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Pharmacological screening of Scutia myrtina for antipyretic activity

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***Abstract*---**Herbal medicines have been main source of primary healthcare in all over the world. From ancient times, plants have been catering as rich source of effective and safe medicines. About 80 % of world populations are still dependent on traditional medicines. The present investigation it may be concluded that the hydroalcoholic extract of leaves of *Scutia myrtina* has antipyretic activity. All these biological activities may be said to be a promising finding brought out by the present study. These contributions can be used as parameters for the authentication of plant as well as for developing newer drugs based on their activity. In this study no attempt was made to ascertain the mechanism of the observed antipyretic activity. However, it can be suggested that it may be acting through either the peripheral or central mechanism numerated above. It is also possible that both the mechanisms may be involved. Further, study regarding isolation and characterization of active principle responsible for antipyretic activity are under planning in our laboratory.

Keywords*---Ayurvedic medicines, Pyrexia, Antipyretic, Scutia myrtina*

Introduction

Ayurvedic medicines
Ayurvedic medicines mainly based on plants enjoy a respective position today, especially in the developing countries, where modern health services are limited. Safe effective and inexpensive indigenous remedies are gaining popularity among

the people of both urban and rural areas especially in India and China. Herbal medicines have been main source of primary healthcare in all over the world. [1,2] From ancient times, plants have been catering as rich source of effective and safe medicines. About 80 % of world populations are still dependent on traditional medicines.[3]

Pyrexia and Antipyretic Activity

- Pyrexia or fever is caused as a secondary impact of infection, malignancy or other diseased states. It is the body's natural defense to create an environment where infectious agent or damaged tissue cannot survive[4]

Plant profile

- Scutia myrtina

  Scutia myrtina is a variable plant that may grow as a shrub or tree of 2-10 m tall with trunk diameter to 30 cm or often a scandent liane, climbing by means of thorns. Older bark is dark, corky and longitudinally fissured. Younger growth is hairy and branchlets green and angular. The thorns are sharp, recurved and paired at the nodes, but sometimes absent. The common name, cat-thorn, refers to the thorns that look like a cat's claw. [6]

Experimental work

1. Collection of plant material

   The plants have been selected on the basis of its availability and folk use of the plant. Leaves of *Scutia myrtina* was collected from Vindhya Herbal, Bhopal in the month of December, 2020. Drying of fresh plant parts were carried out in sun but under the shade. Dried leaves of *Scutia myrtina* were preserved in plastic bags and closed tightly and powdered as per the requirements.
2. Extraction procedure

   Defatting of plant material

   Leaves of *Scutia myrtina* was shade dried at room temperature. The shade dried plant material was coarsely powdered and subjected to extraction with petroleum ether by soxhlet extraction. The extraction was continued till the defatting of the material had taken place.

   Extraction by soxhlet extraction

   56.4 gm of dried powdered leaves of *Scutia myrtina* has been extracted with hydroalcoholic solvent (ethanol : water, 80:20 v/v) using soxhlet extraction process for 24-48 hrs, filtered and dried using vacuum evaporator at 40˚C.
3. Pre-formulation screening of drug

   Determination of percentage yield

   The percentage yield of each extract was calculated by using following formula:

