



IJPPR

INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals

ISSN 2349-7203




Human Journals

Review Article

December 2021 Vol.:23, Issue:1


© All rights are reserved by Mohd Afsahul Kalam et al.

Sarphuka (Tephrosia purpurea (L.) Pers.): Pharmacognostical Profile, Therapeutic Uses and Phytoconstituents - A Review



IJPPR

INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals



ISSN 2349-7203

**Mohammed Asif Khan¹, Mohd Afsahul Kalam*²,
Mohd Naved³, Ansar Ahmad⁴, Amjad Saifi⁵**

¹Associate Professor, Department of Ilmul Advia, Rajasthan Unani Medical College and Hospital, Jaipur. India.

²Lecturer Department of Ilmul Advia, Regional Research Institute of Unani Medicine, Kashmir University, Habak, Naseembagh Campus, Hazratbal Srinagar, J&K. 190006. India.

³PG Scholars (M.D), Department of Ilmul Advia, Regional Research Institute of Unani Medicine, Kashmir University, Habak, Naseembagh Campus, Hazratbal Srinagar, J&K. 190006. India.

⁴Professor & HOD, Department of Ilmul Advia, Regional Research Institute of Unani Medicine, Kashmir University, Habak, Naseembagh Campus, Hazratbal Srinagar, J&K. 190006. India.

⁵PG Scholars (M.D), Department of Moalajat, National Institute of Unani Medicine, Bengaluru 560091, Karnataka. India.

Submitted: 25 November 2021
Accepted: 30 November 2021
Published: 30 December 2021

Keywords: *Sarphuka (Tephrosia purpurea L. Pers.)*; blood purifier; anuria; piles; carcinoma; poisoning.

ABSTRACT

At present, plants are still an important source of medicine in the health care delivery system. Their role is salient in the growth of medicines and served as a design for the development of folklore, nutraceuticals, food supplements, and other chemical molecules for synthetic/semi-synthetic drugs. Medicinal plants are the major component in the Unani System of Medicines. *Sarphuka (Tephrosia purpurea L. Pers.)* is one of the most important herbs extensively studied for its medicinal properties by modern scientific methods. Various bioactive compounds have been isolated and analyzed from the different parts of the plant. The entire plant is useful in the treatment of various ailments like liver cirrhosis, splenomegaly, inflammation, skin disease, cellulitis, gonorrhoea, leprosy, etc. It has a blood purifier, diuretic, anti-bacterial, anti-diabetic, and hepatoprotective activities. In the present review, pharmacognostical profile, phytochemical analysis and pharmacological studies on *Sarphuka (Tephrosia purpurea L. Pers.)* have been discussed.



HUMAN JOURNALS

www.ijppr.humanjournals.com

INTRODUCTION

Unani System of Medicine (USM) is one of the most famous and old traditional systems of medicine. It is based on the concept of *Khilt* (humor) and diseases caused by the imbalance of the *Khilt* and its cure by the evacuation of morbid or excess humor from the body. The USM contains a treasure of medicinal plant, animal, and mineral substances for efficacious, safe, economical, and easily assessable drugs.¹

Sarphuka (*Tephrosia purpurea* L. Pers.) is one of the efficacious Unani herbs, belonging to the Fabaceae (Papilionaceae) family. It is found throughout the Indian subcontinent. Its genus name *Tephrosia* derives from the Greek word “*tephr (o)*” meaning ash grey (color of its leaves), as the color of the stems leaves and fruit of all the species are gray in color² and *purpurea* means purple color, as its flower has. The common names tell its history. Goat's Rue was fed to goats to increase milk production. It is no longer used as feed for goats due to it containing rotenone which is now used as a pesticide. It is also used as a fish poison, which is produced by pounding the roots. Another common name, Devil's Shoestring, refers to its long stringy roots.³ Entire plant and their parts like leaves, root, and stem or whole plant are extensively used for medicinal purposes. It is an important ingredient of drug formulations used to treat liver disorders, infectious diseases and is also used as a remedy for blood disorders, flatulence, chronic diarrhea, anuria, piles, mastitis, carcinoma, poisoning, etc. This review aims to explore the pharmacognostic profile, therapeutic uses, and phytoconstituents of *Sarphuka* (*Tephrosia purpurea* L. Pers.) in the view of Unani literature and recent scientific studies.

