

Pharmacognostic and physicochemical study of *Urtica urens* L.: A drug used in Homoeopathy

Satish Patel^{1*}, Bibaswan Biswas¹, K. Rambabu¹, Shyaga Jhansi¹, Ramchander Potu¹, E. N. Sundaram¹, Renu Arya²

¹Drug Standardisation Unit (H), Hyderabad, Telangana, ²Central Council for Research In Homoeopathy, New Delhi, India

Abstract

Background: *Urtica urens* L. (Family *Urticaceae*), known as annual nettle, dwarf nettle, small nettle, dog nettle or burning nettle, is used in the treatment of arthritis, uric acid diseases, benign prostatic hyperplasia and burn. In Homoeopathy, the whole plant is used for the treatment of gout, uric acid diathesis, joint pain, lithiasis, urticaria and agalactia and burns. **Objective:** The objectives of the present study were to investigate morpho-anatomical, powder and physicochemical standards of the whole plant of *Urtica urens* for authentication and identification of raw drug. **Materials and Methods:** The current study includes macroscopical and microscopical study of root, stem, leaf and powder and physicochemical studies of whole plant powder and mother tincture of *Urtica urens*. **Results:** The taproot is rounded, thick and brown; leaves are long petiolate, elliptic to broadly ovate; stem 0.5–1 cm thick, rounded and branched. Qualitative and quantitative microscopic studies showed the distinguishing characters of root stem and leaf. In physicochemical studies of the drug, extractive values in alcohol and water were ≤ 7.52 and $\leq 13.88\%$ w/w, respectively; loss on drying, total, acid insoluble and water-soluble ash were found to be ≤ 11.75 , ≤ 24.55 , ≤ 3.59 and $\leq 6.89\%$ w/w, respectively. In mother tincture, weight per millilitre, alcohol content, total solids, pH and λ_{\max} were found to be ≥ 0.97 g, 47% v/v–52% v/v, $\leq 1.88\%$ w/v, 7.93 and 266, 279 nm, respectively. **Conclusion:** The data presented in this communication may be used as diagnostic characters for identification and authentication of raw drug so as to ensure purity, quality and efficacy of homoeopathic drug *Urtica urens*.

Keywords: Homoeopathy, Pharmacognosy, Standardisation, *Urtica urens*

INTRODUCTION

Urtica urens L. (syn: *Urtica trianae* Rusby), commonly known as lesser nettle, belongs to the family *Urticaceae*. It is an erect, ascending, annual herb which is distributed widely throughout the temperate zone of the world. *Urtica urens* is also known as burning nettle or dog nettle (English), Ortiegriecher (French) and Brennessel (German). It closely resembles the stinging nettle (*Urtica dioica* L.) in habit, other than smaller leaves and flowers.^[1] The ‘*Urtica*’ word was originated from ‘uro’ means to burn or Latin word ‘urere’ means to sting.^[2,3] This word ‘*Urtica*’ is derived mainly due to the presence of urticant hairs.^[4] It is native of Europe; introduced in Uttarakhand, India, and mainly found in shady moist areas.

The *Urtica urens* is herbaceous in nature and simple or branched up to 70 cm in height. Stem is erect and ascending, frequently branching, glabrous and possesses numerous stinging hairs. Leaves are simple, opposite, stalked, long-petioled, elliptic to broadly ovate, stipulate and incised-dentate with less stinging hair. Greenish-white short

flowers are present mainly in clusters. Both male and female flowers occur on the same plant. Inflorescence is cylindrical and spike-like. Fruits are dry achenes, yellowish brown, indehiscent and one-seeded. Various chemical constituents namely flavonoids, 13-hydroxy octadecatrienoic acid, Vitamin B family, Vitamin C, Vitamin K, caffeic acid, caffeoyl-esters, carotenoids (Lutein, β -carotene), polysaccharides, protein, minerals (Ca, Fe, Mg, P, K, Na) and terpenes have been reported.^[5-8]

The members of the Nettles family have long been used for the treatment of various ailments as a home remedy.

***Address for correspondence:** Mr. Satish Patel,
Drug Standardisation Unit (H), O.U.B-32, Vikrampur, Road
No. 4, Habsiguda, Hyderabad - 500 007, Telangana, India.
E-mail: satishpatel05nov@gmail.com

Received: 05.09.2018; **Accepted:** 16.05.2019

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Patel S, Biswas B, Rambabu K, Jhansi S, Potu R, Sundaram EN, et al. Pharmacognostic and physicochemical study of *Urtica urens* L.: A drug used in Homoeopathy. Indian J Res Homoeopathy 2019;13:91-9.

Access this article online

Quick Response Code:



Website:
www.ijrh.org

DOI:
10.4103/ijrh.ijrh_50_18

Urtica urens has been reported to possess anti-oxidant and anti-microbial (leaves),^[8] chemoprotective (aerial parts),^[9] anxiolytic (aerial parts),^[5] anti-inflammatory (leaves),^[10,11] anti-arthritis (leaves)^[12] and anti-bacterial (leaves)^[13] activities. Various ethnomedicinal uses of dwarf nettle for different ailments are given in Table 1.

