga chamaepitys* Schrb.**	**Ibn Sina (Al Qanoon Fit Tibb):** Whole plant is litholytic and expels stones.[1]
	Plant decoction --- Iran.[2]
	Pharmacological activities: Diuretic.[3]
***Ajuga iva* (L.) Schreb.**	Aerial parts --- Algeria.[4]
	Pharmacological activities: Litholytic.[4]
	Antiurolithiatic spectrum (reported): Aerial parts against whewellite.[5]
***Anisomeles malabarica* (L.) R. Br. ex Sims.**	Whole plant powder 3–5 g orally taken --- India.[6]
***Calamintha officinalis* Moench.**	**Dioscorides (De Materia Medica):** Whole plant is diuretic.[1]
***Coleus amboinicus* Lour.**	Leaves juice --- India.[2]
	India: 5-10 ml leaves juice OD till stone expulsion.[7]
	Pharmacological activities: Anti-inflammatory, antioxidant[3], lithotriptic.[8]
***Coleus forskohlii* (Willd.) Briq.**	Whole plant decoction --- India.[9]
	India: Whole plant decoction along with honey and Shilajeet BD.[9]
***Glechoma hederacea* L.**	Leaves decoction --- America.[2]
	Appalachia: Mix 1 tsp. of dried leaves with 250ml of boiling water. 250 ml OD till stone expulsion.[7]
	Pharmacological activities: Antioxidant, diuretic.[3]
***Gmelina arborea* Roxb.**	Fruit decoction --- India.[3]
	Pharmacological activities: Antioxidant, diuretic.[3]
***Hemidesmus indicus* (L.) R. Br. ex Schult.**	Roots infusion --- India, Malaysia.[10]
***Hyptis suaveolens* (L.) Poit.**	**Pharmacological activities:** Lithotriptic.[11]
	Antiurolithiatic spectrum (reported): Aerial parts against whewellite.[5]
***Lamium album* L.**	Whole plant decoction --- India[3]; flowers--- Iran.[12]

	Pharmacological activities: Anti-inflammatory, antioxidant, diuretic.[3]
***Lavandula stoechas* L.**	Leaves decoction --- Palestine, Turkey.[2]
	Turkey: 250 g of leaves in one L of water, boil for 20 mins, cover for 30 mins then filter. 250 ml before breakfast till stone expulsion.[7]
***Mentha arvensis* L.**	Leaves decoction --- India.[2]
	India: Crush 250 g of leaves in 50 ml water in mortar and pestle, leave it for 12 h then strain / filter. 125 ml OD for 3-7 days.[7]
	Pharmacological activities: Analgesic, anti-inflammatory, antioxidant, diuretic[3], lithotriptic.[8]
***Mentha longifolia* (L.) L.**	**Dioscorides (De Materia Medica):** Leaves are diuretic.[1]
	Leaves --- Iran[13] ; leaves and stem decoction --- Mt. Pelion area of Greece.[14]
***Mentha piperita* L.**	**Ibn Sina (Al Qanoon Fit Tibb):** Leaves are diuretic and litholytic.[15]
***Mentha pulegium* L.**	**Ibn Sina (Al Qanoon Fit Tibb):** Whole plant is litholytic and expels stones.[1]
	Whole plant decoction --- Iran[2]; flowery plant infusion --- Spain.[16]
	Pharmacological activities: Astringent.[3]
***Mentha spicata* L.**	Leaves decoction / infusion --- Iran[17], India.[2]
	Pharmacological activities: Antioxidant[3], anti-inflammatory.[17]
	Antiurolithiatic spectrum (reported): Leaves against struvite.[5]
***Micromeria biflora* (Buch.-Ham. ex D. Don) Benth.**	Plant decoction --- Pakistan.[2]
***Ocimum basilicum* L.**	**Dioscorides (De Materia Medica):** Whole plant is diuretic.[1] **Ibn Sina (Al Qanoon Fit Tibb):** Whole plant expels stones.[1]
	Whole plant decoction --- Iran[2]; leaves and seeds --- India[18]; leaves infusion --- Palestine.[19]
	Palestine: Steep 100 g of powdered leaves in 400 ml of water for 6 h. About 50 ml of this infusion taken five times a day.[19]
	Pharmacological activities: antioxidant.[3]
***Ocimum gratissimum* L.**	Whole plant decoction --- India.[2]
	Antiurolithiatic spectrum (reported): Whole plant against whewellite.[5]
***Ocimum sanctum* L.**	Leaves decoction --- India[20]; roots decoction --- India[2]; leaves juice with honey OD --- India.[6]
	Pharmacological activities: Analgesic, anti-inflammatory, antioxidant, diuretic[3], lithotriptic.[21]
	Antiurolithiatic spectrum (reported): Leaves against Whewellite.[22]
***Ocimum tenuiflorum* L.**	Leaves juice --- India.[2]