MATERIAL AND METHODS

Various authentic both printed and electronic publications are taken into account for the review of *Tephrosia purpurea* (L.) Pers. therapeutic uses in Unani Medicine, regarding pharmacognostical characteristics, phytochemical constituents, pharmacological studies, etc. All relevant articles up to 2020 were referred including 6 Unani books, 3 English books on Herbals, 21 research papers, 2 websites, and genuine materials published in PubMed, Science Direct Google Scholar, and Research gate. Appropriate Unani Terminologies were taken from Standard Unani Medical Terminology Published by Central Council for Research in Unani Medicine in collaboration with the World Health Organization. Images of various parts of *Tephrosia purpurea* (L.) Pers. is collected from Rajasthan, India.

Botanical description

Sarphuka or Wild Indigo (*Tephrosia purpurea* (L.) Pers.) is a perennial, erect or decumbent herb or undershrub attaining the height of 30-60 cm. Leaves are compound 5-10 cm long, petioles 6-12 cm, stipules is linear-subulate, nerved, erect or sometimes reflexed, imparipinnate divided; leaflets 2-2.8 x 0.8-1.2 cm, oblanceolate or obovate, base cuneate, apex obtuse to emarginated, upper surface is glabrous and hairy beneath. Flowers appear on 5 to 12 cm long axillary or terminal racemes, purplish to white, bisexual, symmetrically, zygomorphic, hypogynous. Sepals are 5 and connate, calyx tube is 4 to 5 mm high. Petals are also 5, obovate-orbicular, pubescent on its back with curved hairs. Corolla is pink to purplish; 4 mm broad, orbicular, and the staminal tube is 4 mm long. Pods are linear, compressed, 2.5 to 4.5 cm across, straw color, dry dehiscent 2.5-4 x 0.3-0.4 cm, 5-7-seeded. Seeds are compressed oval oblong 3.0 to .5 cm across, truncated at one end; hilum is marginal with pithy collar, grayish dark brown mottled with black in color.^{4,5}

Identification feature: When the leaf is pulled from both ends it breaks into two-part giving a “V” shape (fig. c&d).⁶





Fig. No. 1: Showing a. whole plant, b. Compound leaves of *Tephrosia purpurea*; c. Plant with legumes and flower; d,e. V shape break of leaf (inner and upper portion of leaf)

Distribution: It is widely distributed in the Indian subcontinent, Tropical, and South Asia, West Asia, South China, Malaysia, North Australia. It has a pantropical distribution. It is a weed found commonly in wastelands.⁶

Scientific classification

Kingdom : Plantae
Division : Magnoliophyta
Class : Magnoliopsida
Subclass : Rosidae

Order	:	Fabales
Family	:	Fabaceae
Genus	:	<i>Tephrosia</i>
Species	:	<i>Purpurea</i> (L.)

Description in Unani Literatures:

Sarphuka (*Tephrosia purpurea* (L.) Pers.) is a shrub that attains height up to about 1 yard. Its leaves are thin, small and opposite to each other. Veins of leaves are prominent and somewhat hard. Its pod is small containing small seeds. It has two types, one has white flowers and the other has red flowers.^{7,8}