In Homoeopathy, *Urtica urens* is widely used for the treatment of uric acid-related problems such as gout, uric acid diathesis, joint pain, lithiasis, urticaria, allergy, itching, insect bites and burns. It is also used to increase the lactation (agalactia) in females and in spleen affection.^[16-18]

Although *Urtica urens* is widely used in different indigenous systems including Homoeopathy for various ailments, however, a review of literature reveals lack of data on pharmacognostic and physicochemical standards. In medical system, sub-standard drug will not bring the desired therapeutic results. Hence, drug standardisation study is one of the most fundamental prerequisites to ensure genuineness/authenticity and to lay down standards for the purity, quality, safety and efficacy of raw drugs as well as finished products. The data generated through standardisation studies not only provide a guideline for the manufacturing of homoeopathic drugs but also provide quality drugs to the homoeopathic practitioners. The present study was undertaken to generate standard data for identification/authentication of correct species of *Urtica urens*. The data presented in this study may also be considered 'pharmacopoeial standards' to ensure the purity and quality of raw drug *Urtica urens*.

Table 1: Ethnomedicinal uses of *Urtica urens*

Region	Uses	References
African territory	CNS-related diseases As tranquilliser	[14]
South America	Anti-diabetic Anti-arthritis Depurative Diuretic Relieve the pain in muscles As nutrient	[4]
European countries	Arthritis Benign prostatic hyperplasia Swellings Anaemia Blisters Burns Hay fever Scalds Anti-dandruff Anti-asthmatic Haemostatic Astringent Diuretic Galactagogue Hypoglycaemic agent	[4,15]

CNS: Central nervous system

MATERIALS AND METHODS

Chemicals

Hydrochloric acid (Finar, India), Fuchsin (Finar, India), Crystal violet (Spectrochem, India), Safranin (Finar, India), Xylene (Fisher Scientific), tert-Butyl alcohol (Finar, India) and Paraffin (Merck). All chemicals used in the studies were of analytical grade.

Plant collection

The material of *Urtica urens* was obtained from Homoeopathic Pharmacopoeia Laboratory (HPL), Ministry of AYUSH, Govt. of India, Ghaziabad (Uttar Pradesh), India. The pharmacognostic and physicochemical parameters were carried out as per the protocol/procedures specified in Homoeopathic Pharmacopoeia of India.^[19] The whole plant material was dried in shadow. The dried plant was grounded into coarse powder to 10/44 (sieve size) for the determination of different physicochemical parameters and preparation of mother tincture. Organoleptic characters were evaluated by observing its external appearance such as shape, size, colour, odour, taste and other visual observation as per prescribed methods.^[20]

Macroscopy studies

The macroscopic evaluation includes morphologic depiction of plant parts using the naked eye. It is the method of qualitative evaluation based on the study of morphological and sensory profile of plant drug. Macroscopic characteristics of stem, leaves and root were noted on the basis of visual observation of raw drug materials as per the prescribed methods.^[20,21] It includes observation of shape, size, colour, odour, taste, venation, surface texture, nature of plant and fractures.

Microscopy studies

Both qualitative and quantitative microscopic evaluations were performed using Olympus compound microscope (BX 53, Olympus Germany). In qualitative evaluation, stem, leaf and root were boiled separately, cut into small pieces and processed with paraffin method of microtomy.^[22] The transverse section cut at 12 µm and was stained with safranin, crystal violet and basic fuchsin and subjected for microscopic observations. Photographs were taken using Olympus BX 53 Research Trinocular Microscope. In quantitative evaluation, different parameters namely stomatal number, stomatal index, vein islet number and palisade ratio of leaf were calculated as per prescribed procedure and formula.^[23,24]

Powder studies

Microscopic observations of the powdered drug were performed by boiling the powder in distilled water followed by staining in safranin and mount with glycerine on the slide.

Organoleptic characters

Organoleptic characters of powder were evaluated by taking a minute quantity of powder and spread on a white background and visually examined for general appearance namely nature, colour, odour, taste and texture.

Physicochemical studies

The dried plant material was coarsely powdered and subjected for physicochemical studies which include Loss On Drying (LOD), ash values and extractive values. Mother tincture was prepared following the method described in Homoeopathic Pharmacopoeia of India^[19] and subjected for its specific gravity measurement, test for saponins, pH-metry, chromatographic profile and Ultraviolet (UV) spectroscopy studies.

Thin layer chromatography

Around 25 mL of mother tincture was heated on a water bath to remove the alcohol. The organics from the aqueous part was extracted using three 25 mL portions of chloroform. The chloroform extract was evaporated to around 2 mL, and Thin Layer Chromatography (TLC) was performed using the concentrated chloroform extract using silica gel and chloroform: Methanol (9:1) as mobile phase. The spots were detected using UV-light of wavelength 365 nm and 254 nm.

OBSERVATIONS AND RESULTS

Pharmacognostic studies

Macroscopy

Macroscopic studies revealed that root is branched taproot, rounded with wiry rootlets, 1–1.5 cm thick and brown in colour; leaves are long-petioled, elliptic to broadly ovate in shape, green in colour and incised-dentate. Leaf is totally morphologically different from closely related species of *Urtica* i.e., *U. dioica* (leaves are uneven and more robust); stem is 0.5–1 cm thick, green in colour, rounded and branched [Figure 1].

Qualitative microscopic studies

Root

Transverse section of root bark shows the presence of 6–8 layered outermost phellem. Cells of phellem are tabular, rectangular and tangentially elongated. Phellem is followed by 1–2 layered phellogen cells. Phellogen cells are also tangentially elongated. Phelloderm or secondary cortex followed by phellogen is many-layered and made up of secondary phloem and secondary xylem. Secondary phloem is present underneath the cortex and contains phloem parenchyma, sieve cells and phloem fibres. Xylem present with alternating areas of lignified and un-lignified parenchyma in the wide medullary rays. Secondary xylem is abundant inside consisting of vessels and tracheids subsequently enclosed by fibres and xylem parenchyma. Tracheids are arranged in radial rows. Secondary walls show boarder pits with few scalariform



Figure 1: Raw drug of *Urtica urens*

and helical thickenings. Vessels are oval to spherical and sometime polygonal in shape [Figure 2].

