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Research Paper

PHARMACOLOGICAL PROPERTIES OF *Cassia fistula* Linn. BARK

Lohiya Garima *, Sharma Rashmi

Research Scholar*, Department of Zoology, SPC. Govt. College, Ajmer (Rajasthan)

Herbal drugs are an issue of national public health concern. Knowledge of plant is important due to their medicinal, social, economical and tribal values also. Aboriginals of certain region of Western Ghat, Assam, Chhattisgarh, Odisha, Madhya Pradesh, Rajasthan etc. and in remote area due to lack of education, money, hospitality, civilization are dependent on their livelihood and sustenance on plant, but know rapid civilization, urbanization, industrialization in tribal pocket, deplete the life and culture of these tribes. Traditional use of medicinal plants against number of disease in form of powder, lotion, syrup etc.

Key Words: Cassia Fistula Linn, bark, flavonoid, anthraquinone, glycoside

INTRODUCTION

Cassia fistula Linn.(Caesalpiniaceae) is known as Drum stick, Purging fistula, Golden shower in English and Nripadruma, Arogyashimbi, Aargvadhah in Sanskrit. In Charaka Samhita it is known as Virechanopaga, Kusthaghna (curative of skin problems), Kandughna (curative of pruritus). It belongs to family Fabaceae which is third largest family of Angiosperm with 160 genera after Orchideaceae and Asteraceae. Present article is to highlight the Phytochemical and Pharmacological properties of stem bark of *Cassia fistula* Linn.

Aargvadhah is guru (difficultly digestible), tasty (svaadu), cooling in potency (sheeta) and a mild laxative (sramsana). It cures fever (jvara), heart problem (hrdy roga), haemorrhagic diseases (pittaasra) and deranged vaata. Flatulence (udaavarta) and colic pain (shoola). Its fruit is laxative (sramsana) and appetizer (ruchya). It cures kushtha (obstinate skin

disease), deranged pitta and kapha is beneficial in fevers and is first rate (param) in cleansing the bowels (kostha).^[1]

REVIEW OF LITERATURE

Silawat et.al (2009), Malpani et.al (2010), M.Ali. (2012) evaluated the hydroalcoholic and methanolic extract (bark) hypoglycemic activity on alloxan induced diabetic rats. Antitumor^[5] activity of methanolic extract of Cassia in skin tumor promotion model. Anti-inflammatory^[6,7] property of aqueous and methanolic extract of bark in wistar albino rats and DBMA induced oral cancer. Ethanolic extract anti-inflammatory activity was observed and mentioned in hind paw edema and cotton pellet granulose wistar albino rats ^[8,9]. Antifungal, antimicrobial ^[10,11] activity of Cassia fistula bark, root, stem, leaves against diverse pathogenic species and hepatoprotective ^[12-14] function of bark and leaves of Cassia fistula were observed also.



OBJECTIVE: To find out the Phytochemical constituents responsible for antioxidant activity of *Cassia fistula Linn.* bark extract prepared by soxhlet extraction method. The powder of *Cassia fistula Linn.* stem bark was initially defatted with petroleum benzene (60-80 °C) followed by 1000 mL of 95 % methanol by using a soxhlet extractor for 72 hours at a temperature not exceeding the boiling point of

the solvent. The methanolic extract was filtered using whatman filter paper (No. 1) and then concentrated in vacuum and dried at 45 °C for methanol removal, and the extracts were kept in sterile bottles under refrigerated conditions until use. The dry weight of the plant extracts was obtained by the solvent evaporation and used to determine concentration in mg/mL.

Table 1: Preliminary Phytochemical Examination of Methanolic Extract of *Cassia fistula Linn.* Bark

Phytochemical Test	Procedure	Observation
Carbohydrate test		
Molisch test	5 ml solution+2 drops molish reagent+3 ml conc.sulphuric acid	Raddish violet zone appear at the junction of solution
Fehling test	Sample+ fehling solution A+B then boil it	Brown-red ppt appears
Iodine test	Sample +iodine sol.	Blue colour appear
Antraquinone test		
Borntranger's test	Boil the Sample (bark powder) with dilute sulphuric acid then filtered and extracted with chloroform + add dil. ammonia	Ammonical layer becomes pink to red
Modified Anthraquinone test	.01 grm of sample + 5 ml 5% solution of ferric chloride + 5 ml dil.HCl then heat in boiling water bath 5 min + shake with organic solvent (benzene), separate organic layer + sequal volume of ammonia	Pink- red colour appears
Glycoside test		
Foam test	Shake the sample with water	Foam appear
Heamolytic test	Dry powred +drop of blood	Heamolytic zone appear
Flavonoid test		
Shinoda test	Dry powder + 5 ml ethanol + conc.HCl+ 0.5gm magnesium	Pink colour appears
	5 mL extract + neutral ferric chloride sol.	green to blue colour is sign of flavonoids
Tannin test		
Gelatin test	Tennin + gelatin solution + sodium chloride	White buff colour appear



Chlorogenic test	Sample + aqu. Ammonia	Exposure with air green colour is form
Alkaloid test		
Mayer's reagent	Solution + potassium mercuric acid	Creamy ppt appears
Wargner's test	Sample +Aq. iodine solution	Reddish brown ppt appear
Dragendroff reagent	Potassium Bismuth iodine solution	Raddish brown ppt
Protein test		
Biuret test	Sample+ biurate solution then shake it	Pink / purple colour not appears
Anthocyanin test		
	5 mL of extract + 2M sodium hydroxide	Absence of blue green colour indicate absence of anthocyanin
	5 mL of extract + dil. sodium acetate + small amount of ferric chloride	Absence of reddish brown colour indicates the absence of anthocyanins
Saponin test		
Foam test	Plant extract + distilled water then boiled 5 minutes	formation of persistent honey comb like froth

Table 2: Preliminary Phytochemical Tests Results of Stem Bark Methanolic Extract of *Cassia fistula* Linn.

