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ESTIMATION OF PRIMARY METABOLITES AND DETECTION OF ANTIMICROBIAL ACTIVITY OF SENNA AURICULATA

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ABSTRACT
India is an origin of different medicinal plants. senna auriculata is one important ayurvedic plant. In our study we selected leaves to detect antimicrobial activity. Samples are collected from Chennai We brought the leaves to lab, subjected to grid and make powder for our further studies. By using soxhlet apparatus, methanol extract of senna auriculata is extracted and primary phytochemical constituents like tannins, falvanoids, alkaloids, phenol, cardio glycosides and proteins are found Antibacterial activity of sample was determined by disc diffusion method on Muller Hinton agar (MHA) medium. Antifungal activity of sample was determined by disc diffusion method on Potato Dextrose agar (PDA) medium. This methanol extract sample showed antibacterial activity aginst enterococcus faecalis and salmonella typhi and antifungal activity against aspergillus niger and candida albicans.

KEYWORDS: Senna Auriculata; Anti microbial activity; Primary metabolites; Medicinal property.

INTRODUCTION

Many medicinal plant act as healing agents of vaiours diseases. There are different plant compounds are available for ayurvedic treatment. In medicinal plants, there are different plants which will act for different treatment. Different types of medicinal plants are available in india, various parts of these plants show different medicinal activity. Different varieties of raw drugs are produced by local communities for local use. From these tribe communities, different herbal industries collect raw material for the preparation of herbal drugs. These medicinal plants are importants each and every individual health. Hill 1952, different chemical compounds are available in the medicinal plants, which show bioactive substances like alkaloids, tanins, flavonoids and phenolic compounds. The traditional medicinal plants are used as food plants and spices purpose. The Senna Auriculata is very important shrub in ayurvedic. This plants show various medicinal and pharma activities like antipyretic, hepato protective, antidiabetic, anti perrodiative, anti hyper glyceanic and anticancer activity. The extraction of flowers used in diasulin which will show antidiabetic activity. Kalpa herbal tea is one of the Senna Auriculata contribution, which will give relief of diabetes mellitus patience. The flower methanol extraction of Senna Auriculata showed antifungal and antimicrobial activity and anti diabetic activity. Figure 1 shows external picture of senna auriculata and flowers can be seen in Fig. 2.

Figure 1: Shows the external picture of senna auriculata.

Figure 2: Shows flowers of senna auriculata.

MATERIALS AND METHODS

The main objective of the study is using methanolic exract of sample flower powder to find out the primary metabolites and antimicrobial study.

Collection of sample and Preparation of plant sample

- Senna Auriculata plant was collected from aynavaram nursery of Chennai at 34 degree room temperature
- The flower of senna ariculata were sund dried for fourdays.
- With the help of research lab the floweres were then ground in powder form using machine. then this powder stored in container for futher studies.
- Extraction of the plant material
- Finally 3.49 g flower powder was obtained and 25 gram of flower material was taken in flask

Preparation of sample

According to Indian Pharmacopeia, extraction was prepared. 25 gram of flower sample transferred in to filter paper and kept in condenser. This condenser kept in 250ml methanol flask. To control the temperature a cooling apparatus kept inside. To maintain upto 55-60 degree Celsius for minimum 3-5hours. After three cycles this extract transferred in beaker and incubated in RT for evaporation. Finally methanoi yield - 3.49 (25 GM / 250 ML). Figure 3 shows soxhlet apparatus containing senna auriculata.

Figure 3: Senna auriculata in soxhlet apparatus.

PROCEDURE

This flower extract was used to estimate of the phytochemical analysis. In this analysis, primary metabolites, using standard protocol of Indian pharmacopeia, we estimated saponin, flavonoids, alkaloids, protiens, steroids, quinines, terpenoids and phenols and CARDIO GLYCOSIDES. The sample showed all presences based on the various of colour change.

