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# *Bauhinia purpurea:* An Updated Pharmacological Profile

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## ABSTRACT

*Bauhinia purpurea (B. purpurea)* (family: Fabaceae) commonly called as butter fly tree has vast medicinal uses and remarkable pharmacological potential. Various phytoconstituents, extracts and parts of this plant were possess significant pharmacological activities such as cardiac activity, antifungal, wound healing, antidiabetic, antiulcer, antioxidant, antinociceptive, hepatoprotective, nephroprotective, antidiarrhoeal, anti-inflammatory, antipyretic, analgesic, antimalarial, gastro protective and cytoprotective activity. The present study emphasizes the overview of recent studies and/or updates on pharmacological potential of *B. purpurea*.

**Keywords:** *Bauhinia purpurea*, Taxonomy, Pharmacological.

### INTRODUCTION

Medicinal plants are very beneficial and important aspect of indigenous healthcare system in India. In recent years, ayurvedic systems of medicine with special emphasis on bioactive compounds are of global importance. A large population depends on Herbal medicine to meet their primary health requirements which in turn enhances the research on medicinal plants. Although modern medicines are available but plant products are preferred over them due to lesser side effects As stated in various reports, large number of people relies on traditional medicinal system [1]. Amongst them is Bauhinia purpurea (*B. Purpurea)* which is a well known plant with versatile therapeutic potential. It belongs to family Caesalpiniaceae. Bauhinia is a genus having greater than 200 species, and about 15 species were occurring in India. Some of them are shrubs or trees, while a few are climbers. Familiar name are Butterfly tree in English, purple orchid shrub, purple *Bauhinia*, Kaniar in Hindi, Devakanchan in Kannada, Raktachandan in Marathi [2].

### PLANT DESCRIPTION

*B. purpurea* is a small tropical evergreen tree or erect shrub grows up to 17 feet tall. The leaves are bilobed at the base and apex, alternate, broad, rounded and 10 to 20 cm long. The flowers are pink and fragnant, with five petals (Fig. 1). The fruits are a pod 30 cm long, containing 12 to 16 seeds and appear in the month of December [3]. *B. Purpurea* is native to China and found throughout India. It is Indigenous to Southern Asia, South-Eastern Asia and widely distributed throughout the world and common in Himalayan, Sub-Himalayan and western track of India [4]. The whole plant or part of plant has wide medicinal uses. Flowers and Flower buds are edible, cooked and used as vegetable. The flowers are laxative, mixture of flower buds and flowers, fried in purified butter are beneficial to treat dysentery. Also, Pushpa Gulakanda (flower jam) is valuable in constipation [5]. Bark is useful in dyeing, tanning industry, to obtain fibers and as a source of tannins. Stem bark are useful in respiratory disorder and menstruation trouble [6]. Roots are used in haemorrhoids, goitre and as carminative [7]. This plant is useful in treatment of various diseases like diarrhea, dysentery, amoebic dysentery, ano-rectal, piles, lymph nodes swelling, lymph node enlargement, inflammatory swelling and hemorrhage-bleeding, cold and cough, disorders related to urinary system and skin disease. Also, Plant essence contains astringent, cooling and pungent properties [8].

*B. purpurea* reported for the presence of various phytochemical constituents. It contain glycosides, saponin, phenolic compounds, tannins, flavonoids, fixed oils, fats, proteins, flavones glycoside, fatty acid,

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tocopherols, cardiac glycosides, carbohydrates, alkaloids, sterol, steroids, flavanones, lutein, beta sitosterol etc [8–10]. Till now, extensive studies are reported on phytochemical and therapeutic potential of this plant. This review will focus on recent studies and/or updates on pharmacological potential of *B. purpurea* (Table 1).