Vernacular Names

Bengali:	<i>Ban Nil Gachh, Sarphonka</i> ⁴
English:	Wild Indigo, Purple goat's Rue, ⁷ Purple Tephrosia, ⁹ Fish Poison ⁶ , Devil's Shoestring
Gujrati:	<i>Ghodakan,</i> ⁴ <i>Sharpankha,</i> ⁷ <i>Unhali</i> ¹⁰
Hindi:	<i>Sarphonka</i> ⁷
Indo-China:	<i>Houi, Hui, Nha troi</i> ⁴
Kannada:	<i>Empali, Panki, Kaggi</i> ¹⁰
Malayalam:	<i>Kolinnil</i> ⁴
Marathi:	<i>Inhani</i> ⁷
Oriya:	<i>Kolothiyapokha</i> ⁴
Persian:	<i>Berg-i-Sonalo,</i> ⁷ <i>Berg-i-Sofar</i> ⁸
Punjabi:	<i>Bansa, Bansu,</i> ⁴ <i>Jhojharo, Jhamana Booti</i> ⁷
Sanskrit:	<i>Banapunkha</i> ⁴

Urdu: *Saraphuka*⁴

Rajasthani: *Masa*⁶

Mizaj (temperament)

The temperament is hot and wet.⁷ In *Ilmul Advia Nafisi* book mentioned as hot and dry in first degree.¹¹

Miqdar Khurak (dose)

The therapeutic dose is 7g per orally.⁷

Af 'al waKhawas (action and uses)

It has *Musaffi-i-Dam* (blood purifier), *Mudirr-i-Bawl* (diuretic), *Muqawwi-i-Jigar* (hepatoprotective), *Nāfi' Dhayabitus Shakari* (anti-diabetic), and *Dāfi' Humma Sawdawiyya* (antipyretic) properties. It has been used in Buthur (boils), *Dubayla* (abscess), *Hikka* (pruritus), *Jarab* (scabies), *Juzām* (leprosy), and *Ātashak* (syphilis) owing to *Musaffi-i-Dam* property. Due to *Mudirr-i-Bawl* effect, it is used in the poisoning of raw *Kushtajat* (calcined products). It is administered orally in the form of decoction, infusion, and *Safuf* (powder) along with water.⁷

Method of administration

Amrad Fasad-i-Dam

It is indicated in the treatment of boils, abscesses, scabies, pruritus, leprosy, and syphilis. It is used usually as *Naqū'* (infusion) and *Joshānda* (decoction). Sometimes, it is ground with water and then filter and given to the patient.⁷

Nafakh-i-Shikam (flatulence)

Put a pinch of Hildeet (*Ferula foetida* Regel) in the decoction of *Tephrosia purpurea* (L.). and use this decoction to get relief from *Nafakh* (flatulence).¹²

***Ishal-i-Muzmina* (chronic diarrhea)**

Put *Piper nigrum* L. in the decoction of *Tephrosia purpurea* (L.). Drink this decoction to get relief from chronic diarrhea.¹²

***Hayḍa* (cholera)**

Powder of *Sarphuka* leaves, 2 to 3 g mixed with water taken orally is effective in cholera.⁸

***Kirm-i-Shikam* (intestinal worms)**

Decoction of *Tephrosia purpurea* (L.) is used with *Embelia ribes* Burm. F. to kill the intestinal worms in children.¹²

***Waram-i-Pistān* (mastitis)**

Apply paste prepared with *Safūf* of *Tephrosia purpurea* (L.) 7 g and of *Mirch Seyāh* (*Piper nigrum* L.) 5 pieces.¹²

***Bawāsīr* (piles)**

Make *Safūf* (powder) of 1.866 Kg *Tephrosia purpurea* (L.) leaves and 0.93310 kg leaves of *Cannabis sativa* L. Mix together and take little bit every day for 40 days.¹²

***Ihtibas-i-Bawl* (retention of urine)**

Prepare *Safūf* of *Tephrosia purpurea* (L.) 13.5 g with 1 g of *Piper nigrum* L. and take with water to initiate urination.¹²

***Sartan* (carcinoma)**

Make *Safūf* of 9 g of *Tephrosia purpurea* (L.) with 1 gram of *Piper nigrum* L. and take *Safūf* in minute dose daily.¹²

