



# IJRASET

International Journal For Research in  
Applied Science and Engineering Technology



---

# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

---

**Volume: 11    Issue: VI    Month of publication: June 2023**

**DOI: <https://doi.org/10.22214/ijraset.2023.54015>**

**[www.ijraset.com](http://www.ijraset.com)**

**Call:  08813907089**

**E-mail ID: [ijraset@gmail.com](mailto:ijraset@gmail.com)**

# A Review on Ayurvedic Bitter Herb-Kiratatikta (*Swertia chirayita* (Roxb) H. Karst)- A Plant of Immense Medicinal Value

Dr. Shivananda B Karigar<sup>1</sup>, Dr. Praveen Kumar K.M<sup>2</sup>

<sup>1</sup>Assistant professor, <sup>2</sup>2<sup>nd</sup> year PG Scholar, Department of PG Studies in Dravyaguna, Taranath Government Ayurvedic Medical College and Hospital, Ballari

**Abstract:** Kiratatikta (*Swertia chirayita* (Roxb.) H. Karst.) is a herb with diverse medicinal properties. Name of the plant itself signifies that it is more of bitter taste and this bitterness is due to presence of different active principles like Amarogentin, Swertiamarin and Mangiferin etc. By these active principles it has shown pharmacological activities like Anticancer, and CNS depressant Antiviral activity. Kiratatikta is popularly known for its traditional uses in Jwara, Raktapitta, pidaka and many more. As this herb is now endangered species, another herb called Kalamegha (*Andrographis paniculata*) which is having similar properties like Kiratatiktha is being used as substitute. Some authors mention it as adulterant.

**Keywords:** Kiratatikta, *Swertia chirata*, *Swertia chirayata*, Bhunimba, Kalamegha, Bitter herb

## I. INTRODUCTION

Kiratatiktha botanically identified as *Swertia chirayita* (Roxb.) H. Karst belongs to Gentianaceae family. In India, 40 species of *Swertia* are recorded<sup>[1]</sup>. *S. chirayita* was first described in 1814 by Roxburgh under the name of *Gentiana chyrayta*<sup>2</sup>. This ethnomedicinal herb is known mostly for its bitter taste caused by the presence of different chemical constituents such as amarogentin- most bitter compound isolated till date, swerchirin, swertiamarin, and other bioactive compounds that are directly associated with human health welfare<sup>[3]</sup>. Its widespread uses in traditional medicine have resulted in over-exploitation from the natural habitat and it is now on the verge of extinction in the wild. So now it is a critically endangered medicinal herb that grows at high altitudes in the sub-temperate regions of the Himalayas between 1200 and 2100 m altitudes from Kashmir to Bhutan<sup>[4]</sup>

The references about the plant Kiratatikta is found in Brihatrayi especially in Ganas and some of therapeutic usage have been mentioned. We can see elaborated more description in many Nighantus. The herb Kiratatikta is popularly familiar with names like Bhunimba. The present article intend to review in detail about Kiratatikta mentioned in ayurvedic classics along with detailed information available in different sources.

## II. GENERAL INFORMATION REGARDING KIRATATIKTHA MENTIONED GANAS OF DIFFERENT CLASSICS

Our preceptors classified the drugs based on pharmacodynamics and therapeutic value generally and also by their morphological features and properties. Kiratatikta (*Swertia chirayita* (Roxb.) H. Karst) classified under various such groups is enlisted below.

Table: 1 showing classification according to different Classics<sup>[5,6,7,8,9,10,11,12,13,14,15]</sup>

1.Charaka Samhita	Stanyashodhana Gana, Trushnanigraha gana, Tikta Skandha Dravyas
2.Sushruta Samhita	Aargvadhadi Gana
3.Ashtang Samgraham	Stanyashudhikarana Gana, Aargvadhadi Gana, Tikta Skandha Dravyas
4.Nighantu Aadarsh	Kiratadi Varga
5.Dhanvantari nighantu	Guduchyadi Varga
6.Bhavprakash nighantu	Haritakiyadi Varga
7.Kaidev nighantu	Aaushdhi Varga
8.Priya nighantu	Shatpushpadi Varga
9.Raj nighantu	Prabhadradi Varga

10.Madanpala nighantu	Abhayadi Varga
11.Shodhala nighantu	Guduchyadi Varga

### III. NIRUKTI<sup>[16, 17, 18]</sup>

The nirukti of the drug –Kiratatikta (*Swertia chirayita* (Roxb.) H. Karst) mentions its taste is purely bitter and its habitat i.e, its available in ‘Kirata desha’- which is North east part of India.