**Table 1:** Summary of known biological activities of *Bauhinia purpurea*

| Biological Activity | Plant part | Extract/Formulation | Dose | Model/organism/Cell lines | References |
|---|---|---|---|---|---|
| Anti-diabetic | Bark | Methanolic | 100 mg/kg | STZ induced diabetes in rats<br>Alloxan-induced diabetes assay in mice | 11<br>12 |
| Cytotoxic | Leaves, bark, roots | Dichloromethane | 10.5- 72.3 micromolar | Brine shrimp lethality method of bioassay,<br>KB and BC cell lines | 13, 14 |
| Antimalarial | Root | Dichloromethane | 5.8-11.2 micromolar | against *Plasmodium falciparum* | 14 |
| Antifungal | Root | Dichloromethane | 49.6-130.1 micromolar | against *Candida albicans* employing a colorimetric method | 14 |
| Antimycobacterium | Root | Dichloromethane | ----- | against Mycobacterium tuberculosis H37Ra using the micro plate Alamar Blue assay method | 14 |
| Amelioration of Hyperthyroidism | Leaves | Ethanolic | 100 mg per kg | LT-induced hyperthyroid animals | 15, 16 |
| Antimicrobial | Leaves | Aqueous<br>organic | ------- | against microorganisms *Bacillus subtilis*, *Staphylococcus aureus*, *Salmonella typhi*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Candida albicans* using the disk diffusion method | 17 |
| Anti-diarrheal | Leaves | Ethanolic | 100, 200 and 300 mg/kg, | Castor oil induced diarrhea and gastrointestinal motility test by using charcoal meal | 18 |
| Fibrolytic | Bark | Powder | 6 g/kg for 7 days | In chronic mastitis with induced fibrosis | 19 |
| Antiepileptic | Leaves | Ethanolic | 100, 250 and 500 mg/kg i.p | using PTZ (pentylenetetrazole induced seizure) and MEZ (maximum electric shock) model | 20 |
| Anti-Depressant | Leaves | Ethanolic | 100, 250 and 500 mg/kg i.p | using forced swim test and tail suspension test | 21 |
| Anti-inflammatory and Anti-arthritic activity | Stem bark | Hydroalcoholic | 100 and 200 mg per kg | using Carrageenan induced paw edema and Adjuvant induced arthritis model | 22 |
| Antinoceptive, Anti-Inflammatory and Antipyretic activity | Leaves | Chloroform<br>Aqueous | 6, 30 and 60 mg/kg | formalin test, abdominal constriction and eddy's hot plate method and carrageenan induced paw edema method, brewer's yeast induced pyrexia test | 23, 24 |
| Nephroprotective | Unripe pod /leaves | Ethanolic | 300 mg per kg | Gentamicin induced Nephrotoxicity | 25 |
| Wound Healing | Leaves | Methanol and chloroform extract | 100 - 500 mg per kg | excision wound, burn, dead space wound and incision wound models | 26 |
| Antioxidant | Leaves | Aqueous | 254 mg/g and 143-138 mg/g | by Nitric oxide scavenging assay, Reducing power method | 27, 28 |
| Anti-Ulcer | Leaves | Methanolic | 100, 500 and 1000 mg/kg | Inducing gastric ulcer with indomethacin, absolute ethanol and pylorus ligation. | 29 |
| Anti-hyperlipidemic | unripe pods and dried leaves | Ethanolic | 300mg/kg/day | induced with high fat diet | 30 |
| Anti-cancer | roots, stems, pods and leaves | Bioactive compounds | ----- | inhibit P388 cancer cell line | 31 |
| Anti-Obesity | Bark | Methanolic | 200 and 400 mg/kg | induced with high fat diet | 32 |
| Hepatoprotective | Leaves | Methanolic | 50, 250 and 500 mg/kg | induced by oral administration of paracetamol | 33 |

**Figure 1:** *Bauhinia purpurea* with flower

**Taxonomical classification**

**Domain**- Eukaryotes
**Kingdom**- Plantae
**Phylum**- Spermatophyta
**Subphylum**- Angiospermae
**Class**- Dicotyledonae
**Order**- Fabales
**Family**- Fabaceae
**Subfamily**- Caesalpiniodeae
**Genus**- Bauhinia
**Species**- *Bauhinia purpurea*