Phytoconstituents	MECF
Carbohydrate	Present
Proteins and Amino acids	Absent
Anthraquinone	Present
Glycosides	Present
Alkaloids	Present
Flavonoids	Present
Saponin	Present
Tannins and Phenolic Compound	Present
Anthocyanin	Absent

MECF- methanolic extract of *Cassia fistula* bark

DISCUSSION AND CONCLUSION

Herbal medicines, fruits, vegetables, beverages are major avenue of phytochemical constituents. They provide defense against

radiation, virus, parasites and types of cancer.

Phytoconstituents posses protective and antioxidative nature due to presence of antioxidants, lycopene, lutein, carotene,



anthraquinone, anthocyanin, minerals, various types of vitamins, flavonol, fibers, glycosides, sugars, amino acids, phenol and much more. Because of above phytoconstituents Cassia bark shows antioxidant activity. Plant derived drugs have unique aroma, revitalize power without focusing on a particular body part and side effect they sustain the balance between mind, soul and body they balance harmony between mind, soul and body without side effect.

REFERENCE

1. Primary Ayurvedic Plant Drugs, Modern Scientific Appraisal, Sukh Dev pp.211-15.
2. Silawat N., Jarald E Edwin, Jain Neetesh, Yadav Akash, Deshmukh T P. (2009) The mechanism of hypoglycemic and antidiabetic action of hydroalcoholic extract of Cassia fistula linn. In rats, Journal of the Pharma Research,01: 82-92.
3. Malpani S N., Manjunath K P., Hasanpasha S., Savadi R V., Akkai K., Darade S S. (2010) Antidiabetic activity of Cassia fistula linn bark in Alloxan induced diabetic rats, Int. Journal of Pharmacy Sci.,2:382-385
4. M.Ali, Sagar H.A., Sultana M.C., Azad A.K., Begum K., Wahed M.I.I. (2012) Antihyperglycemic and Analgesic Activities of Ethanolic Extract of Cassia fistula (L) stem Bark, Int. Jour. Pharm Sci. Res.,3(2):416-23
5. Shankar S. and Methew L (2012) Chemopreventive Potential of Methanolic Extract of Stem Bark of *Cassia fistula* Linn. in Mice, journal of Pharmacognosy and Herbal Formulation", 2,8
6. K. Vasudevan, S. Manoharan, L. M. Alias, S. Balakrishnan, L. Vellaichamy, M. Gitanjali (2008), International Journal of Chemical Sciences, 6(3), 1341-1354.
7. Ilavarasan Raju, Mallika Moni and Venkataraman Subramanian (2005) Anti inflammatory and Antioxidant Activity of *Cassia fistula* Linn. Bark extract, Afr. J. Trad. Cam, 2,(1)
8. Gobianand k., Vivekananda P., Pradeep K., Mohan C V R, Karthikeyan S. (2010) Anti-inflammatory and Antipyretic Activities of Indian Medicinal Plant *Cassia fistula* Linn.(Golden Shower) in Wistar Albino Rats, International Journal of Pharmacology", 6;7, 19-25
9. Dinanath D.Patil, Dnyandeo K. Mhaske and Machindra Patre Gurumeet C. Wadhawa (2012) Antibacterial and Antioxidant, Anti-inflammatory Study of Leaves and Bark of *Cassia fistula*, International Journal of Pharmacy, 291:401-405
10. Awal M. A., Ahsan S. M., Haque E., Asghor Q H., Ahmed M. (2010) In vitro Antibacterial Activity of Leaf and Root Extract of *Cassia fistula*, Dinajpur Medical College Journal,3,3-10
11. Duraipandiyana V. and Igancimuthu S. (2007) Antibacterial and Antifungal Activity of *Cassia fistula* linn- An Ethanomedicinal plant, Journal of Ethano-pharmacology,112,590-594



12. Bhakta. T., Mandal S.C., Saha S.S., Pal M., Banerjee S., Maity T. K. (2001) Hepatoprotective Activity of Cassia fistula leaf Extract, *Phytomedicine*, 8 (3)
13. Wasu SJ, Muley BP.(2009) Hepatoprotective effect of *Cassia fistula* Linn., *Ethnobotanical Leaflets*,13:910–6
14. Vandal P Y., Sakhare G R, Patwadhan S K., Singhani A K., Simani R S.(2008) Evaluation of hepatoprotective activity of ethanolic extract of bark of *Cassia fistula*, *Indian Journal of Pharmacol*,40:68