1) ‘किराततिक्त’- किरातः भूनिम्बस्तदत् तिक्तः | वृक्षविशेषः || (श.क.द्रु)

चिराता इति भाषा | तत्पर्यायः | भूनिम्बः, अनार्यतिक्तः ||

2) किराततिक्तो भूनिम्बोडनार्यतिक्तः - किरातदेशोडस्ति जन्मस्थानमस्य | किरातश्वासौ तिक्तश्च || (अ.को.)

3) किराततिक्त – किरातदेश उत्पत्तिस्थानत्वे नाख्यस्य अच् | (शब्दस्तोम-महानिधि)

### IV. SYNONYMS

Table: 2: Showing synonyms according to different authors.<sup>[8,9,10,11,12,13,14,15]</sup>

Sl. no	SYNONYMS	Sho. Ni	Dha.Ni	Pri. Ni	Kai. Ni	Ra.Ni	Bha. Ni	Ni. Aa	Ma. Ni
1	Kiratatikta	+	+	+	+	+	+	+	+
2	Kanditikta	+	+	-	+	-	+	+	-
3	Kirataka	+	+	-	+	-	+	+	+
4	Bhunimb	+	+	-	+	+	+	+	+
5	Naditikta	+	-	-	+	-	-	-	+
6	Shleshmaha	+	-	-	-	-	-	-	-
7	Ramsenaka	+	+	-	-	-	+	-	+
8	Shulapaha	+	-	-	-	-	-	-	-
9	Maladhvansi	+	-	-	-	-	-	-	-
10	Krumighno	+	-	-	-	-	-	-	-
11	Balakpriya	+	-	-	-	-	-	-	-
12	Naipal	+	+	-	-	-	+	-	+
13	Sannipatari	+	-	-	-	-	-	-	-
14	Anaryatikta	-	+	-	-	-	+	+	-
15	Kirato	-	+	-	-	-	-	-	+
16	Jvarantaka	-	+	-	-	-	+	-	+
17	Mahatikta	-	+	-	-	-	-	-	-
18	Tikta	-	+	-	-	-	-	-	-
19	Nidrari	-	+	-	-	-	-	-	+
20	Sannipataha	-	+	-	-	-	-	-	+
21	Kairat	-	-	+	-	-	+	-	-
22	Tiktakando	-	-	+	-	-	-	-	-
23	Atitiktaka	-	-	+	-	-	-	-	-
24	Haim	-	+	-	-	-	-	-	-
25	Haimstikta	-	-	-	+	-	-	-	-
26	Ramsena	-	-	-	+	-	-	+	-
27	Katrana	-	-	-	+	-	-	-	-
28	Kairataka	-	-	-	+	-	-	-	-
29	Naryatikta	-	-	-	+	-	-	-	-
30	Ardhatiktaka	-	-	-	+	-	+	-	+

31	Nepalnimba	-	-	-	-	+	-	-	-
32	Katutikta	-	-	-	-	-	+	-	-

### V. VERNACULAR NAMES

Table: 3. Showing vernacular names: <sup>[19, 20, 21]</sup>

Arabic	Qasabuzzarirah
Bengali	Chireta, chirayita
Burmese	Sekhagi
English	Chiretta, chirata
Deccan	Charayatah
Persian	Nenilawandi
Canarese	Nelabevu
Gujarati	Chirayata, chirayita, kariyatu, kariyatun, chirayatah
Hindi	Charayatah, chirayita, nepal nim, chirayata
Oriya	Chireita
Kannada	Nelavebu, chirata kaddi, nelaveppu, kariyathu.
Kashmiri	Lose, chiraita
Assamese	Chirta
Malayalam	Nelaveppu, kirayathu, nilamakanjiram, uttrakiriyattu.
Marathi	Kiraita, kaduchiraita, chirayita.
Persian	Nenilawandi, qasabuzzarirah.
Punjabi	Chiretta, chiraita
Sanskrit	Kiratatikta, kirata, bhunimba, kirataka.
Patna	Cherayta
Tamil	Nilavembu, shirattakuchi, chirattakucchi
Telugu	Nelavemu, nilaveru, nilavembu
Urdu	Chiraita, chirayata
Nepal	Cherata