Stem

Transverse section of stem is rounded in outline. The epidermis is single layered. Epidermal cells are tabular and barrel shaped. Epidermis is covered by thick cuticle. Epidermis is followed by hypodermis which is 4–6 layered with tangentially elongated cells with scanty contents. Cortex is followed by sclerenchymatous cells distributed widely over the vascular bundle and show wide lumen. Many cluster crystal is present in the parenchyma. At various places, parenchymatous cells are interrupted by air cavities. Phloem is reduced and consists of phloem parenchyma, fibres and sieve elements. Phloem cells are present in a ring. Xylem consists of vessels and tracheids arranged in radial rows. Along with this, few isolated fibres and xylem parenchyma are also present. Secondary xylem is with deep ridges in pith and made up of vessels and wide sclerenchymatous tissue and air cavities. Centrally located pith shows abundant large polygonal to spherical parenchymatous cells with air cavities [Figure 3].

Leaf

Transverse section of midvein of the leaf shows grooved on the upper surface and prominently ribbed on the lower surface. Epidermis is single-layered, and epidermal cells are barrel-shaped with sinuous anticlinal walls. The presence of abundant lithocysts or idioblasts in epidermal cell is clearly visible. The epidermis is followed by mesophyll region which is differentiated into palisade and spongy tissue. Palisade tissue is single layered with columnar cells and interrupted by air cavities i.e., schizogenous cavities whereas, spongy parenchyma is 3–4 layered. Abaxially, spongy parenchyma cells are loosely arranged. Ground tissue of midvein is composed of 5–7 layered parenchymatous cells which are polygonal to spherical in shape. Leaf midvein consists of

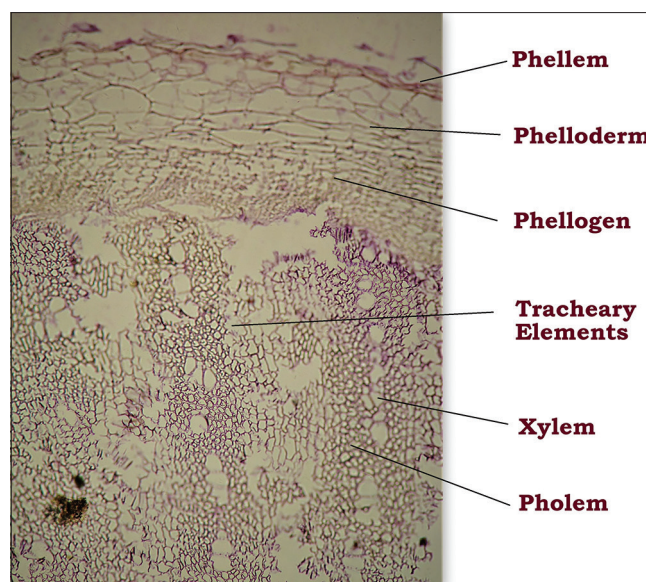


Figure 2: Transverse section of *Urtica urens* root

single vascular bundle at centre. Vascular bundles are conjoint, collateral, endarch and open. Tracheary elements are arranged in radial rows [Figure 4].

Quantitative microscopic studies

Epidermal cells are 4–5 sided, few epidermal cells are 6 sided and polygonal in shapes. Sides of epidermal cells are straight to curved and thick walled. Contents within few epidermal cells are dense. Stomata are present mainly occur on lower surface, stomata are anomocytic, anisocytic and rarely diacytic [Figures 5 and 6]. Trichomes are peltate hairs confined on lower surface and unicellular conical hairs are present on upper surface. Stomatal index was found to be 18 sq. mm. The vein islet number and palisade ratio were found to be 8–10.5 and 2–3.5 respectively.

Powder studies

The powder microscopy study shows the presence of pieces of epidermal cells with idioblasts, plentiful thin-walled

parenchymatous cells, pieces of unicellular trichomes broken or whole, numerous fibres either broken, isolated, fragments of sclerenchymatous tissue with wide lumen cell, pieces of lignified and un-lignified parenchyma, fragments of broken tracheary tissues with vessels; cells with border pits few scalariform and helical thickenings.

Organoleptic characters

- Colour: Green
- Touch: Smooth
- Odour: Not Characteristic
- Taste: Not Characteristic.

Physicochemical studies

The results of physicochemical study of the raw drug are summarised in Table 2. The LOD was found to be 11.75%

