

Review on *Uraria Picta* - A Traditionally Medicinal Plant of India: A Herbal Benefaction

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ABSTRACT

In present times, focus on herbal research has increased worldwide. *Urariapicta* is an important medicinal herb that is extensively used in dasamula and is becoming popular. Flavanoids, alkaloids and pterocarpanes are the key constituents of *Urariapicta* and mainly alleged for its broad beneficial actions. Other than for given treatments, the herb is suggested as remedy for a variety of other ailments. The present review is an effort to provide complete information on Phytochemicals screening, traditional uses and pharmacology relating to preclinical studies.

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1. Introduction

Urariapicta of Family Leguminosae Sub-Family Fabaceae is a well-liked Ayurvedic healthful plant that additionally glorious by name Prsniparni in Sanskrit. It's one amongst a part of Dasamula that precisely means that ten roots and is a well recognized Ayurvedic drug of Indian system of medicines used for treating general fatigue, antioxidant, analgesic and anti-inflammatory like medical conditions [1]. *Urariapicta* also used in other Ayurvedic formulations like Abana, Amrutharishta, Angamardaprashamanakashayachurna, Dasamulataila, Vyaghrataila, Madhyama Narayana Taila, Dasamularishta and Shirashuladivajra Rasa [2, 3]. Other vernaculars were given to *Urariapicta* such as Citraparni, Prthakparni, and Simhapuchi etc. Ayurvedic texts clearing up its morphological characteristics, attributes and benefits [4].

Urariapicta is a local of tropical zone including Nepal, Sri Lanka, Northern Australia, China, and Burma. This suffruticose herb which grows up to 1.5 meters tall is originate in dry grassland, west places, and open deciduous forests and in all plains of India extending from Himalayas to Ceylon, Malaysia and Phillipines [5]. *Urariapicta* consists of different phytoconstituents present in different extracts exhibit a number of biological profiles and guard from most of the chronic diseases [6, 7].

2. Botanical Description [8]

It is an vertical, small branched, perpetual herb, 90 – 180 cm tall, stems with short, rough hairs, leaves imparipinnate with 5-9 leaflets (lowermost leaves often 1-3-foliolate); leaflets narrowly lanceolate, 7-25 cm long (lowermost smaller), often variegated, shiny and hairless above, rough hairy below; margins entire, inflorescence a long terminal densely many-flowered spike-like raceme, up to 55 cm long, covered in long whitish hairs,

Flowers pink, bluish or reddish, fruit 5-9 mm long, folded into 3-6 segments, brown to black, turning greyish-white when old.



Fig 1. *Urariapicta* Whole Plant.



Fig 2. *Urariapicta* Whole Plant Powder.



Fig 3. *Urariapicta* Plant Leaves.



Fig 4. Urariapicta Plant Roots.

Table 1. Scientific Classification [9].

Kingdom	Plantae
Subkingdom	Viridaplantae
Super Order	Rosanae
Order	Fabales
Class	Magnoliopsida
Subclass	Rosidae
Family	Leguminosae
Sub-Family	Fabaceae
Genus	Uraria
Species	Picta - (Jacq.) Dc

Table 2. Vernacular Names [10].

Regions/ Language	Names
Sanskrit	Citraparni, Kalasi, Dhavani, Prthakparni, Srgalavinna
Bengali	Salpani, Chhalani, Chakule
Gujarat	Pithavan
Hindi	Pithavan, Dabra
Telugu	Murelehonne, Ondelee Hone, Prushniparni
Malyalam	Oril
Marathi	Pithavan, Prushniparnee
Oriya	Prushniparnee, Shankarjata
Punjabi	Detedarnee
Tamil	Orpai
Kannadaa	Kolakuppona

Table 3. Active Constituents [11].