### VI. TAXONOMICAL POSITION<sup>[22, 23]</sup>

Table no.4 Taxonomic position of Kiratatikta

KINGDOM	Plantae
DIVISION	Magnoliophyta
CLASS	Magnoliopsida
SUBCLASS	Asteridae
ORDER	Gentianales
FAMILY	Gentianaceae
GENUS	Swertia
SPECIES	Chirata

### VII. HABITAT and HABIT<sup>[19]</sup>

- 1) Global: It is specially grown in Nepal and Bhutan.
- 2) India: Distributed in temperate Himalayas between 1200 – 3000 m altitude and in Khasi hills in Meghalaya, Arunachal Pradesh and northeast (1200-1500m) covering Himachal Pradesh, Uttaranchal, Uttarpradesh, Sikkim.
- 3) Habit
- 4) It is erect, branched, robust, annual herb.
- 5) Stem: 1m long and 6mm in diameter, glabrous, yellowish-brown to purplish, slightly quadrangular above and cylindrical below, large and continuous.
- 6) Leaves: opposite, cauline, broad at base, ovate or lanceolate, entire, acuminate, glabrous, usually with 5-7 prominent lateral veins, branching from axils of the leaves which ramify further into panicle inflorescence.

- 7) Flowers: small, numerous, greenish yellow, tinged with purple, in profuse panicles, ovoid.
- 8) Fruit: a capsule with numerous, minute reticulated seed, 0.25- 0.55 mm long and 0.16- 0.45 mm broad irregularly ovoid. Seeds: many smooth, 0.5 mm, polyhedral. Flowering: July – October **Fruiting:** October – December

### VIII. CHEMICAL CONSTITUENTS <sup>[19,20]</sup>

Mangiferin, Swertiamarin, Swertianin, Chiratanin, Enicoflavine, Gentianine, Gentiocrucine, Chiratin, Amarogentin, Gentiopictin, Cerolic, Oleic, Leucine, Arginine, Stearic acid, Glutamic acid, Chiratenol, Methionine, Kairatenol, Swertanone, Swertenol, Epismetenol, Ursolic acid, Teraxerol, B sitosterol

### IX. RASA PANCHAKA <sup>[8,9,10,11,12,13,14,15]</sup>

The science of Ayurveda explains Pharmacodynamics of a drug in unique way i.e, in terms of Rasapanchaka i.e, Rasa, Guna, Veerya, Vipaka, Doshakarma. This description we find mainly in lexicons.

Table: 5- Showing Rasa panchaka of Kiratatikta according to different authors

Rasa Panchaka	Dha.Ni	Sho.Ni	Mad.Ni	Kai.Ni	Ra.Ni	Bha.Ni	Ni.Ad	Pri.Ni
<b>GUNA</b>								
LAGHU	+	-	+	+	-	+	+	-
RUKSHA	-	-	+	+	-	+	+	-
SARA	-	-	-	+	-	+	-	-
<b>RASA</b>								
TIKTA	+	-	+	+	+	+	+	+
<b>VIRYA</b>								
SHEETA	-	-	+	+	-	+	+	-
ANUSHNA SHEETA	+	+	-	-	-	-	-	-
<b>VIPAKA</b>								
KATU	-	-	-	-	-	+	-	-
<b>DOSHAGNATA</b>								
VATA ↑↑	-	-	+	+	+	-	+	-
KAPHA ↓↓	+	-	-	+	+	+	+	+
PITTA ↓↓	+	-	+	+	+	+	+	+
<b>KARMA</b>								
JWARAGHNA	+	+	+	+	+	+	+	+
RAKTASHODHAK	+	-	+	+	+	+	+	-
TRISHNA NIGRAHANA	+	-	-	+	+	+	+	-
KASA HARA	+	-	+	+	-	+	+	-
SHOPHAHARA	+	-	-	+	+	+	+	-
KRIMIGHNA	-	+	-	+	-	+	+	+
DAHASHAMAN	-	-	+	+	-	+	+	+
RUCHYA	-	-	-	+	-	-	-	-
SARAK	-	-	-	+	-	+	-	-
KUSHTHGHNA	-	-	-	+	+	+	+	+
KANDUGHNA	-	-	-	-	+	-	+	-
PATHYA	-	-	-	-	+	-	+	-
VRANSAMROPAN	-	-	-	-	+	+	+	+
YOGAVAHI	-	-	-	-	+	-	+	-