**Pharmacological Profile**

**Anti-diabetic activity:** Intraperitoneal administration of Streptozotocin (50 mg/kg) led to rise in levels of fasting blood glucose and maintained for 2 weeks. Daily administration of methanolic extract *of B. purpurea* at the dose of 100mg/kg produced a dose dependent decrease in blood glucose level [11]. The antidiabetic potential of different extract of stem and bark was also evaluated using Alloxan-induced diabetes assay in mice. Methanolic extract at the dose of 200 mg/kg was found to possessed significant anti-diabetic activity [12].

**Cytotoxic activity:** Study investigated different plant parts like leaves, bark and roots showed cytotoxic activity by implementing Brine shrimp lethality method of bioassay [13]. Bioactive compounds isolated from *B. purpurea* showed cytotoxic activity towards KB and BC cell lines with significant Inhibitory concentration value [14].

**Antimalarial, Antifungal and Antitubercular activity:** Root extract (*B. purpurea*) led to the isolation of eleven novel compounds named as Dihydrodibenoxepins and dihydrobenzofuran compounds. Dihydrodibenoxepins was evaluated and showed marked Anti-malarial with inhibitory concentration range 5.8-11.2 micromolar. However oxepins and dihydrobenzofuran showed potent Anti-fungal activity with inhibitory concentration range 49.6-130.1 micromolar. Antimycobacterium activity of root extract of *B. purpurea* was investigated against Mycobacterium tuberculosis H37Ra using the micro plate Alamar Blue assay method. The extract and its isolated bioactive compounds possessed profound antimycobacterium potential comparable with standard drug Isoniazid and kanamycin sulphate [14].

**Amelioration of Hyperthyroidism:** *B. purpurea* ethanolic leaves extract was investigated in an albino wistar rat model. LT4 inducing agent (0.5 miligram per kilogram) administered for 12 days exhibit rise in serum level of triiodothyronine, thyroxine concentration and decrease in thyroid stimulating hormone concentration. Concurrent administration of *B. purpurea* (100 mg per kg) extract to LT-induced hyperthyroid animals reversed all changes and supported to its potential in management of hyperthyroidism. Efficacy was reported as effective and comparable to that of reference drug Propylthiouracil [15]. Also, daily administration of *B. purpurea* at dose 2.5 mg/kg for 20 days increased serum $T_4$ concentration and $O_2$ consumption suggesting its role in Hyperthyroidism [16].

**Antimicrobial activity:** Aqueous and organic extract of *B. purpurea* was investigated in organic and for antimicrobial activity against microorganisms *Bacillus subtilis*, *Staphylococcus aureus*, *Salmonella typhi*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Candida albicans* using the disk diffusion method. Potent inhibitory activity was reported in methanolic extract of *B. Purpurea* [17].

**Anti-diarrheal potential:** Ethanolic extract of the leaves of *B. purpurea* was investigated for its anti-diarrheal potential in rats as experimental animal by using castor oil induced diarrhea and gastrointestinal motility test by using charcoal meal. The extracts at the doses of 100, 200, and 300 mg/kg were reported to possessed significant activity compared with the standard in both the models. The concluding remark of the study was the plant established its folklore claim [18].

**Fibrolytic Effect:** *B. purpurea* bark powder on daily administration at the dose of 6 g/kg for 7 days was investigated for its fibrolytic effect in chronic mastitis with induced fibrosis. Experimental goats were divided into four groups, I and III animal group received ceftriaxone at 20 mg/kg intravenously, whereas group II and IV goats were orally administered with *B. purpurea* bark powder. Disease was reported to induce by using intramammary inoculation of coagulase positive *Staphylococcus aureus* in group III and IV goats. The authors concluded with the study that daily administration of bark powder enhanced the bioavailability of ceftriaxone due to its fibrolytic effect [19].