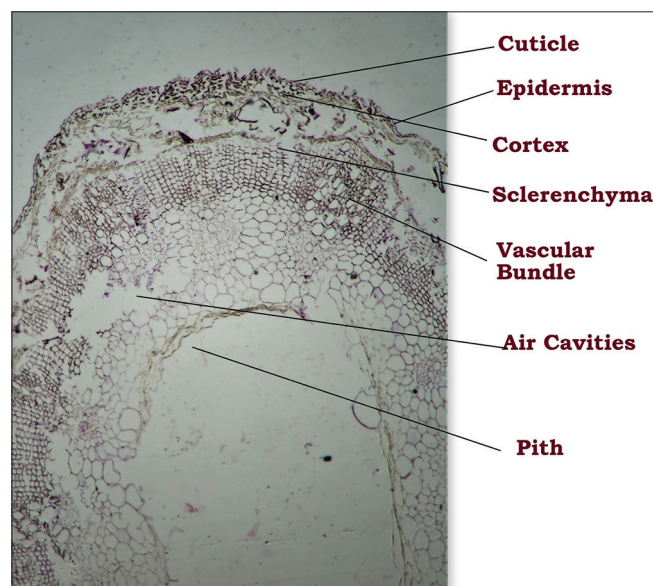


Figure 3: Transverse section of *Urtica urens* stem

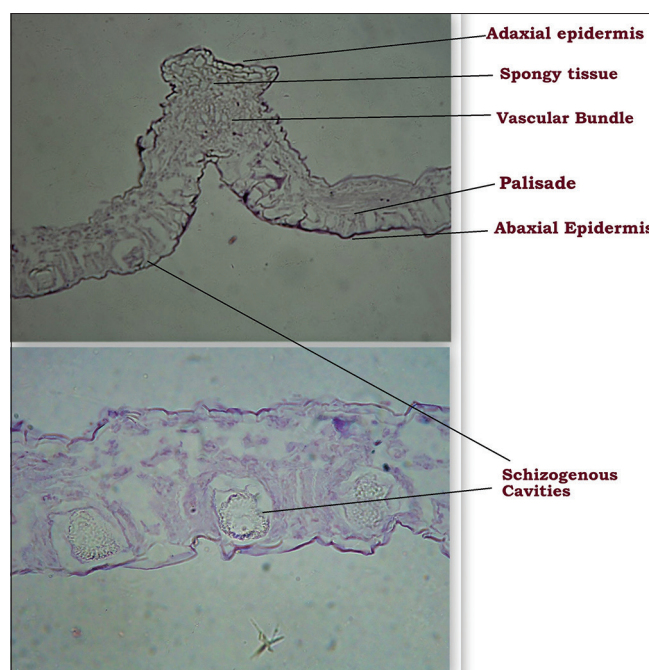


Figure 4: Transverse section of *Urtica urens* leaf

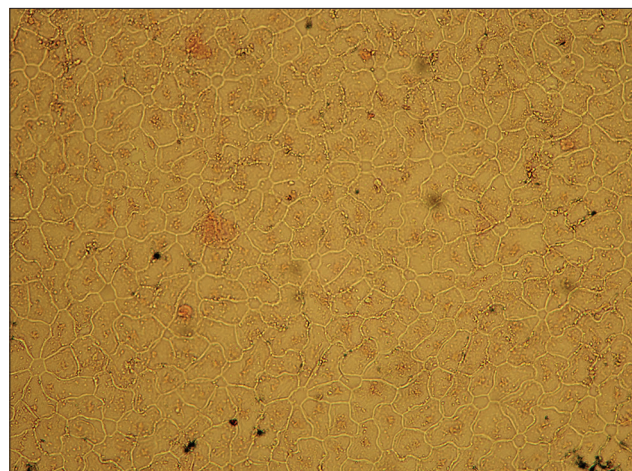


Figure 5: Transverse section of *Urtica urens* upper epidermis

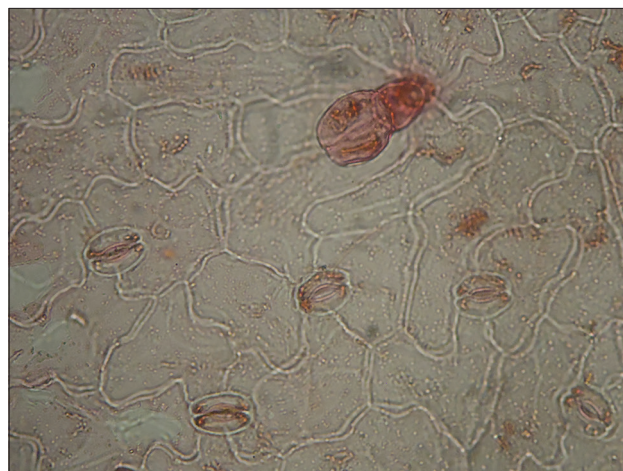


Figure 6: Transverse section of *Urtica urens* lower epidermis

Table 2: Raw drug parameters

Parameter	Value
Foreign matter	≤0.1% w/w
Moisture content (LOD at 105°C)	≤11.75% w/w
Total ash	≤24.55% w/w
Acid insoluble ash	≤3.59% w/w
Water soluble ash	≤6.89% w/w
Extractive values	
Alcohol	≤7.52% w/w
Distilled water	≤13.88% w/w
LOD: Loss on drying	

which is important to gauge the amount of raw wet drug needed for the mother tincture. Besides LOD, the ash values (particularly total ash) are considerably high indicating the appreciable amount of metals present in the drug. The acid insoluble ash value is quite low suggesting a lower amount of heavy elements. A considerable amount of water-soluble ash suggests that significant amount of alkali metals are present in the raw drug and high values of the water and ethanol extracts indicated that the raw drug has a substantial amount of polar constituents. These values also suggest that ethanol and water could successfully extract appreciable amount of constituents from the plant.

Table 3 depicts the physicochemical data including organoleptic profile of finished product (mother tincture). The pH of the mother tincture is close to the pH-7. The UV-spectra of the mother tincture is quite characteristics and could be employed for quality assurance. TLC study performed on chloroform extract of the mother tincture provided few well-resolved characteristics spot indicating diverse chemical composition of the mother tincture.

Comparative study with commercial mother tincture

The work was supplemented by a comparative study between the in-house and commercial mother tinctures. The data of the comparative study are summarised in Table 3 and shown in Figures 7-9. The colours of the samples differ slightly indicating that in terms of organoleptic parameters, the in-house and commercial samples are comparable. The UV-Vis spectra of the samples are similar. The other parameters are also similar. We then further extended this study by performing TLC on the in-house and commercial sample. From the TLC study, it is quite evident that the samples are quite similar; however, the relative portion of the different constituents differs considerably. This could be attributed to the choice of the solvent system. Overall, the commercial sample possesses analytical values similar to the in-house sample.