ANTIFUNGAL ACTIVITY

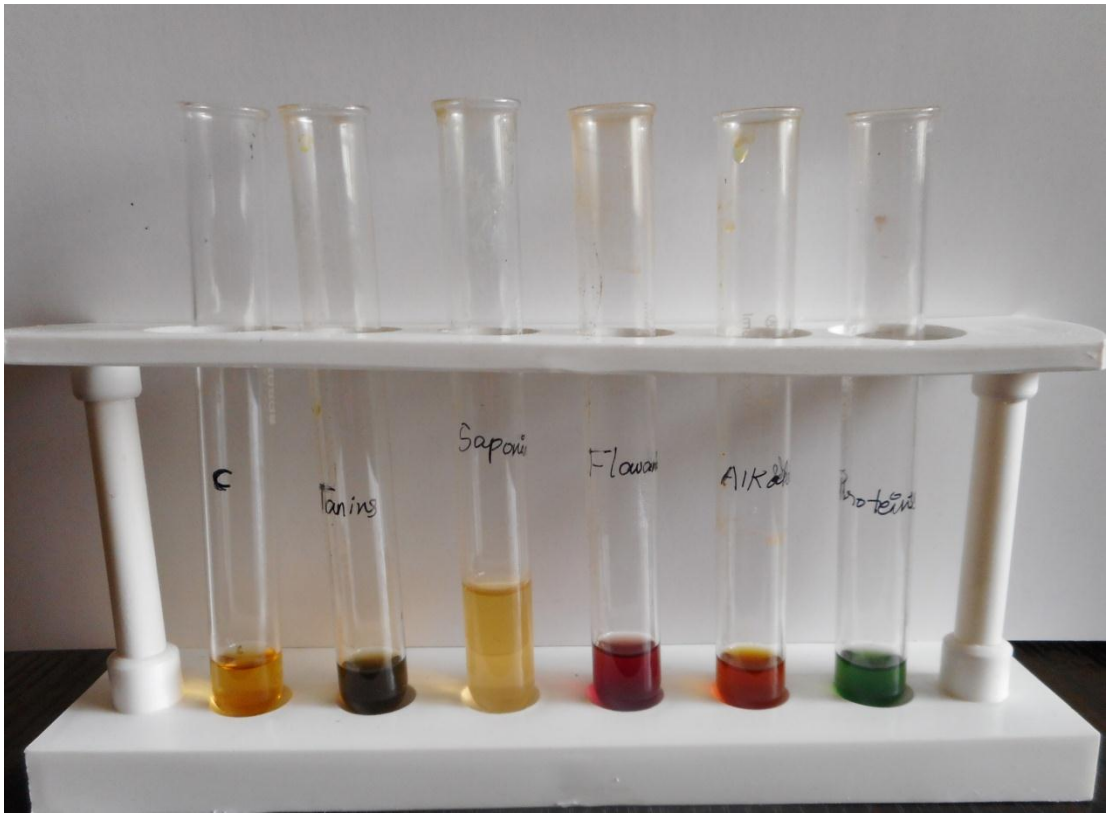
- Collection of cultures
- Fungal cultures were obtained from royal bioscience to detect antifungal activity of this flower methanol extract.
- Preparation of Disc method
- Antifungal activity of this sample was determined by dis diffusion method. Potato Dextrose agar (PDA) medium. Inoculum prepared and maintained on the potato dextrose agar slant at 4^0C

ANTIBACTERIAL ACTIVITY

- Collection of cultures
- Bacterial cultures were obtained from royal bioscience to detect antibacterial activity of this flower methanol extract.
- Preparation of Disc diffusion method.
- Antibacterial activity of this sample was determined by dis diffusion method. Muller Hinton agar (MHA) medium. Inoculum prepared and maintained on the Muller Hinton agar (MHA) medium. slant at 4^0C

RESULT AND DISCUSSION

Senna ariculata flower methanol extraction showed the presence of different primary phyto- metabolites (Fig. 4 and Table 1). This flower extraction showed antibacterial activity against two species of bacterial like enterococcus faecalis and salmonella thyphi (Figures 5 and 6 and Table 2). This was determined based on the zone of inhibition. Below figures showed zone of inhibition on Media using disc diffusion method. This extract showed antifungal activity against (Figures 7 and 8) Aspergillus Niger and candida albicans on PDA medium. This zone of inhibition was determined by disc diffusion method.