**Antiepileptic (Anticonvulsant):** Antiepileptic activity of ethanolic extract of *B. purpurea* on Swiss Albino mice using PTZ (pentylenetetrazole induced seizure) and MEZ (maximum electric shock) model at different doses was studied. The significant anticonvulsant activity was supported by marked decrease in duration of various phases of epilepsy like flexion, extensor, convulsion and stupor phases [20].

**Anti-Depressant activity:** *B. purpurea* ethanolic leaves extract was investigated for antidepressant potential in Swiss Albino mice using forced swim test (FST) and tail suspension test (TST). Ethanol extract at the dose 100, 250 and 500 mg per kg and duration of immobility and mobility was evaluated for 4 minutes. Extract at 500 mg per kg when administered in mice produced fall in immobility time in TST and FST models. Action was reported comparable with standard antidepressant drug Imipramine [21].

**Anti-inflammatory and Anti-arthritic activity:** Hydroalcoholic extract (stem bark) of *B. purpurea* was investigated for anti-inflammatory and antiartthritic activity on adult albino wistar rats using Carrageenan induced paw edema and Adjuvant induced arthritis model respectively.

Results reported reduction in paw edema at different day's and time interval at the dose of 50 mg/kg, 100 and 200 mg per kg in both the models. The results were further supported by restoring the altered biochemical parameters after 21 days of study [22].

**Antinoceptive, Anti-Inflammatory and Antipyretic activity:** The dose of *B. purpurea* powdered leaves crude dried extract was fixed at 6 mg/kg, 30mg/kg and 60mg/kg. Authors carried out antinociceptive assay (formalin test, abdominal constriction and eddy's hot plate method), anti-inflammatory assay (carrageenan induced paw edema method) and antipyretic assay (brewer's yeast induced pyrexia test). The result indicated significant ($p<0.05$) Antinoceptive, Anti-Inflammatory and Antipyretic activities in Male Balb-C mice and Sprague-Dawley rats [23, 24].

**Nephroprotective activity:** Nephrotoxicity was produced in male Wistar rats (150-200 gm) by administration of gentamicin through intraperitoneal route at a dose of 100 mg /kg/day for 8 days. Simultaneous administration of the ethanol extract of *B. purpurea* (unripe pod /leaves) 300 mg per/kg per day renormalized the elevated serum level of creatinine, blood urea nitrogen (BUN), uric acid level and sufficiently protected kidneys of rat from histopathological changes and kidney damage due to gentamicin. The result from histopathological studies confirmed Nephroprotective activity [25].

**Wound Healing activity:** Methanol and chloroform extract of *B. purpurea was* applied on experimentally produced excision wound, burn, dead space wound and incision wound models in Sprague drawley rats, with simple ointment base and Carbapol at concentration of 2.5 % w/w and 5 % w/w. Significant decrease in time hold for epithelization and wound contraction time (50%) was observed in excision wound and burn wound models. In incision wound model a sufficient rise in breaking strength was exhibited. The outcome of this study depicted a desirable increase in breaking strength, dry tissue and hydroxyproline content in dead space wound model when extract (100-500 mg /kg) given orally [26].

**Antioxidant activity**: Quantitative analysis of aqueous extract of dried *B. purpurea* leaves was analyzed quantitatively for flavanoid content (by aluminium chloride method), phenolic content (Folin-Ciocalteu's method) and antioxidant activity was assessed by Nitric oxide scavenging assay, Reducing power at the concentration of 254 mg/gram and reducing power activity at 143-138 mg/gram was observed, to be superior compared to total antioxidant activity 87-75 mg/kg and metal chelating activity 32-28mg/kg. The result revealed that aqueous extract of shade dried leaves of *B. purpurea* can be used as good source of functional antioxidant [27, 28].