DISEASES INDICATED								
	Dh.Ni	Sho.Ni	Bha.Ni	Pri.Ni	Kai.Ni	M.Ni	R.Ni	Ni.ad
JWARA	+	+	+	+	+	+	+	+
TRUSHNA	+	-	+	-	+	-	+	+
KASA	+	-	+	-	+	+	-	+
SHOPHA	+	-	+	-	+	-	+	+
KRIMI ROGA	-	+	+	+	+	-	-	+
SHOOLA	-	+	-	-	-	-	-	+
KUSHTHA	-	-	+	+	+	-	+	+
VRANA	-	-	+	+	-	-	+	+
DAHA	-	-	+	+	+	+	-	+
SHVASA	-	-	+	-	+	+	-	+
MEHA	-	-	-	-	+	-	-	-
ARUCHI	-	-	-	-	+	-	-	-
KANDU	-	-	-	-	-	-	+	-

### X. THERAPEUTIC USES<sup>[24]</sup>

- 1) Jwara: Hot infusion of Kiratatikta mixed with Dhanyaka leaves alleviates fever immediately. (Siddha.Bhaishajya manimala.4/32)
- 2) Grahani: Kiratadhya churna (Charaka chikitsa.15/137-140) Bhunimbadhya churna (Charaka chikitsa.15/132-133).
- 3) Oedema: Paste of Kiratatikta and Shunthi destroys oedema which is chronic and caused by three doshas. ( Charak chikitsa.12/42)
- 4) For purifying breast milk: Decoction of Katuka, Guduchi, Saptaparna bark, Sunthi and Kiratatikta is administered. (Charaka chikitsa30/261-262)
- 5) Eruptive boils: Bhunimbadi kashaya.( Gada Nigraha.2/ 40-66)
- 6) Raktapitta (Intrinsic haemorrhage): Kiratatikta mixed with sandal is beneficial in the disease. (Charaka chikitsa.4/74-76)

### XI. RESEARCH PROFILE

Amarogenin constituent has shown as Anticancer activity<sup>[25]</sup> and Antidiabetic activity<sup>[26]</sup>

Swertiamarin has proven for CNS depressant<sup>[27]</sup> and Anti diabetic activity<sup>[28]</sup>

Mangiferin has shown Antiviral activity<sup>[29]</sup>.

S. *chirayita* extracts showed anti-hepatitis B virus (anti-HBV) activities<sup>[30]</sup>

### XII. PARTS USED<sup>20</sup> And POSOLOGY<sup>20</sup>

Whole plant i.e. Panchanga

Posology:- Powder form: 1 – 3 gm Decoction: 20-30 ml.