   Percentage yield = Weight of Extract/ Weight of powder drug Taken x 100

Results of Percentage Yield

Table 1
Results of percentage yield

S. No.	Extract	% Yield (w/w)
1.	Hydroalcoholic	6.52%

3. Phytochemical screening of extract of Scutia myrtina

Table 2
Phytochemical screening of extract of *scutia myrtina*

S. No.	Constituents	Hydroalcoholic extract	Observation
1.	Alkaloids Mayer's Test: Wagner's Test: Dragendroff's Test: Hager's Test:	-ve -ve -ve +ve	Green coloured Green coloured Light Green coloured Yellow coloured precipitate.
2.	Glycosides Legal's test	+ve	Red coloured
3.	Flavonoids Lead acetate Alkaline Reagent Test:	+ve -ve	Yellow coloured precipitate Yellow coloured
4.	Phenolics Ferric Chloride Test	+ve	Black coloured
5.	Proteins Xanthoproteic test	-ve	Green coloured
6.	Carbohydrates Molisch's Test: Benedict's Test: Fehling's Test:	-ve -ve +ve	Yellow coloured Yellow coloured Red precipitate
7.	Saponins Froth Test: Foam Test:	+ve -ve	Layer of foam No foam
8.	Diterpins Copper acetate test	-ve	Green coloured
9.	Tannins Gelatin Test:	+ve	White precipitate

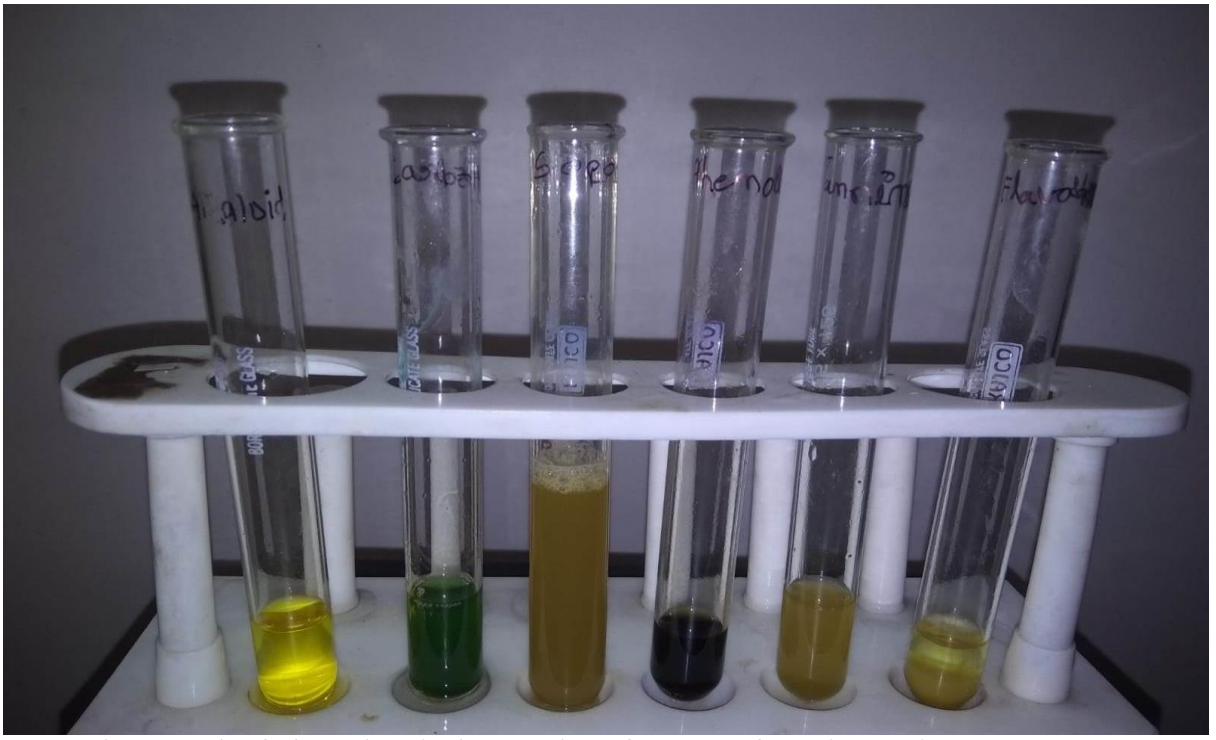

FIG 1 Photograph of phytochemical screening of extract of *Scutia myrtina*

4. Results of thin layer chromatography of hydroalcoholic extract of *Scutia myrtina*

Table 3

Results of thin layer chromatography of hydroalcoholic extract of *Scutia myrtina*