**Anti-Ulcer activity**: Methanolic extract of *B. purpurea* when given in oral doses (100mg/kg, 500mg/kg and 1000mg/kg) to Male Sprague-Dawley rats (180–220 g; 8–10 weeks old) indicated antiulcer activity. It was assessed by inducing gastric ulcer with indomethacin, absolute ethanol and pylorus ligation. Anti ulcer activity was confirmed by histopathological studies. Results demonstrated reduced ulcer area, less hemorrhage and edema formation compared to control group ($p<0.05$). Methanolic extract is also known to show anti-ulcer activity owing to presence of flavonoids [29].

**Anti-hyperlipidemic activity:** Ethanolic extract of unripe pods and dried leaves of *B. purpurea* was tested for antihyperlipidemic activity in Albino rats and compared with standard lipid lowering drug atorvastatin. Hyperlipidemia was induced with high fat diet containing cholesterol, sodium cholate and coconut oil mixed with animal feed. On administering the extract as 300mg/kg/day orally for 30 days, authors reported modest increase in body weight accompanied by significant rise in serum HDL-C level, decrease in Total Cholesterol, LDL and Triglycerides level. Atherogenic Index, an important indicator of Congestive Heart Disease was also lowered with this dose [30].

**Anti-cancer activity:** In significant studies, four new components were isolated from *B. purpurea* roots, stems, pods and leaves, named bauhinia statins 1 to 4, chemically identified as dibenzo [b,f]oxepins (2a, 3-5). These four compounds were had significant growth inhibition against human cancer cell lines. Similarly, Bauhinia statins 1-(2a) indicated potential to inhibit P388 cancer cell line proliferation. The structure of new statins was established with Mass Spectroscopy and 2D NMR [31].

**Anti-Obesity activity:** Methanolic extract of *B. purpurea* bark was administered orally as 200mg/kg and 400mg/kg body weight to Male Wistar rats on high fat diet for 6 weeks. Sibutramine, the standard drug decreased body weight of obese rats by 30%, while 28 % and 24% was weight reduction observed in rats due to 400mg/kg and 200 mg/kg body weight extract dose. At the end of treatment period, total cholesterol, triglycerides, low density lipoprotein level in blood serum decreased notably with parallel rise in high density lipoprotein level [32].

**Hepatoprotective activity:** A study for hepatoprotective activity of *B. purpurea* employed methanolic extract of shade dried leaves on rats. Animals were divided into 6 groups designated as group I (normal control), group II (negative control),group III (positive control) and group IV,V,VI as pre-treatment group with 50 mg, 250 mg and 500 mg per kg body weight given orally, once daily for 7 days. Hepatotoxicity was induced by oral administration of paracetamol. Biochemical evaluation revealed decrease in ALT (alanine aminotransferase), AST (aspartate aminotranseferase) and alkaline phosphatase on treatment with extract and silymarin. Histopathologically, methanolic extract of *B. purpurea* reversed toxic effect of paracetamol, namely necrosis, inflammation and hemorrhage [33].

## CONCLUSION

Global world is now changing towards the use of plant products for traditional medicine use. In the present stage many plants are used to treat various ailments and *B. purpurea* is versatile and act as a genuine source of medicine. It possesses huge pharmacological ability capable to treat wide range of disease. Various scientific researches evidenced the phyto-pharmacological properties and this review provides the detailed information about the pharmacological potential of *B. purpurea.*

**Conflicts of interest**

None to declare

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**Authors' contribution**

All the authors contributed equally in literature survey and drafting of manuscript. All the authors agreed the text for submission.