### XIII. CLASSICAL FORMULATIONS<sup>31, 32, 33</sup>

Table: 6. Showing vishista yogas of Kiratatikta

Sl.no	YOGAS	INDICATIONS	CLASSICAL REFFERANCE
1	Sudarshana churna	Jwara	Sha.Sa.Ch -6 Jwarachikitsa (26-36)
2	Kiratadi kwatha	Vata jwara	B.R. jwara chikitsa(75)

3	Maha tikta ghrit	Kushtha, Raktapitta, Arsha, Visarpa, Pandu, Hridroga, Kamala etc	B.R. kushtharogachikitsa (243-248)
4	Sarvajwarahar lauha	Plihavruddhi, Hridyagravruddhi, Yakruthvruddhi, Jeerna jwara etc	B.R.jwrachikitsa (1170-1174)
5	Jwarantak lauha	All types of jwara, Prameha, Grahani, Kamala, Pandu	B.R. jwarachikitsa (1193-1203)
6	Patrangasava	Shvetpradar, Raktapradar, Jwara, Shotha, Pandu, Mandagni etc	B.R. pradarchikitsa (122-126)
7	Mrutyunjaya rasa	Jwara, Asadhya roga	R.Y.S. Jwaradhikar (3162-3171)
8	Punarnavadi leha	Kamala, Pandu, Kasa, Shvasa, Halimaka, Shvayathu, Swarasada etc	R.Y.S Pandukamalachikitsa (820-829)
9	Raktapittantako rasa	Raktapitta, Rasayan	R.Y.S CH-karadi rasa (158-159)
10	Sarvajwarankusha Vati	All types of Jwara	R.Y.S SH-karadi rasa (1281-1285) B.R. Jwaradhikar
11	Kiratadi taila	Santat jwara, Satata Jwara, Dhatusthit jwara, Kamala, Grahani, Atisara etc	B.R.Jwarachikitsa (1357-1361)
12	Unmadbhanjano rasa	Unmad, Apasmar, Daruna Raktapitta, Karshya	R.Y.S Unmad adhikara (1686)
13	Shodashanga Churna	Sarva jwara	Vanspati chandrodaya Vol – 4
14	Kiratadi mandura	Pandu, Halimaka, Gulma, Prameha, Shotha, Kushtha, Shvitra etc	R.Y.S KA-karadi rasa (1159-1161)
15	Chaturbhadra kwatha	Vata jwara, Pitta jwara	B.R. Jwara chikitsa (269)

#### XIV. SUBSTITUTES<sup>[34]</sup> And ADULTERANTS<sup>[34]</sup>

##### A. Substitutes

- 1) Swertia purpurascens Wall.
- 2) S.decussata Nimmo ex Grah.

- 3) *S.chinensis* Franchet.
- 4) *S.paniculata* Wall.
- 5) *S.perennis* Linn.
- 6) *S.lawii* Burkill
- 7) *S.affinis* C. B. Clarke.
- 8) *Exacum bicolor* Roxb.
- 9) *E.tetragonum* Roxb.
- 10) *Erythraea roxburghii* G.Don.
- 11) *Enicostemma littorale* Blume.

**B. *Adultrants*<sup>[34]</sup>**

- 1) *Swertia angustifolia* Buch.Ham.ex D.Don
- 2) *Swertia alata* Royle ex.C.B.Clarke
- 3) *Rubia cordifolia* Linn
- 4) *Andrographis paniculata* Nees.

### XV. CONCLUSION

Kiratitkta – a herb with bitter taste, it has got lot of medicinal values. *Swertia chirayata* is now considered as endangered species because of its extensive use. There are many species are taken substitute for Kiratitkta, but popularly Kalamegha- (*Andrographis paniculata*) which is having similar properties is being used instead of Kiratitkta. In ayurvedic classics the herb has been one of the key ingredient in many preparations used in Jwara, Raktapitta, Shotha etc even used in liver disorders.