TLC chromatogram (Gallic acid)		
S. No.	Mobile phase Toluene: Ethyl acetate: Formic acid (7:5:1)	*Rf* value
1.	(Gallic acid) Dis. travel by mobile phase= 5cm No. of spot at long UV= 1 No. of spot at short UV = 1 No. of spot at normal light= 0	Long UV - 0.46 Short UV - 0.46 Normal light - 0
2.	(Hydroalcoholic extract) Dis. travel by mobile phase= 5cm No. of spot at long UV = 9 No. of spot at short UV = 8 No. of spot at normal light= 5	0.24, 0.3, 0.98, 0.46, 0.5,0.58, 0.64, 0.76, 0.94 0.16,0.26,0.32,0.42,0.5,0.6,0.76,0.94 0.34,0.5,0.58,0.78,0.96

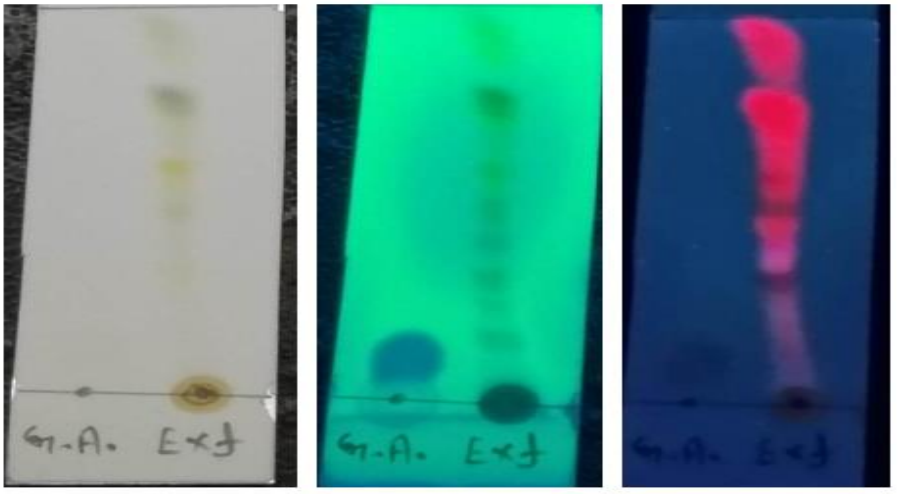

Fig 2 :
1st spot Quercetin standard
2nd spot hydroalcoholic extract of *Scutia myrtina*