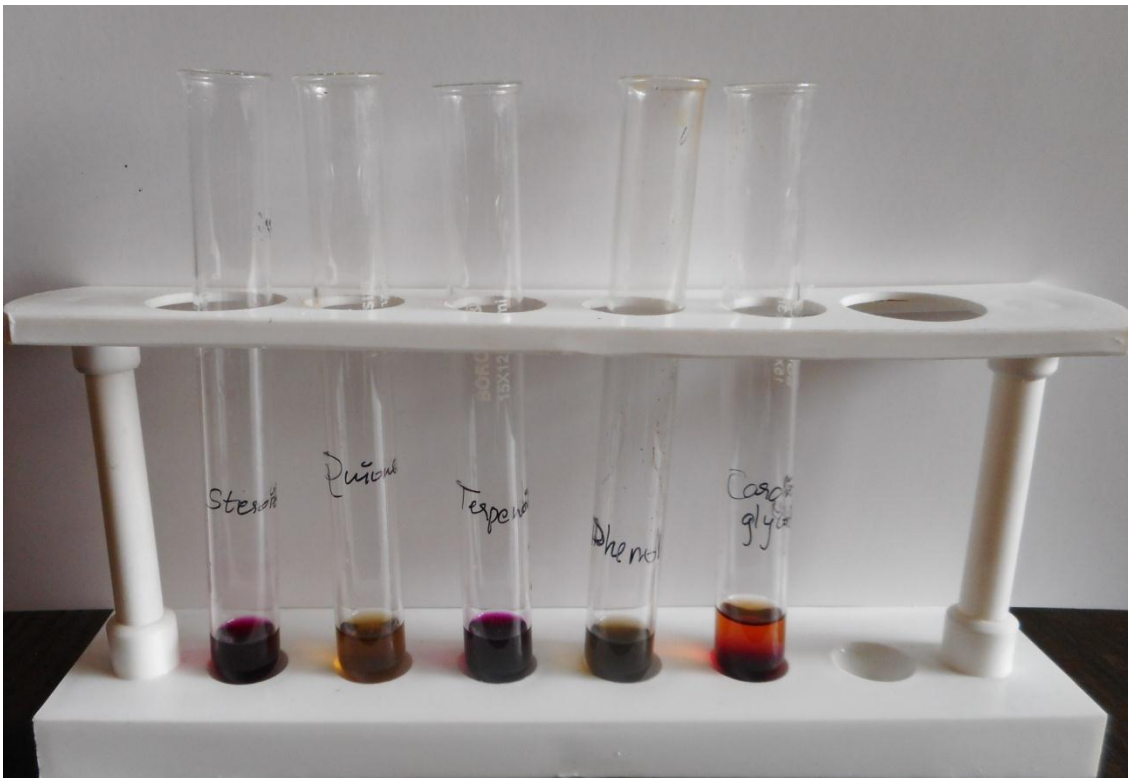


Figure 4: Primary metabolites.

Table 1: Identification of primary metabolites.

S.No	Contents	Methanol extract
1.	Tanins	+
2.	Saponin	-
3.	Flavonoids	+/-
4.	Alkaloids	+
5.	Proteins	+
6.	Steroid	-
7.	Quinones	-
8.	Terpenoids	-
9.	Phenol	+
10	Cardio glycosides	+

Figure 5: Anti-fungal activity against Aspergillus Niger.

Figure 6: Anti-fungal activity against candida albicans.

Fig Label
A = 1000 µg, B =500 µg, C = 250 µg, D =125 µg, E = 62.5 µg, F = DMSO (negative control)
G= STD (positive control)

Table 2: Anti-bacterial activity.

Microorganisms/Sample	Zone of Inhibition in mm						
	1000 µg	500 µg	250 µg	125 µg	62.5 µg	DMSO	Streptomycin 10µg
Enterococcus faecalis	20	13	11	10	-	-	26
Salmonella typhi	11	10	8	7	-	-	21