### REFERENCES

- [1] Clarke C. B. (1885). Verbenaceae, in The Flora of British India, Vol. IV, ed Hooker J. D. (London: L. Reeve and Co; ), 560–604.
- [2] Scartezzini P., Speroni E. (2000). Review on some plants of Indian traditional medicine with antioxidant activity. J. Ethnopharmacol. 71, 23–42. 10.1016/S0378-8741(00)00213-0
- [3] Joshi P., Dhawan V. (2005). *Swertia chirayata*—an overview. Curr. Sci. 89, 635–640.
- [4] Bentley R., Trimen H. (eds.). (1880). Medicinal Plants. London: J and A Churchill.
- [5] Agnivesa- Carakasamhita Vol-1 Edited with “Vaidyamanorama” Hindi Commentary along with special deliberation by Acharya Vidyadhar Shukla & Prof. Ravi Dutt Tripathi , Chaukhamba Sanskrit Prakashan, Delhi. 2<sup>nd</sup> edition 2009. a) Sutrasthana ch 4, SI No.18,29. Page No-74,75. b) Vimanasthana ch 8, SI No.143,Page No.664
- [6] Maharshi Sushruta- Sushruta Samhita Edited with ‘Sushruta Vimarshini’ Hindi Commentary by Dr.Anant Ram Sharma, Chaukhamba Surbharati Prakashan,Varanasi. 2<sup>nd</sup> edition 2012. Sutrasthana Ch 38. SI No.6-7. Page No,294.
- [7] Vrddha Vagbhata- Astanga samgraha With the Sasilekha Sanskrit Commentary By Indu. Prologue in Sanskrit & English by Prof.Jyotir Mitra. Chowkhamba Sanskrit Series Office Varanasi. 3<sup>rd</sup> Edition 2012. a) Sutrasthana ch 15.SI No.6,Page No.131. b) Ch 16,SI No.9,Page No.133. c) Ch No.18,SI No.14,Page No.145
- [8] Shri Bhavamisra- Bhavaprakasa Nighantu (Indian Materia Medica) by Prof.K.C.Chunekar, Chaukhamba bharati academy Varanasi. Revised & Enlarged Edition 2010. SI No.153-155. Page No.70.
- [9] Kaiyadeva- Kaiyadeva Nighantu Edited and Translated by Dr.P.V.Sharma and Dr.Sharma guru Prasad, 1<sup>st</sup> edition 1979. Chaukhamba Surbharati Prakashana Varanasi. Aushadha varga, SI No.889-891. Page No.165
- [10] Madanapala- Madanpala Nighantu by Dr.J.L.N.Sastry, Chaukhamba Orientalia Varanasi, 1<sup>st</sup> Edition 2010, Abhayadi Varga, SI No.143-144. Page No.104-107.
- [11] Dr.Priyavrat Sharma- Priya Nighantu Along with the author’s Hindi Commentary entitled “PADMA”, Chaukhamba Surbharati Prakashana. 2<sup>nd</sup>edition. Shatpushpadi Varga, SI No.133-134. Page No.100
- [12] Pandit Narahari- Raj Nighantu Edited with “Dravyagunaprakasika” Hindi Commentary by Dr.Indradeo Tripathi, Krishnadas Academy. 2<sup>nd</sup> Edition 1998. Prabhadradi Varga. SI No.15-16. Page No.266.
- [13] .Acarya Sodhala- Sodhala Nighantuh, Text with English-Hindi Commentaries by Prof.(Dr.)Gyanendra Pandey., Chowkhamba Krishnadas Academy Varanasi, 1<sup>st</sup> edition 2009, Guducyadi Vargah, SI No.121-122,Page No.2
- [14] Bapalala G.Vaidhya. Nighantu Aadarsh Uttarardh, Chaukhamba Bharati Academy Varanasi. 2<sup>nd</sup> Edition 1999. Kiratadi Varga, Page No.70-72
- [15] Dhanvantari Nighantu- Edited by Acharya Priyavrat Sharma & Translated by Dr.Guru Prasad Sharma, Chaukhamba Orientaliya Varanasi. 2<sup>nd</sup> edition 1998. Guduchyadi Varga. SI No.33-35. Page No 22
- [16] Raja Radhakanta Dev- Shabdakalpadruma 2<sup>nd</sup> Kanda, Naga Publishers Delhi, 2<sup>nd</sup> edition 2003. Page-128
- [17] Haragovinda Shastri- Namalinganusasana or Amarakosa of Amarasimha with the ramasrami commentary of Bhanuji Dixita, Kanda-2, Varga-4, Vanoushdhi Varga, Chaukhamba Sanskrit Sansthan, Varanasi. 4<sup>th</sup> edition 2001. Page-226
- [18] Tarkavachaspati Sri Taranath Bhattacharya – Sabdastoma mahanidhi ( A Sanskrit dictionary), Chowkhamba Sanskrit Series Varanasi. 3<sup>rd</sup> edition 1967. Page- 24, 101, 115, 122, 135, 311, 326.
- [19] K.V.Billore, M.B.Yelne, T.J.Dennis, B.G.Chaudhary- Database On Medicinal Plants Used In Ayurveda. CCRAS, Dept. of AYUSH, Govt.of India New Delhi. Volume 7. 2005. Page- 226 – 243.
- [20] Lt.Colonel K.R.Kirtikar & Major B.D.Basu- Indian Medicinal Plants, 3<sup>rd</sup> Volume, International Book Distributors Deharadun. 2<sup>nd</sup> edition. Page- 166
- [21] The Ayurvedic Pharmacopoeia of India, Part 1, Volume-1, Govt. of India, Ministry of health and family Welfare, Dept. of AYUSH.
- [22] <https://www.gbif.org/species/5596317> [The Global Biodiversity Information Facility]
- [23] <https://en.wikipedia.org/wiki/Swertia>