***Ātashak* (syphilis)**

Make pills of *Piper nigrum* L. in the freshly prepared *Naqū'* (infusion) of *Tephrosia purpurea* (L.). Use pills for 14 days for the treatment of syphilis.¹²

Simmiyat-i-Kushtajat (toxicity of calcined products)

In case of toxicity of *Kushta*, drink *Naqū' of Tephrosia purpurea* (L.) daily. Toxic remnants will be excreted out of the body through urine.¹²

Mazarrat (toxicity and adverse effects)

Unani physicians have not discussed any toxic effect of *Tephrosia purpurea* (L.).⁷

Musleh (correctives)

Sugar and Brahamdandi (*Tricholepis glaberrima* DC) are mentioned as correctives.⁷

Badal (substitutes)

Neel Kanthi (*Ajuga bracteosa* Wall. Ex Benth) or Gule Mundi (*Sphaeranthus indicus* Linn.) is used as an alternative or substitute.⁷

Compound formulations

Table No. 1: Compound Formulations and Their Therapeutic Action and Dosage

S. No.	Name of compounds	Therapeutic uses	Dose
1	<i>Arq Murakkab Musaffi-i-Khoon</i>	Useful in frost bite and gangrene	50 ml twice a day/orally ¹⁴
2	<i>Habb-i-Musaffi-i-Khoon</i>	Epilepsy	Children: 1 to 2 pills (each 80mg) Adult: 4 pills ¹³
3	<i>Naqū' Shahatra</i>	Indicated for Syphilis	As advised ¹⁵
4	<i>Safūf Juzām</i>	Indicated for Leprosy	20 g decoction with 20 g honey ¹⁵
5	<i>Sharbat Murakkab Musaffi-i-Khoon</i>	Used for detoxification of blood in various ailments like, syphilis, pruritus and <i>Tinea cruris</i>	25 ml/orally ¹³
6	<i>Sharbat Unnab Murakkab</i>	Indicated for Itching, sty, and initial stage of leprosy	20-40 ml along with Arq Shahatra ¹⁵

Scientific Studies

Phytochemistry

Table No. 02: Important Chemical Constituents Found In Various Parts of Plant

PARTS	CHEMICAL CONSTITUENTS
Dried fruits	O-methylpongamol, lanceolatin B, (+) purpurin, maackiain ⁵
Flowers	Delphinidin chloride, cyaniding, karanjin, kanjon ⁵
Leaves	Lupeol, ³ Rutin, Rotenoid, triterpenoid and beta-sitosterol ⁹
Pods and seeds	Purpurin, purpuritenin A, B, tephroglabrin, tepurinidiol, purpureamethide, O-methylpongamol, sitosterol, ⁵ Rotenoid, Diketone-pongamol, isolonchocarpin, furanoflavones karanjin and kanjone, flavanone purpurin. A flavonoid, lanceolarin B, is also present in seeds ⁹ .
Root	Purpurenone, purpurin, dehydroisoderricin, maackiain, new epoxflavanone; pongamol, flemichapparins B and C, rutin, methylkaranjic acid, sitosterol, spinasterol, lanceolatin A, lanceolatin B ⁵
Stem	7-O-[beta-D-glucopyranosyl-(1-4)-O-BETA-D-galactopyranoside] ¹⁶
Aerial parts	Tephrosin, pongaglabol, semiglabin ¹⁷

Pharmacological studies

Membrane stabilizing potency

A study conducted by Gokhale, *et al.* revealed that ethanolic extract of *Tephrosia purpurea* (L.) *in-vitro* possesses mast cell degranulation and erythrocyte membrane integrity in rat.¹⁸

Anti-allergic activity

The ethanolic extract of *Tephrosia purpurea* (L.) Pers. exhibits a dose-related inhibition of edema induced by compound 48/80 and egg albumin. It inhibits passive paw anaphylaxis and histamine release induced in passive peritoneal anaphylaxis in animal model.¹⁹