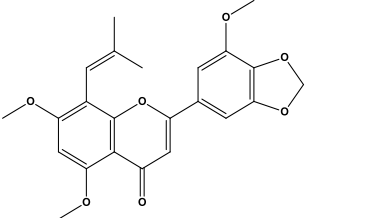
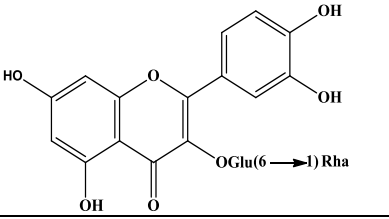
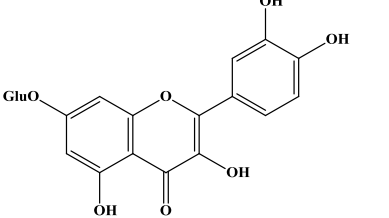
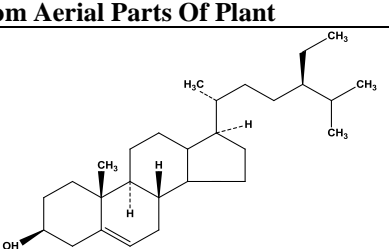
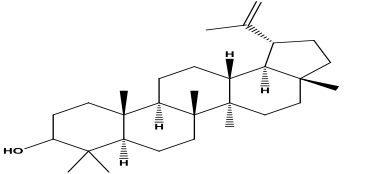
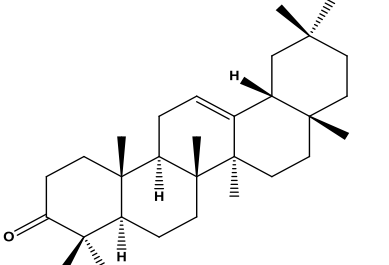
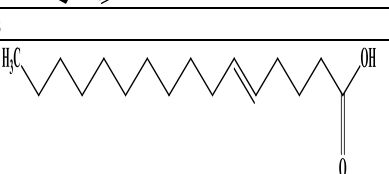
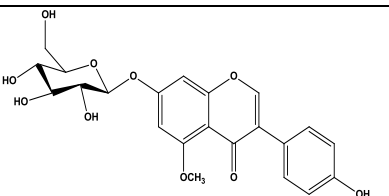
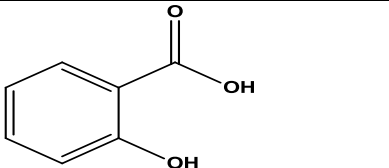
Chemical Nature Of Ingredients	Parts Of Plant
Flavonoids	
Flavones	Stem
Flavonols	Whole Plant
Isoflavones	Aerial Parts
Pterocarpan	Whole Palnt
Alkaloids	
Indole-3-Alkylamines	Whole Plant, Stem
Amide Alkaloids	Whole Plant
Phenylethylamine Alkaloids	Leaf, Stem
Terpenoids	Whole Plant
Steroids	Seed
Phenolic Acid	Aerial Parts
Others	Aerial Parts
Volatile Oils	Roots And Whole Plant
Phenylpropanoids	Aerial Part, Root

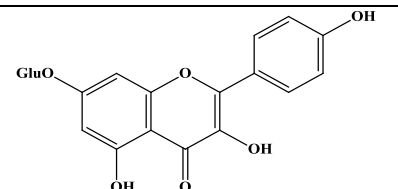
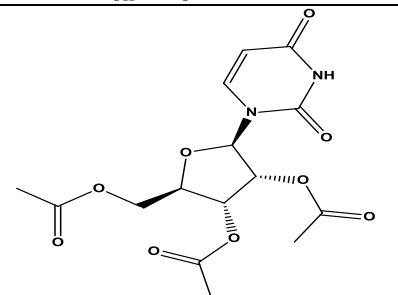
Phytochemical Screening Reveals *U.Picta* Loaded With Flavonoids, Alkaloids, Steroids, Terpenoids, Phenylpropanoids, Pterocarpan, Coumarins And Volatile Oil [11]. Among The Isolated Compounds Flavonoids, Alkaloids And Pterocarpan Are Considered As Key Bio-Actives. Alkaloids For Example 5-Methoxy N, N-Dimethyl Tryptamine, N-Bmethyl-H-4-Harman, B-Carbolinium Cation, Indole-3-Alkyl-Amines Have Been Secluded From Aerial Parts Of The Plant [12]. Pterocarpan For Example Gangetin, Gangetinin, Desmodin, And Desmocarpan Were Reported To Be Present In Roots [13]. Recently A Novel Pterocarpan, Gangetial, Have Been Secluded From The