CONCLUSION

Standardisation or quality control study of homoeopathic drug plays a major role to ensure its purity, quality, genuineness, safety and efficacy. The present study represents the detailed macroscopic, qualitative and quantitative microscopical studies, powder microscopical studies and physicochemical

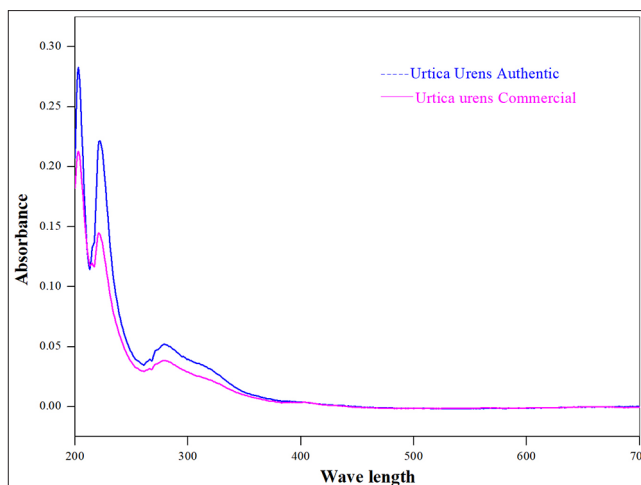


Figure 7: Ultraviolet-visible spectra of in-house and commercial sample

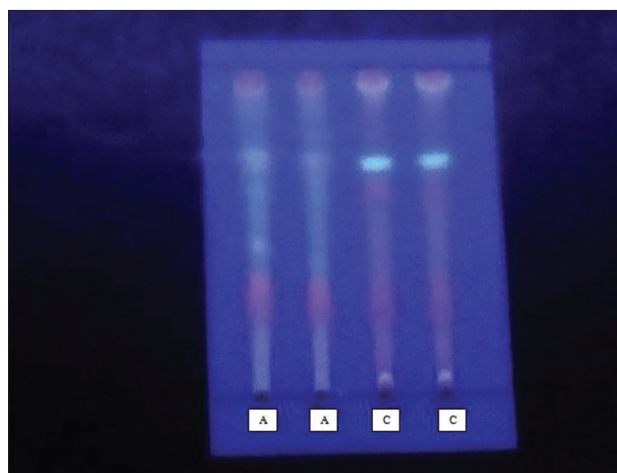


Figure 8: Thin layer chromatography of mother tincture; A: Authentic sample (in-house); C: Commercial sample

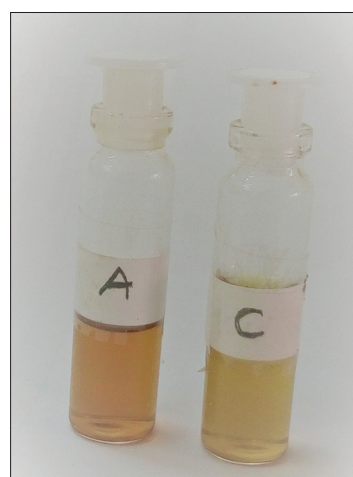


Figure 9: Mother tincture A: Authentic sample (in-house); C: Commercial sample

standards of raw drugs and mother tincture of *Urtica urens*. These are unique diagnostic characters and standards which

Table 3: Finished Product parameters

Parameter	Authentic	Commercial
Organoleptic parameters		
Appearance	Clear, nonviscous	Clear, nonviscous
Colour	Greenish brown	Dark yellow
Odour	Characteristic	Characteristic
Sediments	Absent	Absent
Weight per mL	≥0.97 g	≥0.95 g
Total solids	≤1.88% w/v	≤1.75% w/v
Alcohol content	47-52% v/v	51% v/v
pH	7.93	7.58
λ_{max}	221, 266 and 279 nm	279 nm
TLC	Mobile phase: 10% methanol in chloroform	
254 nm (detecting light)	0.07 (purple)	0.05 (purple)
	0.10 (-do-)	0.09 (-do-)
	0.30 (-do-)	0.18 (-do-)
	0.36 (-do-)	0.25 (-do-)
	0.43 (-do-)	0.36 (-do-)
	0.63 (-do-)	0.40 (-do-)
	0.74 (-do-)	0.47 (-do-)
	0.96 (brown)	0.58 (-do-)
		0.72 (-do-)
		0.96 (brown)
366 nm (detecting light)	0.16 (yellow)	0.07 (red)
	0.30 (orange)	0.23 (blue)
	0.40 (blue)	0.43 (-do-)
	0.60 (-do-)	0.63 (orange)
	0.65 (-do-)	0.72 (blue)
	0.72 (-do-)	0.92 (orange)
	0.87 (orange)	0.96 (brown)
	0.96 (red)	

TLC: Thin-layer chromatography

will help in proper identification and confirmation about purity of raw drugs. The data summarised in this article helps in ensuring the quality and efficacy of raw drug as well as finished product of *Urtica urens*. These data may also be considered as pharmacopoeial standards for the homoeopathic drug *Urtica urens* L.

Acknowledgement

The authors are thankful to Dr. Raj K. Manchanda, Director General, Dr. Anil Khurana, Deputy Director General, Central Council for Research in Homoeopathy, New Delhi and Prof. Nirmala Babu Rao, Project Officer, Drug Standardisation Unit (H), Hyderabad for the facilities provided and encouragement. The authors are also thankful to the Director, HPL, Ghaziabad for providing authentic raw plant drug.