**REFERENCES**


1. Gurib-Fakim A. Medicinal plants: Traditions of yesterday and drugs of tomorrow, Mol Aspects Med. 2006; 27(1):1-93.
2. The Ayurvedic Pharmacopoeia., Govt. of India Ist ed. Department of Indian System of Medicine and Homoeopathy, 1991; 1(1):73p.
3. Kirtikar KR, Basu BD. Indian Medicinal Plants, 2nd ed. International book distributors, Dehradun. 1991.
4. Jha LK. Advances in Agroforestry. APH Publishing Corporations, New Delhi, India. 1995.
5. Kalakoti BS, Pangtey YPS. Ethno-medicine of Bhotia tribes of Kumaon Himalaya UP Bull, Med Ethno Bot Res. 1998; 9:11-20.
6. Das AK, Dutta BK, Sharma GD. Medicinal plants used by different tribes of Cachar district, Assam, Indian J Tradit Knowl, 2008; 7(3):446–454.
7. Chatterjee A, Pakrashi SC. The Treatise of Indian Medicinal Plants. Vol.2, Council of Scientific and Industrial Research, New Delhi, 1992.
8. Chanchal DK, Niranjan P, Alok S, Singh S, Saurabh. An update on ayurvedic herb kachhnar (*Bauhinia purpurea* Linn.)- A review, Int J Pharmacogn. 2015; 2(8):381-390.
9. Krishnaveni M, Dhanalakshmi R. A study on phytochemicals in *Bauhinia purpurea* l. leaf and flower, Int J Pharm Sci Rev Res. 2014; 29(2):72-76.
10. Pahwa S, Mazumder R, Bhattacharya S, Kumari S, Mazumder A, Singh DP. Pharmacognostical and Phytochemical Evaluation of the leaves of *Bauhinia purpurea* Linn, Anc Sci Life. 2010; 30(2):28-32.
11. Pahwa S, Mazumder R, Bhattacharya S. Antidiabetic activity af methanolic extract of bark of *Bauhinia purpurea*, Int J Pharm Sci Res. 2012; 3(5):1444-1447.
12. Meshram SS, Itankar PR, Patil AT, Meshram MSS, Itankar PR, Patil AT. To study antidiabetic activity of stem bark of *Bauhinia purpurea* Linn, J Pharmacogn Phytochem. 2013; 2(1):171-175.
13. Fatima Urmi K, Mostafa S, Begum G, Hamid K. Comparative brine shrimp lethality bioassay of different plant parts of *Bauhinia purpurea* L., J Pharm Sci Res. 2013; 5(10):190–192.
14. Boonphong S, Puangsombat P, Baramee A, Mahidol C, Ruchirawat S, Kittakoop P. Bioactive Compounds from *Bauhinia purpurea* possessing Antimalarial, Antimycobacterial, Antifungal, Anti-inflammatory, and Cytotoxic activities, J Nat Prod. 2007; 70(5):795–801.
15. Nair RR, Joseph L, Rahees T. Role of ethanolic extract of *Bauhinia purpurea* Leaves on Ameliora- tion of Hyperthyroidism in LT4 Induced Female Albino wistar Rats, Res Rev J Pharmacol Toxicol Stud. 2015; 3(4):18-24.
16. Panda S, Kar A, Bharti S. Regulation of thyroid function in mice with extracts of *Emblica officinalis* L. and *Bauhinia purpurea* L., J Herbs, Spices Med Plants. 2003; 10(1):1-9,
17. Negi BS, Dave BP, Agarwal YK. Evaluation of antimicrobial activity of *Bauhinia purpurea* leaves under *in vitro* conditions, Indian J Microbiol. 2012; 52(3):360-365.
18. Mukherjee PK, Gopal TK, Subburaju T, Dhanbal SP, Duraiswamy B, Elango K, *et al*. Studies on the Anti-diarrheal Profiles of *Bauhinia purpurea* Linn Leaves (Fam. Caesalpiniaceae) Extract, Nat Prod Sci. 1998; 4(4):234–237.