	India: Mix ash of a plant with one L of water. 250 ml TID till stone expulsion. **OR** Juice of leaves in 250 ml of water 250 ml with honey OD for 60 - 90 days.[7] 1–3 ml of plant juice BD.[6]
***Orthosiphon aristatus* (Blume) Miq.**	Leaves --- India, Malaysia.[10]
	Pharmacological activities: Antioxidant, anti-inflammatory.[3]
	Antiurolithiatic spectrum (reported): Leaves against struvite.[23]
***Orthosiphon grandiflorus* Bondingh.**	Plant decoction --- India.[2]
***Orthosiphon spiralis* (Lour.) Merr.**	Leaves --- India.[8]
	Pharmacological activities: Lithotriptic.[8]
***Origanum heracleoticum* L.**	**Dioscorides (De Materia Medica):** Diuretic.[1]
***Origanum jordanicum* Danin & Kunne.**	Leaves decoction --- Palestine.[19]
	Palestine: Boil 60 g of leaves in 200 ml of water for 5 mins and taken as TID.[19]
***Origanum majorana* L.**	Plant decoction --- Palestine.[2]
	Pharmacological activities: Anti-inflammatory, antispasmodic, antioxidant, diuretic.[3]
***Origanum syriacum* L.**	Shoots --- Jordan.[24]
***Origanum vulgare* L.**	Aerial parts decoction --- Iran.[17]
	Pharmacological activities: Antioxidant.[17]
***Orthosiphon stamineus* Benth.**	Plant decoction --- India.[2]
	Pharmacological activities: Antioxidant, diuretic, litholytic.[3]
***Plectranthus amboinicus* (Lour.) Spreng.**	Leaves extract / infusion --- India.[2, 7]
	India: 5 ml of fresh leaves extract with sugar candy BD for 7 days.[7]
	Pharmacological activities: Analgesic, anti-inflammatory, antioxidant.[3]
	Antiurolithiatic spectrum (reported): Leaves against whewellite.[25]
***Rosmarinus officinalis* L.**	Leaves / stem decoction --- Jordan.[2]
	Pharmacological activities: Anti-inflammatory, diuretic.[3]
***Salvia canariensis* L.**	Aerial part infusion --- Spain.[26]
	Pharmacological activities: Antispasmodic, diuretic.[3]
***Salvia divinorum* Epling & Játiva.**	**Dioscorides (De Materia Medica):** Whole plant is diuretic.[1]
***Satureja thymbra* L.**	**Dioscorides (De Materia Medica):** Aerial parts are diuretic.[1]
***Satureja macrosiphon* (Coss.) Maire.**	Leaves --- Iran.[12]
***Stachys officinalis* (L.) Trevis.**	**Dioscorides (De Materia Medica):** Whole plant is diuretic.[1]
***Tectona grandis* L.**	Root / seeds decoction --- India.[2]
	India: Mix 10 g of seed powder with 50 ml of milk. 50 ml BD for 8 days.[7]
	Pharmacological activities: Analgesic, anti-inflammatory, antioxidant, diuretic.[3]
***Teucrium chamaedrys* L.**	Aerial parts --- Iran[17]; plant decoction --- India.[2]
***Teucrium polium* L.**	**Ibn Sina (Al Qanoon Fit Tibb):** Whole plant is litholytic and expels stones.[1]

	Aerial parts decoction --- Iran, Jordan, Turkey[2, 24], Palestine.[27]
	Pharmacological activities: Litholytic.[3]
***Teucrium scordium* L.**	**Dioscorides (De Materia Medica):** Aerial parts are diuretic[1]; **Ibn Sina (Al Qanoon Fit Tibb):** Whole plant is litholytic and expels stones.[1]
	Plant decoction --- Iran.[2]
***Thymus kotschyanus* Boiss. et Hohen.**	Leaves infusion --- Iran.[2]
	Iran: Leaves infusion in one L of water. 3–4 tsp. QID till stone expulsion.[7]
***Thymus serpyllum* L.**	**Dioscorides (De Materia Medica):** Aerial parts are diuretic.[1]
Thymbra spicata* L. var. *spicata	Leaves infusion --- Turkey.[2]
***Thymus migricus* Klokov & Des.-Shost.**	Leaves decoction / infusion --- Turkey.[2, 28]
	Pharmacological activities: Anti-inflammatory.[28]
***Teucrium polium* L.**	Aerial parts infusion --- Jordan, Iran.[2]
***Vitex agnus-castus* L.**	**Ibn Sina (Al Qanoon Fit Tibb):** Fruits are diuretic.[1]
	Fruit --- Iran.[2]
***Ziziphora tenuior* L.**	Aerial part infusion mixed with doogh (an Iranian cold yogurt-based beverage, sometimes taken with mint or carbonated water) --- Iran.[17]

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