Financial support and sponsorship

The study was funded by Ministry of AYUSH, Government of India.

Conflicts of interest

None declared.

REFERENCES

- Clarke J. A Dictionary of Practical Materia Medica. 3rd ed. The Homoeopathic Publishing Company, London; 1987. p. 1486.
- Grieve M. A Modern Herbal. 3rd ed. London: Tiger Books International; 1931. p. 912.
- Joshi BC, Mukhija M, Kalia AN. Pharmacognostical review of *Urtica dioica* L. Int J Green Pharm 2014;8:201-9.
- Marrasini C, Acevedo C, Mino J, Ferraro G, Gorzalczany S. Evaluation of antioceptive, anti-inflammatory activities and phytochemical analysis of aerial parts of *Urtica urens* L. Phytoter Res 2010;24:1807-12.
- Doukkali Z, Taghzouti K, Boudida EL, Nadjmouddine M, Cherrah Y, Alaoui K. Evaluation of anxiolytic activity of methanolic extract of *Urtica urens* in a mice model. Behav Brain Funct 2015;11:19.
- Guil-Guerrero JL, Reboloso-Fuentes MM, Torija-Isasa ME. Fatty acids and carotenoids from stinging nettle. J Food Compos Anal 2003;16:111-9.
- Upton R. Stinging nettles leaf (*Urtica dioica* L.): Extraordinary vegetable medicine. J Herb Med 2013;3:9-38.
- Mzid M, Ben Khedir S, Ben Salem M, Regaieg W, Rebai T. Antioxidant and antimicrobial activities of ethanol and aqueous extracts from *Urtica urens*. Pharm Biol 2017;55:775-81.
- Mzid M, Ghlissi Z, Salem MB, Khedir SB, Chaabouni K, Ayedi F, et al. Chemoprotective role of ethanol extract of *Urtica urens* L. against the toxicity of imidacloprid on endocrine disruption and ovarian morphometric in female rats, GC/MS analysis. Biomed Pharmacother 2018;97:518-27.
- Sevki A, Gulsum T, Serkan E, Hasalettin D, Alaattin S. Assessing of anti-inflammatory effect of Small nettle' (*Urtica urens*) increasing polarity extracts. J Neuroim 2014;275:135.
- Farag MA, Weigend M, Luebert F, Brokamp G, Wessjohann LA. Phytochemical, phylogenetic, and anti-inflammatory evaluation of 43 *Urtica* accessions (stinging nettle) based on UPLC-Q-TOF-MS metabolomic profiles. Phytochemistry 2013;96:170-83.
- ESCOP Monographs, editor. *Urticae folium/herba*. In: European Scientific Cooperative on Phytotherapy. New York: ESCOP; 2003. p. 521-7.
- Jimoh F, Adedapo A, Aliero A, Afolayan A. Polyphenolic and biological activities of leaves extracts of *Argemonesub fusiformis* (Papaveraceae) and *Urtica urens* (Urticaceae). Rev Biol Trop 2010;58:1517-31.
- Doukkali Z, Boudida H, Srifi A, Taghzouti K, Cherrah Y, Alaoui K. Anxiolytic plants in Morocco: Ethnobotanical and ethno-pharmacological study. Phytotherapy 2015;13:306-13.
- Chrubasik JE, Roufogalis BD, Wagner H, Chrubasik S. A comprehensive review on the stinging nettle effect and efficacy profiles. Part II: *Urticae radix*. Phytomedicine 2007;14:568-79.
- Boericke W. New Manual of Homoeopathic Materia Medica & Repertory [with Relationship of Remedies], Second Re-Augmented & Revised Edition Based. 9th ed. New Delhi: B. Jain Publishers; 2002.
- Riley DS. Materia Medica of New and Old Homoeopathic Medicines. USA: Springer-Verlag GmbH.; 2012.
- Farrington EA. Condensed Materia Medica by Constantine Hering. 4th ed. New Delhi: Jain Publishing Co.; 1978. p. 936.
- Ministry of Health. Homoeopathic Pharmacopoeia of India. Vol. 1. New Delhi: Ministry of Health; 1971. p. 188.
- World Health Organization. Quality Control Methods for Medicinal Plant Materials. Geneva: World Health Organization; 1998.
- Quality Standards of Indian Medicinal Plants. Vol. 1. New Delhi: Indian Council of Medical Research; 2003. p. 237.
- Johansen DA. Plant Micro Technique. New York: McGraw Hill Book Co. Inc.; 1940.
- Evans WC. Trease and Evans Pharmacognosy. 15th ed. London: Saunders; 2002. p. 245-7.
- Kokate CK, Purohit AP, Gokhale SB. Textbook of Pharmacognosy. 42nd ed., Vol. 1. Nirali Publications; Pune. 2009.

अरटिका युरेन्स एल. का फार्माकोग्नोस्टिक और फिज़ियोकेमिकल अध्ययन – होम्योपैथी में प्रयोग की जाने वाली औषधि ।

पृष्ठभूमि: अरटिका युरेन्स एल. (परिवार अरटीकेसिया) जिसे एनुअल नेटल, ड्वार्फ नेटल, स्माल नेटल, डॉग नेटल या बर्निंग नेटल के रूप में जाना जाता है, इसका उपयोग गठिया, यूरिक एसिड रोगों, बिनाइन प्रोस्ट्रेट हाइपरप्लासिया और जलन के उपचार में किया जाता है। होम्योपैथी, पूरे पादप का उपयोग वात रोग, यूरिक एसिड डायथेसिस, जोड़ों के दर्द, लिथियासिस, पित्ती, एगैलेक्टिया और जलने के उपचार के लिए किया जाता है।