19. Dash J, Sar T, Buragohain R, Samanta I, Nanotkar R. Evaluation of Fibrolytic Effect of *Bauhinia purpurea* L, Clin Cancer Drugs. 2019; 6(1):21-32.
20. Joshi VD, Verma T, Jayaraman R, Shetty PR, Patel SR, Hirapara HV. Anticonvulsant activity of *Bauhinia Purpurea* Linn. leaves, J Nat Remedies. 2011; 11(1):14-18.
21. Shetty P, Manohar VR, Kurien S, Rai M. Attenuation of depression by Bauhinia purpurea linn. leaves ethanolic extract in swiss albino mice, International Journal of Comprehensive and Advanced Pharmacology. 2017; 2(3):85-87.
22. Kumar N, Kanchan T, Unnikrishnan B, Thapar R, Mithra P, Kulkarni V, *et al*. Characterization of *Rubia cordifolia* L. root extract and its evaluation of cardioprotective effect in Wistar rat model, Indian J Pharmacol. 2018; 49(5):344–347.
23. Zakaria ZA, Rahman NIA, Loo YW, Ayub A, Sulaiman MR, Jais AMM, *et al*. Antinociceptive and anti-inflammatory activities of the chloroform extract of *Bauhinia purpurea* L, Int J Trop Med. 2009; 4:140-145.
24. Zakaria ZA, Wen L, Rahman N, Ayub A, Sulaiman MR, Gopalan H. Antinociceptive, Anti-Inflammatory and Antipyretic Properties of the Aqueous Extract of *Bauhinia purpurea* Leaves in Experimental Animals, Med Princ Pract. 2007; 16:443-449.
25. Lakshmi BVS, Neelima N, Kasthuri N, Umarani V, Sudhakar M. Protective Effect of *Bauhinia purpurea* on Gentamicin-induced Nephrotoxicity in Rats, Indian J Pharm Sci. 2009; 71(5):551–554.
26. Ananth KV, Asad M, Prem Kumar N, Asdaq SMB, Rao GS. Evaluation of Wound Healing Potential of *Bauhinia purpurea* Leaf Extracts in Rats, Indian J Pharm Sci. 2010; 72(1):122-127.
27. Silva CG, Herdeiro RS, Mathias CJ, Panek AD, Silveira CS, Rodrigues VP, *et al*. Evaluation of antioxidant activity of Brazilian plant, Pharmacol Res. 2005; 52(3):229-233.
28. Krishnaveni M. Antioxidant potential of Bauhinia purpurea (l) leaf Int. J. Pharm. Pharm. Sci. 2014; 6(7):558-560.
29. Zakaria ZA, Zakaria ZA, Abdul Hisam EE, Norhafizah M, Rofiee MS, Othman F, *et al*. Methanol Extract of *Bauhinia purpurea* Leaf Possesses Anti-Ulcer Activity, Med Princ Pract. 2012; 21(5):476–482.
30. Lakshmi B, Neelima N, Kasthuri N, Umarani V, Sudhakar M. Antihyperlipidemic activity of *Bauhinia purpurea* extracts in hypercholesterolemic albino rats, Int J Pharm Tech Res. 2010; 3(3):1265-1272.
31. Pettit GR, Numata A, Iwamoto C, Usami Y, Yamada T, Ohishi H, Cragg GM. Antineoplastic Agents. 551. Isolation and Structures of Bauhiniastatins 1–4 from *Bauhinia purpurea*, J Nat Prod. 2006; 69(3):323-327.
32. Mopuri DR, Attitalla I, Avinash P, Meriga B. Evaluation of Antilipidemic and Anti Obesity Efficacy of *Bauhinia purpurea* Bark Extract on Rats Fed with High Fat Diet, Acad. J. Plant Sci. 2010; 3(3):104-107.
33. Yahya F, Mamat SS, Kamarolzaman MFF, Seyedan AA, Jakius KF, Mahmood ND, *et al*. Hepatoprotective activity of methanolic extract of Bauhinia purpurea leaves against paracetamol-induced hepatic damage in rats, Evidence-Based Complement Altern Med. 2013; 1-10.



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