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# ANTIBACTERIAL ACTIVITY OF POLYALTHIA LONGIFOLIA AGAINST HOSPITAL ISOLATES OF BENGALURU DISTRICT

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***Abstract* - *The medicinal value of polyalthia longifolia against clinical isolates staphylococcus aureus, Streptococcus faecalis, Pseudomonas aeruginosa, Bacillus subtilis, and E.coli were detected by methanolic extracts of leaves, the methanolic extract revels the presence of terpenoids, flavonoids, saponins, tannins, and phenolic compounds and subjected antibiotic activity by the well diffusion method. Flavonoids showed very good zone of inhibition against staphylococcus aureus, Pseudomonas aeruginosa, Bacillus subtilis, and E. coli as 21 mm, 23 mm, 21 mm, 19 mm, and 16 mm respectively alkaloids and saponins showed moderate zone of inhibition.***

***Keywords*** Phytocompounds**,** methanolic extract, clinical samples, disc diffusion method, flavonoids

## I. INTRODUCTION

The use of medicinal plants in the treatment of diseases has long been established as traditional treatment by traditional healers. Most of the plants have bioactive compounds as their secondary metabolites possess antibacterial activity in vitro (Sofowra, 1982). *Polyalthia longifolia* is evergreen tree native to India to grow over 30 feet height. The traditional healers have been using this plant preparations to treat fever, skin diseases, helementhiasis etc.. (Wu Y C *et al.,* 1990). The usage of plant preparation is less or nil adverse reactions compared to conventional pharmaceuticals and also cost effective (Nair R *et al*., 2004). The antibiotic resistance and infectious diseases which lead to health problems is very high in India (Rao M R *et al.,2006*).

## II. MATERIAL AND METHOD:

### Preparation of crude extracts

The *polyalthia longifolia* plant leaves sample was collected in locally from Siddarabetta, Tumkur district and Bangalore district. The shade dried leaves were ground into fine powder and the total mass was subjected to extraction by a hot percolation method with Methanol in soxhlet apparatus for 72 hrs. The temperature maintained was 40°C. Solvent extraction step was carried out for 16 hours and after extraction the extracts were concentrated by evaporation and stored at 4°C for further study. (Ashan M, *et al.,* 1996, Kurian J C, 2003).

### Collection and maintenance of the clinical bacterial cultures

Pathogenic bacteria used in the study were collected from different registered hospitals. The clinical samples like, upper respiratory tract infection, Urinogenital system and from blood samples. The bacteria selected in the present study were identified and certified by the registered hospitals. The collected bacterial samples were grown on nutrient agar media at $37^0$C and maintained at $4^0$C and till further user**.** The various extracts were tested against bacterial cultures: *Staphylococcus aureus, Streptococcus faecalis, Pseudomonas aeruginosa, Bacillus subtilis and Escherichia coli* for antimicrobial activity.

### Antibacterial activity

The antibacterial assay of methanolic extracts was performed by agar well diffusion method (Klastrup, 1975). The molten Mueller Hinton agar was inoculated with 100µl of the inoculums (1*106 CFU/ml) and poured into the petri plate. For agar well diffusion method, the agar plates were punched with wells (1mm) and the crude extracts (100µl throughout the study) were added to the wells. The plates were then incubated overnight at 37°C. Microbial growth was determined by measuring the diameter of the zone of inhibition of each bacterial strain**.**

### Phytochemical analysis

Phytochemical analysis of major Phyto-constituents of all the plant extracts were undertaken using standard qualitative methods as described by various authors. The plant extracts were screened for the presence of biologically active compounds like as steroids, terpenoids, alkaloids, flavonoids, coumarins, saponins, tannins, phenols, catechin, anthraquinone and quinine (C K Hindumathy, 2011).

## III. RESULTS AND DISCUSSION:

### Antibacterial activity of *polyalthia longifolia*

The antimicrobial activity of crude methanolic extracts of *polyalthia longifolia*, was performed by the method described earlier and then and then analyzed for phytocompounds present in the (Table 1). Figure 21 shows the antibacterial activity in terms of zone of inhibition The methanolic extract of *Polyalthia longifolia* showed highest zone of inhibition 20mm against *Bacillus subtilis* and least against *Streptococcus faecalis* 12 mm, whereas the other organism's *Staphylococcus aureus, Pseudomonas aeruginosa* and *E.coli* showed 19 mm, 16 mm and 15 mm respectively. Where, the

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