उद्देश्य: वर्तमान अध्ययन के उद्देश्य अनिर्मित औषधि के प्रमाणीकरण और पहचान के लिए अरटिका युरेन्स के पूरे पादप के मॉर्फो-एनाटोमिकल, पाउडर और भौतिक रासायनिक मानकों की जांच करना।

सामग्री और विधि: वर्तमान अध्ययन में जड़, तना, पत्ती और पाउडर का मैक्रोस्कोपिकल और माइक्रोस्कोपिक अध्ययन शामिल है, और पूरे पादप के पाउडर और अरटिका युरेन्स टिंचर के भौतिक रासायनिक अध्ययन शामिल हैं।

परिणाम: मुख्य जड़ गोल, मोटी और भूरी होती है पत्तियां लंबी पेटिओलेट युक्त, इलिप्टिक टू ब्रॉडली ओवेट होती हैं स्टेम 0.5–1 सेमी मोटी, गोल और शाखित। गुणात्मक और मात्रात्मक सूक्ष्म अध्ययन ने जड़, तने और पत्ती की विशिष्टताओं को दर्शाया है। औषधि के भौतिक-रासायनिक अध्ययनों में, अल्कोहल और जल की एक्सट्रैक्ट वैल्यू क्रमशः ≤ 7.52 और $\leq 13.88\%$ डब्लू/डब्लू थीय एल.ओ.डी, कुल, एसिड अघुलनशील और जल में घुलनशील भस्म क्रमशः ≤ 11.75 , ≤ 24.55 , ≤ 3.59 और $\leq 6.89\%$ डब्लू/डब्लू पाए गए। मदर टिंचर में डब्लूटी./एमएल, अल्कोहल की मात्रा, कुल ठोस पदार्थ, pH और λ अधिकतम पाया गया जो क्रमशः ≤ 0.97 जी, 47–52% वी/वी, $\leq 1.88\%$ डब्लू/वी, 7.93, और 266, 279 एनएम है।

निष्कर्ष: लेख में प्रस्तुत डेटा का उपयोग अनिर्मित औषधि की पहचान और प्रमाणीकरण के लिए किया जा सकता है, ताकि होम्योपैथिक औषधि अरटिका युरेन्स की शुद्धता, गुणवत्ता और प्रभावकारिता सुनिश्चित की जा सके।

Une étude pharmacognostique et physico-chimique de *Urtica urens* L. – un médicament utilisé en homéopathie

Contexte: *Urticaurens* L. (famille des Urticaceae), connu aussi sous les noms d'ortie annuelle, d'ortie grièche, de petite ortie, d'ortie royale ou d'ortie brûlante, est utilisé dans le traitement de l'arthrite, des maladies liées à l'acide urique, de l'hyperplasie bénigne de la prostate et des brûlures. En homéopathie, la plante entière est utilisée pour le traitement de la goutte, de la diathèse urique, des douleurs articulaires, de la lithiase, de l'urticaire, de l'agalaxie et des brûlures.

Objectif: Cette étude avait comme objectifs d'examiner les normes morpho-anatomiques, physico-chimiques et de la poudre de la plante entière d'*U. urens* pour authentifier et identifier le médicament brut.

Matériels et méthodes: La présente étude comprend une étude macroscopique et microscopique de la racine, la tige, la feuille et la poudre ainsi que des études physico-chimiques de la poudre de la plante entière et de la teinture mère de la plante *U. urens*.

Résultat: La racine pivotante est arrondie, épaisse et marron ; les feuilles sont longuement pétiolées et vont d'elliptiques à pratiquement ovoïdes ; la tige de 0,5 à 1 cm d'épaisseur est arrondie et ramifiée. Des études microscopiques qualitatives et quantitatives ont montré les caractéristiques distinctives de la tige, de la racine et de la feuille. Dans les études physico-chimiques du médicament, les valeurs d'extraction à l'aide d'alcool et d'eau étaient de $\leq 7,52$ et $\leq 13,88\%$ p/p respectivement ; la limite de détection, la teneur totale en cendres, en cendres insolubles dans l'acide et en cendres solubles dans l'eau étaient de $\leq 11,75$, $\leq 24,55$, $\leq 3,59$ et $\leq 6,89\%$ p/p respectivement. Pour la teinture mère, les valeurs de poids/ml, de la teneur en alcool, de la totalité des solides, de la mesure PH et de λ max étaient de $\geq 0,97$ g, 47-52 % v/v, $\leq 1,88\%$ p/v, 7,93, et 266, 279 nm respectivement.

Conclusion: Les données de cette étude peuvent être utilisées pour identifier et authentifier les médicaments bruts afin d'assurer la pureté, qualité et efficacité du médicament homéopathique *Urticaurens*.

Estudio farmacognóstico y físico-químico de *Urticaurens* L. – un fármaco utilizados en homeopatía

Fundamento: *Urticaurens* L.(FamiliaUrticaceae),conocida como ortiga menor, ortiga enana, ortiga pequeña ortiga de perro o ortiga ardiente. Se utiliza en el tratamiento de artritis, enfermedades de ácido úrico, hiperplasia prostática benigna y quemaduras. En homeopatía, se emplea la planta entera en el tratamiento de la gota, la diátesis de ácido úrico, dolor articular, litiasis, urticaria, agalactia y quemaduras.

Objetivo: Los objetivos del presente estudio fue investigar los estándares morfoanatómicos, físico-químicos y del polvo de la planta entera de *U. urens*para la autenticación e identificación del medicamento crudo.