Chloroform Extract Of The Roots Of *U. Picta* [14]. Flavones Like 4,5,7-Trihydroxy-8-Prenylflavone, 4-O-A-L-Rhamnopyranosyl-(1→6)-B-D-Glucopyranoside, 8-C-Prenyl-5,7,5-Trimethoxy-3,4-Methylenedioxyflavone, Rutin And Quercetin-7-O-B-D-Glucopyranoside Were Also Reported From The Aerial Parts. Phytosterols Viz. B-Sitosterol, B-Amyrone, Lupeol Plus Its Acetate, Stigmastrol Have Been Secluded From Aerial Parts. Additionally, Aminoglucosylglycerolipid Was Reported For The First Time From Seed [15]. More, Minor Phytoconstituents Viz. Trans-5- Hexadecenoic Acid, Salicylic Acid, 5-O-Methylgenistein-7-O-B-D-Glucopyranoside, 3,4- Dihydroxy Benzoic Acid, Kaempferol-7-O-B-D-Glucopyranoside, And Uridine Triacetate Were Reported Additionally [16].

Table 4. Structures Of Active Constituents.

Alkaloids Isolated From Aerial Parts Of Plant	
5-Methoxy N, N-Dimethyl Tryptamine	
B-Carbolinium Cation	
Pterocarpan From Roots	
Gangetin	
Gangetinin	
Desmocarpan	
Desmodin	
Flavones Isolated From Aerial Parts Of Plant	
4,5,7-Trihydroxy-8-Prenylflavone 4-O-A-L-Rhamnopyranosyl-(1→6)-B-D-Glucopyranoside	

8-C-Prenyl-5, 7, 5-Trimethoxy-3, 4-Methylenedioxyflavone	
Rutin	
Quercetin-7-O-B-D-Glucopyranoside	
Phytosterols Isolated From Aerial Parts Of Plant	
B-Sitosterol	
Lupeol	
B-Amyrone	
Minor Phytoconstituents	
Trans-5-Hexadecenoic Acid	
5-O-Methyl Genistein-7-O-B-D-Glucopyranoside	
Salicylic Acid	

Kaempferol-7-O-B-D-Glucopyranoside**Uridine Triacetate**

Alkaloids Have Various Pharmacological Actions Like Antiarrhythmic, Anticholinergic, Analgesic, Antitumor, Antihypertensive, Antipyretics, Antimalarial, Stimulant, Anti-Hiv, Antileukemic And Many More And Often Used As Medications. [17]