Renal protective activity

Prophylactic treatment of rats with *Tephrosia purpurea* (L.) Pers. at doses of 5 mg/kg body weight and 10 mg/kg bodyweight prevented N-diethylnitrosamine-initiated and KBrO₃ promoted renal oxidative stress and toxicity.²⁰

Hepatoprotective activity

A study showed that the ethanol extract of leaves and fraction A (isolated from leaves extract) from *Tephrosia purpurea* (L.) possessed marked hepatoprotective activity against liver damage induced by CCl₄ in an animal model of rats.²¹

Antiulcer activity

A study conducted by Deshpande *et al.* indicated that *Tephrosia purpurea* (L.) Pers. root extract possesses significant antiulcer property may be due to cytoprotective action or through increasing mucosal membrane defense.²²

Anti-Tumor activity

Kavitha *et al.* showed the ethanolic extract of root significantly reduced the incidence, volume, and burden of the buccal tumor induced by DMBA in hamsters.²²

Anti-inflammatory and Analgesic

The result of the study revealed that ethanolic root extract of *Tephrosia purpurea* (L.) Pers. significantly reduces acute and sub-chronic inflammation in Carrageenan-induced paw edema and cotton pellet-induced granuloma in rats as compared with standard drug indomethacin. Also showed the analgesic property by inhibiting the thermal response in the tail immersion method.²⁴

Antioxidant

Shah Rमित, *et al.* (2010) showed that hydroalcoholic extract of *Tephrosia purpurea* (L.) possesses *in-vitro* antioxidant properties by inhibiting DPHH, hydroxyl radical, nitric oxide and superoxide anion scavenging, hydrogen peroxide scavenging, and reducing power activities.²⁵

Antibacterial and antiviral:

Rangama, *et al* (2009) concluded that the methanolic extract of the root of *Tephrosia purpurea* (L.) found to be active against *Pseudomonas aeruginosa*, two other *Pseudomonas* strains, and two *coli* form strain.²⁶ A study not only showed the antiviral activity of *Tephrosia purpurea* (L.) flowers extract against viruses but also potent antibacterial property against both gram (+) and gram (-) strains.²⁷

Anthelmintic activity

The *in-vitro* study revealed dose-dependent and significant anthelmintic activity of methanolic extract of *Tephrosia purpurea* (L.) leaves as compared with standard drug albendazole on earthworm.²⁸

Anticancer

Gulecha Vishal, *et al.* (2011) depicted anticancer potential of fractions of *Tephrosia purpurea* (L.) and *Ficus religiosa* in MCF cell line.²⁹

Anti-diarrheal

Hussain, *et al.* (2013) showed 40% and 80% anti-diarrheal activity of methanolic extract of whole plant *Tephrosia purpurea* (L.) in castor oil-induced diarrhea in mice, at 300 mg/kg and 500 mg/kg dose, respectively.³⁰

Anti-hyperglycemic and antioxidant

A study indicated potent anti-hyperglycemic and antioxidant effects of aqueous seed extract of *Tephrosia purpurea* (L.) at a dose of 600 mg/kg/ body weight orally in streptozotocin-induced diabetes in rats.³¹

Anti-epileptic activity

A study showed that ethanolic extract of *Tephrosia purpurea* (L.) has significant improvement in *Status epilepticus* induced by lithium-pilocarpine in rats and also possesses both *in vitro* and *in vivo* antioxidant properties.³²

CONCLUSION

Sarphuka is one of the most important drugs of the Unani system of medicine for the treatment of skin diseases, flatulence, chronic diarrhea, intestinal worms, mastitis, piles, anuria, carcinoma, syphilis, and poisoning. Various scientific studies documented the role of *Sarphuka* in the treatment of carcinoma, poisoning, intestinal worms, diarrhea, and diabetes. This justifies the Unani literature in the light of scientific studies. However, broad studies are required to determine its phytoconstituents and pharmacological activities.