Materiales y métodos: El presente estudio incluye el examen macroscópico y microscópico de raíz, tronco, hojas y polvo, así como el análisis físico-químico del polvo y la tintura madre de toda la planta de *U. urens*.

Resultado: La raíz pivotante es redondeada, gruesa y marrón; las hojas son largas pecioladas, elípticas y ampliamente ovaladas; el tronco tiene un grosor de 0,5 – 1 cm, es redondeado y se ramifica. Los estudios microscópicos cualitativos y cuantitativos mostraron las características de distinción de raíces, tronco y hojas. En los estudios físico—químicos, los valores de extracción en alcohol y agua fueron $\leq 7,52$ y $\leq 13,88$ % p/p respectivamente; la pérdida al secado y las cenizas totales, insolubles en acido e hidrosoluble se situaron en $\leq 11,75$, $\leq 24,55$, $\leq 3,59$ y $\leq 6,89$ % p/p, respectivamente. En la tintura madre, el p/ml, el contenido alcohólico, los sólidos totales, el pH y λ_{max} se determinaron en $\geq 0,97$ g, 47-52 % v/v, $\leq 1,88$ % p/v, 7,93 y 266, 279 nm, respectivamente.

Conclusión: Los datos presentados en este informe pueden utilizarse para la identificación y autenticación del fármaco crudo para asegurar su pureza, calidad y eficacia del medicamento homeopático *Urticaurens*.

Pharmakognostische und physikalisch-chemische Untersuchung von *Urtica urens* L. - einem in der Homöopathie verwendeten Arzneimittel

Hintergrund: *Urtica urens* L. (Familie Urticaceae), bekannt als kleine Brennnessel, Eiternessel wird zur Behandlung von Arthritis, Gicht, gutartiger Prostatahyperplasie und bei Verbrennungen eingesetzt. In der Homöopathie wird die gesamte Pflanze zur Behandlung von Gicht, harnsaurer Diathese, Gelenkschmerzen, Lithiasis, Urtikaria, Agalaktie und Verbrennungen eingesetzt.

Ziel: Ziel der vorliegenden Studie war es, morphoanatomische, pulverförmige und physikochemische Standards der gesamten Pflanze von *Urtica urens* zur Authentifizierung und Identifizierung des Roharzneimittels zu untersuchen.

Materialien und Methoden: Die aktuelle Studie umfasst makroskopische und mikroskopische Untersuchungen von Wurzel, Stiel, Blättern und Pulver sowie physikalisch-chemische Untersuchungen vom Gesamtpflanzenpulver und der Urtinktur von *Urtica urens*.

Ergebnis: Die Pfahlwurzel ist gerundet, dick und braun; die Blätter sind lang gestielt, elliptisch bis breit eiförmig; Stiel 0,5-1 cm dick, abgerundet und verzweigt. Qualitative und quantitative mikroskopische Untersuchungen zeigten die Unterscheidungsmerkmale von Wurzelstiel und Blatt. Physikochemischen Studien der Droge zeigten Extraktionswerte in Alkohol und Wasser $\leq 7,52$ bzw. $\leq 13,88$ Gew.-%. Die Gesamtmenge, säureunlösliche und wasserlösliche Asche waren $\leq 11,75$, $\leq 24,55$, $\leq 3,59$ bzw. $\leq 6,89$ Gew.-%. In der Urtinktur wurden ein Alkoholgehalt von $\geq 0,97$ g, ein pH-Wert von 47-52% v/v, ein Alkoholgehalt von $\leq 1,88$ % v/v von 7,93 nm und ein Alkoholgehalt von 266 nm von 279 nm gefunden.

Schlussfolgerung: Die hier vorgestellten Daten können zur Identifizierung und Authentifizierung von Roharzneimitteln verwendet werden, damit die Reinheit, Qualität und Wirksamkeit des homöopathischen Arzneimittels *Urtica urens* sicher gestellt werden.

Pharmacognostic and Physicochemical study of *Urticaurens* L. – a drug used in homoeopathy

歐蕁麻的藥理學和物理化學研究——一種順勢療法藥物

背景：歐蕁麻（蕁麻科）被稱為一年生蕁麻、矮蕁麻、小蕁麻、狗蕁麻或灼燒蕁麻，用於治療關節炎、尿酸病、前列腺增生症和燒燙傷。在順勢療法中，整株植物用於治療痛風、尿酸素質、關節疼痛、結石病、蕁麻疹、無乳症和燒燙傷。

目的：本研究的目的是研究整株蕁麻的形態解剖、粉末和物理化學標準，以確認和鑑定原料藥。

材料和方法：目前的研究包括對根、莖、葉和粉末的宏觀和微觀研究，以及整株植物的粉末和蕁麻母酊的物理化學研究。

結果：直根為圓形、厚、和棕色的；葉是長葉柄的，橢圓形到寬卵形；莖是0.5-1釐米厚，圓形和分枝。定性和定量微觀研究顯示了根、莖和葉的辨別特徵。在藥物的物理化學研究中，酒精和水的萃取值分別是 $\leq 7.52\%$ 和 $\leq 13.88\%$ （質量百分比）；L.O.D、總量、酸不溶性和水溶性灰分別為 ≤ 11.75 、 ≤ 24.55 、 ≤ 3.59 和 $\leq 6.89\%$ （質量百分比）。在母酊中，重量／毫升、酒精含量、總固體、pH和 λ max分別為 ≥ 0.97 克、47-52%（體積百分比）， $\leq 1.88\%$ （重量／體積），7.93和266,279納米。

結論：本文提供的數據可用於原料藥的確認和鑑定，以確保順勢療法藥物蕁麻的純度、質量和功效。