6. Results of estimation of total phenolic and flavonoid contents
Total Phenolic content estimation (TPC)

Table 4
Preparation of calibration curve of Gallic acid

S. No.	Concentration (µg/ml)	Absorbance
1	5	0.194
2	10	0.422
3	15	0.637
4	20	0.848
5	25	1.035

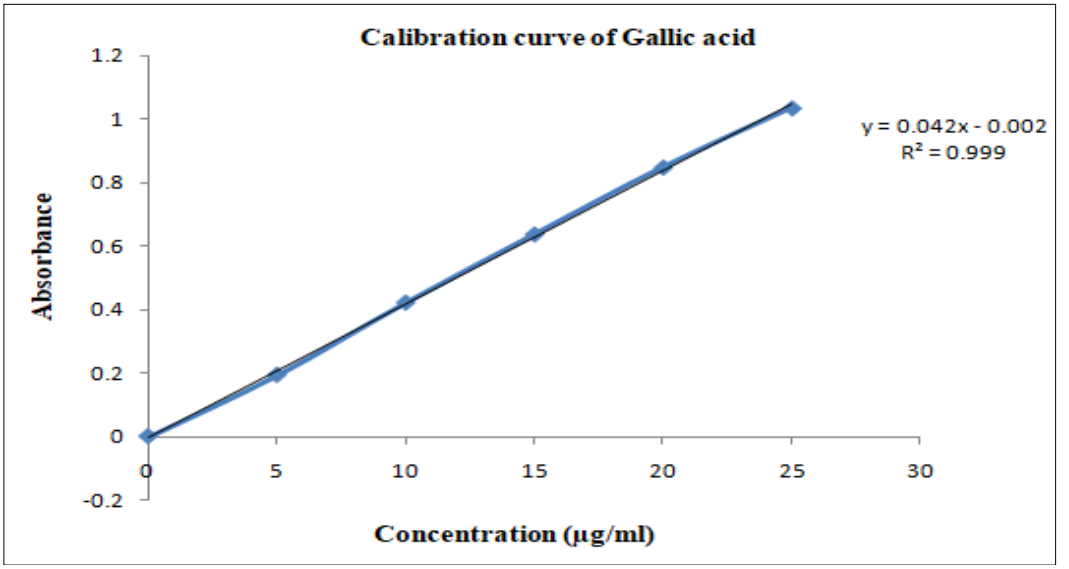

Fig 3 Total flavonoid content estimation (TFC)

Table 5
Calibration Curve of Quercetin

S. No.	Concentration (µg/ml)	Absorbance
1	5	0.352
2	10	0.61
3	15	0.917
4	20	1.215
5	25	1.521

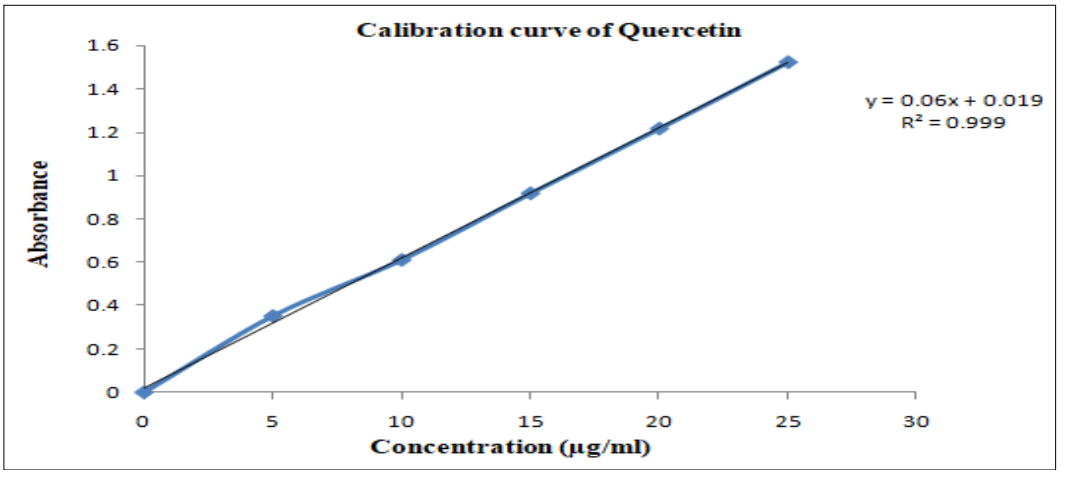

Fig 4 calibration curve of quericetin

Table no 6 Total phenolic and total flavonoid content of Scutia myrtina

S. No.	Total Phenol content	Total flavonoid content
1.	0.671 mg/100mg	0.923 mg/100mg

Conclusion

The present investigation it may be concluded that the hydroalcoholic extract of leaves of *Scutia myrtina* has antipyretic activity. All these biological activities may be said to be a promising finding brought out by the present study. These contributions can be used as parameters for the authentication of plant as well as for developing newer drugs based on their activity. In this study no attempt was made to ascertain the mechanism of the observed antipyretic activity. However, it can be suggested that it may be acting through either the peripheral or central mechanism numerated above. It is also possible that both the mechanisms may be involved. Further, study regarding isolation and characterization of active principle responsible for antipyretic activity are under planning in our laboratory.

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