- [24] P.V.Sharma- Classical uses of Medicinal Plants, Chaukhambha Vishvabharati. Reprint 2004. Page- 504, 100
- [25] Saha P., Mandal S., Das A., Das S. (2006). Amarogentin can reduce hyperproliferation by downregulation of Cox-II and upregulation of apoptosis in mouse skin carcinogenesis model. *Cancer Lett.* 244, 252–259. 10.1016/j.canlet.2005.12.036
- [26] Phoboo S., Pinto M. D. S., Barbosa A. C. L., Sarkar D., Bhowmik P. C., Jha P. K., et al.. (2013). Phenolic-linked biochemical rationale for the anti-diabetic properties of *Swertia chirayita* (Roxb. ex Flem.) Karst. *Phytother. Res.* 27, 227–235. 10.1002/ptr.471
- [27] Bhattacharya S. K., Reddy P. K., Ghosal S., Singh A. K., Sharma P. V. (1976). Chemical constituents of Gentianaceae. XIX. CNS-depressant effects of swertiamarin. *Indian J. Pharm. Sci.* 65, 1547–1549. 10.1002/jps.260065103
- [28] Vaidya H., Goyal R. K., Cheema S. K. (2013). Anti-diabetic activity of swertiamarin is due to an active metabolite, gentianine, that upregulates PPAR- $\gamma$  gene expression in 3T3-L1 cells. *Phytother. Res.* 27, 624–627. 10.1002/ptr.4763
- [29] Zheng M. S., Lu Z. Y. (1990). Antiviral effect of mangiferin and iso-mangiferin on herpes simplex virus. *Chinese Med. J.* 103, 160–165.
- [30] Zhou N. J., Geng C. A., Huang X. Y., Ma Y. B., Zhang X. M., Wang J. L., et al.. (2015). Anti-hepatitis B virus active constituents from *Swertia chirayita*. *Fitoterapia* 100, 27–34. 10.1016/j.fitote.2014.11.01
- [31] Shri Ambikadattshashtri – Bhaisajyaratnavali. Chaukhambha Sanskrit Samsthan Varanasi. 15<sup>th</sup> edition 2002. Page. 61, 633, 124, 125, 72
- [32] Vaidya Pandit Haripannaji - Rasayoga Sagar Vol 2. Chowkhamba Krinadas Academy Varanasi. Reprint 2010. Page. 57, 204-205, 224-225, 492, 179, 30
- [33] Shri Chandra Raja Bhandari – Vanaspati Chandrodaya. Chaukhambha Sanskrit Samsthan Varanasi. 2<sup>nd</sup> edition 2010. Page. 26-27
- [34] Shri Bhavamisra- Bhavaprakasa Nighantu (Indian Materia Medica) by Prof.K.C.Chunekar, Chaukhambha bharti academy Varanasi. Revised & Enlarged Reprint 2013. Page No.71-73.

KIRATATIKTHA (*Swertia chirayita* (Roxb.) H. Karst) Images :





10.22214/IJRASET



45.98



IMPACT FACTOR:  
7.129



IMPACT FACTOR:  
7.429



# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089  (24\*7 Support on Whatsapp)