Flavonoids Are The Mainly Widespread Group Of Polyphenolic Compounds In The Human Diet And Are Found All Over In Plants. Pharmacologically, Flavanoids Embrace Cns, Cardiotonic, Lipid Lowering, Antiulcer, Hepatoprotective, Anti-Inflammatory, Antineoplastic, Antimicrobial, Antioxidant And Hypoglycemic Activities. Relating To Diet, Flavanoids Containing Foods Potentially Lowers The Risk Of Certain Free Radical Related Pathophysiology [18]. Steroids And Triterpenoids Are Pharmacologically Vigorous Compounds And Show The Analgesic Action [19]. The Steroids Also Reveal Central Nervous System Activities. Terpenoids Tend To Decrease Glucose Level In Animals [20]. Cardiac Glycosides Contain Therapeutic Significance And Used In Treating Congestive Heart Failure And Cardiac Arrhythmia [21]. Phenols And Phenolic Compounds Have Remarkable Antimicrobial Potential. They Have Been Wide Utilized In Disinfections And Remained The Standards As Comparison For Other Bactericides [22]. They Point Out Signs Of Cellular Defense Mechanism In Atherogenesis And Cancer. A Wide Variety Of Phenolic Substances Show Strong Antioxidant And Antimutagenic Activities. Current Evidences, Phenolic Compounds Can Also Play An Essential Health Promoting Function [23]. Saponins Were Commercially Used As Dietary Supplements And Nutraceuticals In Traditional Medicine Preparations [24]. They Also Have Hypocholesterolemic And Antidiabetic Actions [25]. Certain Tannins (Ellagitannins From *Lagerstroemia Speciosa*) Arouse Glucose Uptake. They Reveal Insulin Like Activity Acting As Glucose Transport Activators Of Fat Cells [26].

3. Traditional Uses

The Plant Traditionally Being Used As Antipyretic, Diuretic, Astringent (Used In Irritable Bowel Syndrome, Diarrhoea And Dysentery), Anticatarrhal, Diuretic, Anthelmintic, Laxative And Nervine Tonic Where As In *Chinaurariapicta* Is Used As Folkloric Medicine Mainly To Treat Fever, Deactivate Toxins, Inhibit Pain, Stimulate Blood Circulation, Suppress Cough And Improve Dyspnea [27].

Table 5. Traditional Uses.

Plant Part Used	Traditional Use
Roots	Premature Ejaculation [28]
Root Powder With Honey	Treat Mouth Ulcer [29]
Leaf Paste With Aloe-	Hair Falling [16]

Vera	
Leaves Paste	Eczema Infection, Dermal Disorders [30]
Water Decoction	Type 2 Diabetes Mellitus [31]
Root Powder Boiled With Milk	Flatulence [32]
Leaf Decoction	Diarrhea, Dysentery [33]
Leaf Paste	Piles [33]
Root Extract	Whooping Cough [34]
Fresh Leaves Juice	Scabies, Ringworm [35]
Root Extract	Diarrhea, Sedative Agent (Children) [36]
Root And Leaf Pastes	Toothache And Headache [27]
Water Decoction Of Root And Aerial Parts	Antipyretic, Anti-Inflammatory And Antinociceptive [36]
Roots Decoction	Asthma And Bronchial Complications [37]
Root And Powder Paste	Typhoid Fever, Cerebrospinal Meningitis And Antidote Of Snake Venom [38]

4. Pharmacological Profiles

4.1 Antioxidant Profile

Ethanollic Extract Of *U. Picta* Were Tested In-Vitro To Establish The Antioxidant Potential. The Ic50 Values In Dpph, Abts, O-Phenanthroline, Lipid Peroxidation And Superoxide Scavenging Models Were Found. These Findings Revealed The Antioxidant Profile Of The Extract Against Injury Mediated Through Several Reactive Oxygen Species. The Antioxidant Profile Of Ethanollic Extract Of *U. Picta* Was Evaluated In-Vitro. The Results Showed The Presence Of Phenolic, Flavanoids, Sterol And Terpene Derivatives [39]. In-Vivo Free Radical Scavenging Potential Of Aqueous Extract Of *U. Picta* Root Was Analysed By Inducement Of Oxidative Stress In Ischemic Reperfused Rat Heart Model. The Reading Supported Antioxidant Capacity Of *U. Picta* As Compared To Standard Drug Verapamil Against Revascularization Damage [40, 41].

4.2. Anti-Inflammatory And Anti-Nociceptive Profiles

Aqueous Decoction Of Roots And Aerial Parts Of *U. Picta* Showed Anti-Inflammatory And Anti-Nociceptive Profiles In Dosing Manner. The Inhibition Of Swelling Observed Against Carrageenan Was Equivalent To Cotton Pellet Granuloma. In Addition, Protection Was Observed Against A Significant Increase In Analgesio-Meter-Induced Force And Acetic Acid Induced Writhing Respectively [42].