ACKNOWLEDGEMENT

Being an author of correspondence, I thank our Assistant Director & In Charge, RRIUM, Srinagar for providing the necessary facilities in the institute.

FUNDING

This manuscript is a review paper authored that did not require any significant funding to be mentioned.

DISCLOSURE STATEMENT

All authors state that they have no financial ties that might result in a conflict of interest.

REFERENCES

1. Salim S, Kalam MA, Yusuf A, Khanday S, Shafi S, Mohammad I. Asl-us-Sus (*Glycyrrhiza glabra* L.), a Great *Munziji-Balgham* (concoctive of phlegm) drug of Unani System of Medicine: A Review. International Journal of Unani and Integrative Medicine. 2018; 2(3):16.
2. Zafar and Mujeeb. Review of literature of *Tephrosia purpurea* 2002; 3: 376-378.
3. <https://plants.ces.ncsu.edu/plants/tephrosia-virginiana/> (Accessed on 1.12.21).
4. Kirtikar and Basu. Indian Medicinal Plants. Vol I., 2nd and. Revised. 2012.725.
5. Afaq SH, Latif H, Rauf A. Ethnomedicobotany of Western Uttar Pradesh. Aligarh: Publication Division, AMU Press. 2011,77-78.
6. <https://sites.google.com/site/efloraofindia/species/a---l/f/fabaceae/tephrosia> (Assessed on 23/11/2021).
7. Kabiruddin M. Makhzanul Mufradat. New Delhi: Idara Kitabus Shifa. 2014, 253-54.
8. Azam Khan M. Muheet-i-Azam. Vol. III New Delhi: Central Council of Research in Unani Medicine. 2014, 56.
9. Khare CP. Indian Medicinal Plants. An Illustrated Dictionary. Springer Science Business Media, LLC. 2007.
10. Patil VP, Hugar S, Nanjappaiah HM, Kalyane N, Chowdhary M and Pandarinath. Phytopharmacology of *Tephrosia purpurea* Linn: An Overview. Pharmacology online. 2011; 3: 1112-1140.
11. Kabiruddin M. Ilmul Advia Nafisi. New Delhi: Aijaz Publishing House. 2007.
12. Najmul Ghani M. Khazainul Advia. Vol. IV. 1st edn. New Delhi: Central Council for Research in Unani Medicine. 2010, 337.