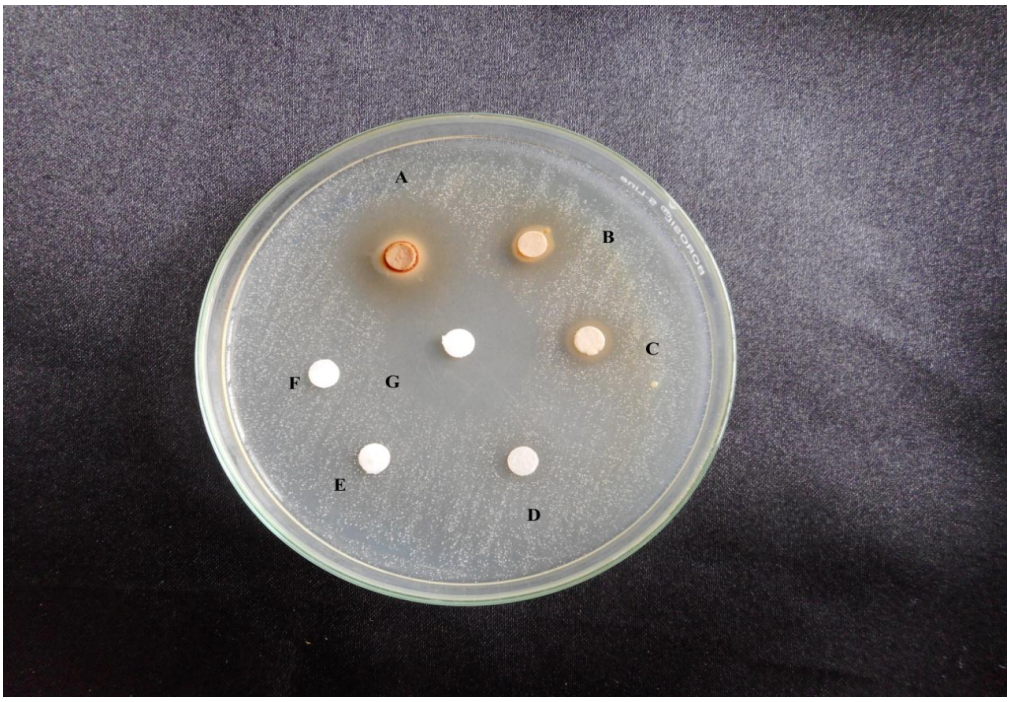


Figure 7: Anti-bacterial activity against enterococcus faecalis.

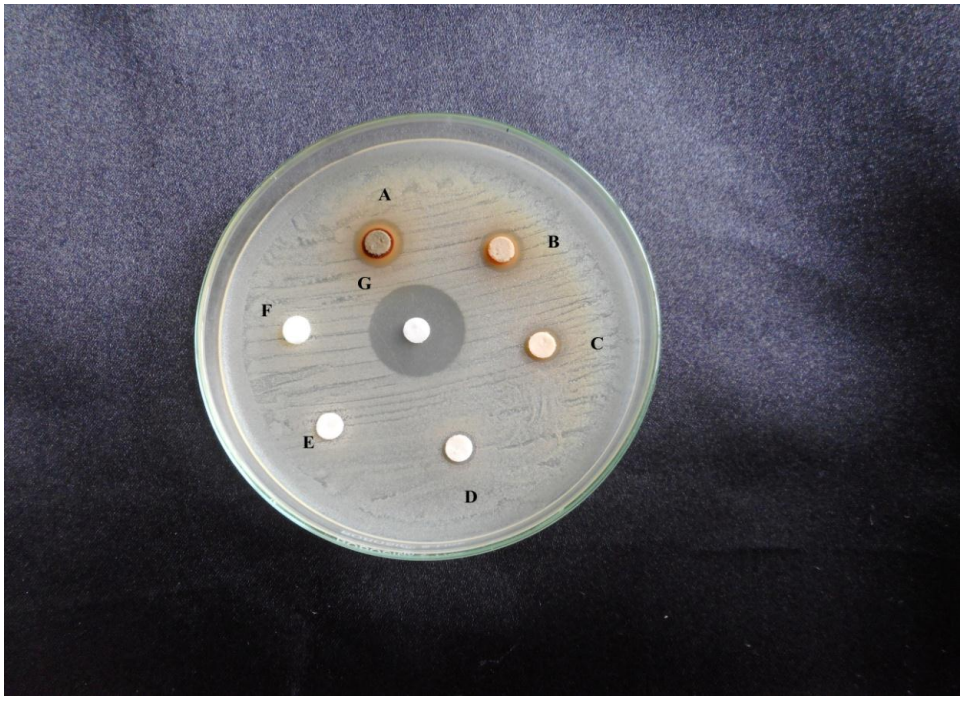


Figure 8: Anti-bacterial activity against salmonella thyphi.

SUMMARY

Medicinal plants show different pharma activity of different microbes. One of this type of the medicinal plant is senna ariculata. This flower shows different pharma activity. In our study we identified the presence of various important and pharma significant primary phtometabolities. This methanol extract of the flower powder showed antibacterial and antifungal activity.

Based our research study, we can use this flower extract for different microbial and fungal infections, which will act a major role in pharma industry.

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