Whole Plant Juice Of *U. Picta* Possesses Anti-Rheumatic And Anti-Osteo Arthritic Profile By Anti-Inflammatory Profile. The Profile May Be Associated With Several Phytoconstituents Like Polyphenolics, Pterocarpinoid (Gangetin) [43].

4.3. Anti-Leishmanial And Immunomodulatory Profiles

Glyco-Lipids Like Aminoglucosylglycerolipid And Glycosphingolipid, Isolated From The Roots Of *U. Picta* Showed Effective anti-leishmanial And Immunomodulatory Profiles By Increasing Nitric Oxide (NO) Production And Provided Resistance Against Infection Recognized In Peritoneal Macrophages By The Protozoan Parasite *Leishmania Donovanii* [15].

Additionally, Ethanollic Extract Of *U. Picta* Was Screened Chemoprophylactically And Chemotherapeutically In Opposition To Experimental Visceral Leishmania In Hamsters. Results Revealed Highest Prophylactic Efficacy In N-Butanol Fraction And Fair efficacy In Ethanol Extract [44].

4.4. Cardio-Protective Profile

Methanollic Extract Of *U. Picta* Roots Defend Mitochondrial Respiratory Enzymes And Thus Defending Rat Heart Against Oxidative Stress Induced Via Reperfusion Injury [45].

Extract Mediates Cardio Protection In Ischemic Reperfusion Injury Model In Isolated Frog Heart. The Effect Was Mediated By Stimulating The G-Protein Coupled Receptors Alike To The Action Of Acetylcholine; The Studies Were Compared Amid Verapamil And Standard Cardioprotective Drug [46]. Pre-Treatment With Aqueous Extract Of *U. Picta* Showed Abridged Cholesterol Level And Free Radical Scavenging Potential Against Isoproterenol Induced Myocardial Infarction In Rats. These Conclusions Were Associated With Cardio-Protective Profile Of The Plant [47].

Ethyl Acetate Extract Of *U. Picta* Root Indicated Potent Cardio-Protection Against Ischemia Reperfusion-Induced Oxidative Stress Models. The Extract Decrease Tbars In Myocardium Together With Better The Recovery Of Antioxidant Enzymes From The Attack Of Ischemic Reperfusion Injury. The Effects Of The Extract May Be Related To The Inhibition Of Lipid Peroxidation [48]. Methanollic Extract Of *U. Picta* Root Showed Myocardial Protection In Rat Ischemic Reperfusion Injury Model By Invigorating Muscarinic Receptors. The Profile Might Be Because Of The Decrease In Calcium Overload And Free Radical Release And Enhanced Recovery Of Antioxidant Enzyme Towards Myocardium [49].

4.5. Anti-Ulcer Profile

Ethanollic Extract Of *U. Picta* When Taken Orally Showed Effective Anti-Ulcerogenic Property In Sprague Dawley Rats And Guinea Pigs. A Significant Defense Against Cold Resistant, Alcohol, Aspirin, Pyloric Ligation And Hst Induced Ulcer Models Were Observed. Fall In Acid Secretion And Increase In Mucin Secretion Was Also Recorded. Results Show Cytoprotective Effect With Anti-Secretory Profile Of *U. Picta* Which May Be Responsible For Its Anti-Ulcer Property [50].

Ethanollic Extract Of *U. Picta* Root When Taken Orally showed significant Decrease In Ulcer Index And Lesion Number In A Dose Dependent Manner Against Ethanol Induced Acute Gastric Ulcer In Mice. Extract Provokes A Noticeable Increase In Protein And Glutathione Levels, In Comparison To Control [51].

