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

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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 prostate hyperplasia and burn. In Homoeopathy, the whole plant is used for the treatment of gout, uric acid diathesis, joint pain, lispiaisis, 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 ≤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 ≤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, ≤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), Orteigrieche (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 octadecadienoic 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.
**Urtica urens** has been reported to possess anti-oxidant and anti-microbial (leaves),[9] chemoprotective (aerial parts),[9] anxiolytic (aerial parts),[5] anti-inflammatory (leaves),[10,11] anti-arthritis (leaves)[3] 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*.

**Materials and Methods**

**Chemicals**
Hydrochloric acid (Finar, India), Fuchsirn (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 fuchsine 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 ration 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.

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**Table 1: Ethnomedicinal uses of Urtica urens**

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

CNS: Central nervous system
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 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 sclerechymatous 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 sclerechymatous 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 1: Raw drug of Urtica urens

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](image)

![Figure 4: Transverse section of Urtica urens leaf](image)

![Figure 5: Transverse section of Urtica urens upper epidermis](image)

![Figure 6: Transverse section of Urtica urens lower epidermis](image)
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 standards of raw drugs and mother tincture of *Urtica urens*. These are unique diagnostic characters and standards which
Table 3: Finished Product parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Authentic</th>
<th>Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organoleptic params</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear, nonviscous</td>
<td>Clear, nonviscous</td>
</tr>
<tr>
<td>Colour</td>
<td>Greenish brown</td>
<td>Dark yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>Characteristic</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Sediments</td>
<td>Absent</td>
<td>Absent</td>
</tr>
<tr>
<td>Weight per mL</td>
<td>≥0.97 g</td>
<td>≥0.95 g</td>
</tr>
<tr>
<td>Total solids</td>
<td>≤1.88% w/v</td>
<td>≤1.75% w/v</td>
</tr>
<tr>
<td>Alcohol content</td>
<td>47-52% v/v</td>
<td>51% v/v</td>
</tr>
<tr>
<td>pH</td>
<td>7.93</td>
<td>7.58</td>
</tr>
<tr>
<td>λ_{max}</td>
<td>221, 266 and 279 nm</td>
<td>279 nm</td>
</tr>
<tr>
<td>TLC</td>
<td>Mobile phase: 10% methanol in chloroform</td>
<td></td>
</tr>
</tbody>
</table>

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**

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**Conflicts of interest**

None declared.

**REFERENCES**

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

Contexte: Urtica urens 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 objectif 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 ≤7,52 et ≤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 ≤11,75, ≤24,55, ≤3,59 et ≤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 ≥0,97 g, 47-52 % v/v, ≤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 Urtica urens.
Patel, et al.: Pharmacognostic and physicochemical study of Urtica urens

Estudio farmacognósico y fisico-químico de Urticaurens L. – un fármaco utilizados en homeopatía

Fundamento: Urticaurens L. (Familia Urticaceae), 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 diástasis 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 autentificación 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 ≤7,52 y ≤13,88 % p/p respectivamente; la pérdida al secado y la cenizas totales, insolubles en acido e hidrosoluble se situaron en ≤11,75, ≤24,55, ≤3,59 y ≤6,89 % p/p, respectivamente. En la tintura madre, el p/ml, el contenido alcohólico, los sólidos totales, el pH y λmax se determinaron en ≥0,97 g, 47-52 % v/v, ≤1,88 % p/v, 7,93 y 266, 279 nm, respectivamente.

Conclusión: Los datos presentados en este informe pueden utilizarse para la identificación y autentificación 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


Ergebnis: Die Pfahlwurzel ist gerundet, dick und braun; dieBlätter 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 Drogezeigten Extraktionswerte in Alkohol und Wasser ≤ 7,52 bzw. ≤ 13,88 Gew.-%. Die Gesamtmenge, säureunlösliche und wasserlösliche Asche waren ≤ 11,75, ≤ 24,55, ≤ 3,59 bzw. ≤ 6,89 Gew.-%. In der Urtinktur wurden ein Alkoholgehalt von ≥ 0,97 g, ein pH-Wert von 47-52% v/v, ein Alkoholgehalt von ≤ 1,88% w/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 Urtica urens L. – a drug used in homoeopathy

Background: Urtica urens L. (Urticaceae) is commonly known as common nettle, stingless nettle, small nettle, dog nettle or burn nettle, and is used in the treatment of gout, uric acid disease, prostate enuresis, and burns. In homoeopathy, the whole plant is used in the treatment of gout, uric acid disease, joint pain, kidney disease, nettle rash, breast pain, and burns.

Objectives: The aim of this study was to investigate the morphological and microscopic characteristics, and to confirm and identify the raw drug.

Materials and Methods: The study included macroscopic and microscopic investigation of the root, stem, leaf, and powder of the plant, as well as the physicochemical investigation of the powder and the Mead tincture of the plant.

Results: The roots were round, thick, and brown; the leaves were long-stemmed, elliptical to broad-ovate; and the stems were 0.5-1 cm thick, round and branched. Quantitative and qualitative microscopic examination showed the distinctive features of the root, stem, and leaf. The physicochemical analysis of the sample showed alcohol and water extractions of ≤7.52% and ≤13.88% (mass percent), L.O.D, total content, acid insoluble, and water-soluble ash of ≤11.75, ≤24.55, ≤3.59, and ≤6.89% (mass percent), respectively. In the tincture, weight/ml, alcohol content, total solids, pH, and λ max were ≥0.97 g/ml, 47-52% (volume percent), ≤1.88% (weight/volume), 7.93 and 266,279 nanometers, respectively.

Conclusion: The data provided in this study can be used for confirmation and identification of the raw drug to ensure the purity, quality, and efficacy of the homoeopathic drug Urtica urens L.