13. Anonymous. National Formulary of Unani Medicine. Part V. New Delhi: Central Council for Research in Unani Medicine. 2008, 14, 140.
14. Shamim Khan M. Effect of Unani Formulations on Frostbite Induced Gangrene: A Case Report. *International Journal of Dermatology*. 2020; 6(3): 427-431.
15. Kabiruddin M. Al-Qarabadeen. New Delhi: Central Council for Research in Unani Medicine. 2006, 575, 661.
16. Saxena VK, Choubey A. A Novel Neoflavonoid Glycoside from *Tephrosia Purpurea* (L.) Pers. *Stem. Fitoterapia*. 1997; 68:359-60.
17. Ahmad VU, Ali Z, Hussaini SR, Iqbal F, Zahid M, Abbas M, Saba N. Flavonoids of *Tephrosia Purpurea* (L.). *Fitoterapia*. 1999; 70: 443-45.
18. Gokhale AB, Dikshit VJ, Damre AS, Kulkarni KR, Saraf MN. Influence of Ethanolic Extract of *Tephrosia Purpurea* (L.) on Mast Cells and Erythrocyte Membrane Integrity. *Indian Journal of Experimental Biology*. 2000; 38 (8):837-840.
19. Gokhale AM and Saraf MN. Studies on Anti-allergic Activity of Ethanolic Extract of *Tephrosia Purpurea* (L.). *Indian Drugs*. 2000; 37(5): 228-232.
20. Khan N, Sharma S, Alam A, Saleem M, Sultana S. *Tephrosia Purpurea* (L.) Ameliorates N-Diethylnitrosamine and Potassium Bromate-mediated Renal Toxicity in Wistar Rats. *Pharmacol and Toxicol*. 2001; 88(6):294-9.
21. Jain A, Singhai AK, Dixit VK. A Comparative Study of Ethanol Extract of *Tephrosia Purpurea* (L.) and the Flavonoids Isolated for Hepatoprotective Activity. *Indian J. Pharm. Sci*. 2006; 68(6): 740-743.
22. Deshpande SS and Shah GB. The pharmacological activity of *Tephrosia Purpurea* (L.). *American Association of Pharmaceutical Scientists Journal*. 2003; 10 (S2): 78.
23. Kavitha K and Manoharan S. Anticarcinogenic and Antilipid peroxidative effects of *Tephrosia Purpurea* (L.) Pers. on 7, 12-dimethylbenz (a) anthracene (DMBA)-induced Hamster Buccal Pouch Carcinoma. *Indian J Pharma*. 2006; 38(3):185-189.
24. Gopalakrishnan S, Vadivel E and Dhanalakshmi K. Anti-inflammatory and analgesic activities of *Tephrosia Purpurea* (L.) Pers. Aerial and Root Extracts. *J Pharma. Research*. 2010; 3(5):1103-6.
25. Shah R, Kathad H, Sheth R and Sheth N. *In-vitro* Antioxidant Activity of Root of *Tephrosia Purpurea* L. *International Journal of Pharmacy and Pharmaceutical Sciences*. 2010; 2(3): 30-33.
26. Rangama BNLD, Abayasekara CL, Panagoda GJ and Senanayake MRDM. Antimicrobial activity of *Tephrosia Purpurea* L. Pers. and *Mimusops elengi* L. against some Clinical Isolates. *Journal of National Science Foundation of Sri Lanka*. 2009; 37(2):139-145.
27. Kokila O, Patel AN, Prajapati SN. Preliminary Phytochemical Screening and Study of Antiviral activity and Antibacterial Activity of *Tephrosia purpurea* Flower. *Life Sciences Leaflets*. 2010; 1(1): 7-13.
28. Manjula RR, Spandana U, Joshi AT and Sudheer M. *In vitro* Anthelmintic activity of Aqueous and Methanolic Leaf Extract of *Tephrosia Purpurea* L. 2013; (3)1: 12-14.
29. Gulecha Vishal V and Sivakuma T. Anticancer activity of *Tephrosia purpurea* L. and *Ficus religiosa* using MCF7 cell lines. *Asian Pacific Journal of Tropical Medicine*. 2011; 4(7):526-529.
30. Hussain JK, Qadir IM, Jan A and Hassan GA. Anti-diarrheal activity of Methanolic Extract of *Tephrosia Purpurea* L. Pers. *Acta Poloniae Pharmaceutica ñ Drug Research*. 2013; 70(2): 345-347.
31. Pavana P, Sethupathy S, Santha K, and Manoharan S. Effects of *Tephrosia Purpurea* L. Pers. Aqueous Seeds Extract on Blood Glucose and Antioxidant Enzymes Activities in Streptozotocin Induced Diabetic Rats. *African Journal Traditional Complementary Alternative Medicines*. 2009; 6(1): 78-86.
32. Asuntha G, Prasannaraju Y, Sujatha D, Prasad KVS. Assessment of Effect of ethanolic Extracts of *Tephrosia Purpurea* (L.) Pers., Fabaceae, activity on Lithium-Pilocarpine induced Status Epilepticus and Oxidative Stress in Wistar rats. *Brazilian Journal of Pharmacognosy*. 2010; 20(5): 767-772.

Conflict of Interest	The authors declare that there is no conflict of interest
Funding Information	Nil
Authors' Contribution	All authors have equal contribution
Acknowledgement	