4.6. Cns Profile

Aqueous Extract Of *U. Picta* Showed Effective Anti-Writhing Profile In The Acetic Acid-Induced Abdominal Writhing Asses. It Also Exhibited Fair Cns Depressant Profile And The Effects Of Extract On Locomotion Were Compared With Standard Cns Drugs [52].

4.7. Antiamnesic (Nootropic) Profile

Aqueous Extract Of *U. Picta* Showed Effective Anti-Amnesic Effects In Mice Against Scopolamine Induced Interoceptive Behavioral Models. The Study Was Compared With Piracetama Standard Nootropic Agent [53]. Pre-Treatment With Aqueous Extract Of *U. Picta* For Seven Consecutive Days, Inverted Scopolamine Induced Amnesia In Mice. Study Revealed That The Plant Augmented Mice Brain Acetylcholine Content And Decreased Acetyl Cholinesterase Profile As Compared To Standard Cerebro-Protective Drug Piracetam. Therefore, Aqueous Extract Of *U. Picta* Can Be Used To Wait The Onset And Lessen The Severity Of The Symptoms Of Dementia And Alzheimer's Disease [54].

4.8. Antidiabetic Profile

Methanollic Extract Of Aerial Parts Of *U. Picta* Showed A Significant Antidiabetic Profile In Rats By Raising Insulin Secretion From Min6 And Pseudoislets Cells Of Pancreatic Islet. It Plays A Key Role To Sustain The Lipid Profile Of

The Rats By Dropping Cholesterol And Triglycerides Levels And Rise In High Density Lipoproteins (Hdl). This Supports The Traditional Use Of *U. Picta* As Anti-Diabetic Drug [55].

4.9. Hepatoprotective Profile

Hepatoprotective Profile Of The Chloroform Extract Roots Of *U. Picta* Was Assessed Against Ccl4 Induced Liver Damage In Rat Models. The Study Concluded That Extract Caused A Rise In Serum Levels Of Total Proteins And Fall In Levels Of Bilirubin, Alanine Aminotransferase (Alt) And Aspartate Aminotransferase (Ast) In Pretreated Groups [56].

4.10. Nephroprotective Profile

On Oral Administration Of Aqueous Extract Of *U. Picta* Whole Plant Showed Clear Renal Protective Profile Due To The Presence Of Polyphenolic And Carbohydrate Compounds Against Acetaminophen Induced Nephrotoxic Rats [57].

4.11. Wound Healing Profile

Topical Application Of Aqueous Extract Showed Noticeable Wound Healing Potential In Wistar Rat Models. Results Indicated A Fall In Wound Closure Time And Rise In Wound Contraction. Furthermore, A Significant Increase In Proline Content Was Also Observed. All The Studies Were Compared With Standard Povidine Iodine Ointment [58].

5. Clinical Aspects

Majority Of The Studies On *U. Picta* Have Been Conducted With Alcoholic Or Aqueous Extracts. Both Preclinical And Clinical Experiments Have Concluded About The Quicker Healing Of Fractures Due To Early Accumulation Of Phosphorus And More Deposition Of Calcium. It Is Also Stated That The Decoction Is Prescribed For Cough, Chills And Fevers. The Leaves Are Considered Antiseptic And Used In Gonorrhoea. The Roots And Pods Are Employed To Treat Prolapse Of Anus In Infants; The Pods Are Also Employed For The Treatment Of Sore-Mouth In Children. It Is Used For The Treatment Of Urinary Diseases, Tumors, Edema, Burning Sensation And Difficulty In Breathing. Its Paste, Mixed With Water, Is Used As An Antidote For Snake Bite [59].

6. Conclusion

The Beneficial Effects Of This Plant In Relation To Its Effectiveness And Flexibility Are Such To Facilitate Advancement In Research Appears Vital. Bearing In Mind Different Solvents Like Methanol, Ethanol, Chloroform And Aqueous Extract, Methanol Extract Are More Effective For Numerous Activities Of *Urariapicta*. Thus, *Urariapicta* Is Quite Gifted As A Multipurpose Medicinal Means.

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