

the percent of inhibition of DPPH reduction (decolourization)

$$\% \text{ of inhibition} = \frac{A_0 - A_{\text{sample}}}{A_0} \times 100$$

where (A_0) is the absorbance of the control (blank) and (A_{sample}) is

at a certain time, corresponds inversely to the radical scavenging activity of the antioxidant. The results of the free radical scavenging activity of the leaf extract of *Cassia stula* assessed by DPPH assay and amount of the sample needed for 50% inhibition of free radical activity, IC_{50} values were summarized in Table 3.

Discussion

Antibacterial screening of leaf extracts

As can be seen from Table 1, the leaf extract of *Cassia stula* showed pronounced antibacterial activity against all the microorganisms tested. Among the leaf extracts, methanol extract exhibited higher activity than the other extracts and petroleum ether extract showed least activity. Methanol (18-32 mm/50 μ l inhibition zone), ethyl acetate (14-22 mm/50 μ l inhibition zone), chloroform (13-16 mm/50 μ l inhibition zone) and petroleum ether (12-14 mm/50 μ l inhibition zone) extracts of the leaf exhibited marked activity against all the tested organisms such as *Bacillus cereus*, *Enterobacter faecalis*, *Salmonella paratyphi*, *Staphylococcus aureus*, *Escherichia coli*, *Proteus vulgaris*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa* and *Serratia marcescens*.

Conclusions

The leaf extracts of *Cassia stula* showed varying degrees of antibacterial activity on the microorganisms tested. It is interesting to note that even crude extract of this plant showed prominent activity against various pathogenic bacteria where modern therapy has failed. Due to the emergence of the antibiotic resistant pathogens, plants are being looked upon as an excellent alternate to combat the spread of multi drug resistant microorganisms.

From the above experiment it can be inferred that leaf methanol extract of *Cassia stula* showed significant activity against Gram-positive and Gram-negative bacteria. The activity of leaf methanol extract was found to be quite comparable with the standard antibiotics screened under similar conditions. So they can be used as an external antiseptic in the prevention and treatment of bacterial infections caused by various pathogenic bacteria such as *Bacillus cereus*, *Enterobacter faecalis*, *Salmonella paratyphi*, *Staphylococcus aureus*, *Escherichia coli*, *Proteus vulgaris*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Serratia marcescens*, which have developed resistance to antibiotics. The incorporation of these samples into the drug formulations is also recommended. This study demonstrated that the methanolic leaf extract of *Cassia stula* is as effective as modern medicine to combat pathogenic microorganisms.

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