

## Drug Standardisation

### Evaluation of anti-bacterial activity of some homoeopathic medicines

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#### ABSTRACT:

'In-Vitro' anti-bacterial activity of 6 mother tinctures of botanical origin was screened against *Pseudomonas aeruginosa*, *Proteus vulgaris*, *Citrobacter freundii* and *Staphylococcus aureus*. Among the drugs screened, *Psidium guajava* mother tincture was found to possess anti-bacterial activity against all the strains tested but showed more activity against *Staphylococcus aureus*. On the other hand, mother tinctures of *Eichhornia crassipes*, *Valeriana officinalis*, *Alpinia galanga* and *Chenopodium ambrosioids* plants did not show any anti-bacterial activity against all the strains of bacteria tested. The findings suggest the presence of anti-bacterial principle in *Psidium guajava* mother tincture.

#### INTRODUCTION:

Ever since Pandora opened her mythical box, infectious diseases have plagued humanity, evolving with changing life conditions and population expansion. Indigenous cultures in equilibrium with their endemic infectious diseases have been devastated by contact with infections of modern civilization. Even today societies in densely populated developing countries where sanitary conditions are very poor, are prey of infectious diseases. On the contrary medical practices too have attracted the panorama of anti-microbial drugs which have radically changed the prevalence and causes of most infectious diseases. However, frequent use of these synthetic anti-microbial drugs leads to development of drug resistant microbes.

In Homoeopathy, there are number of drugs which are being clinically used for the treatment of many infectious ailments<sup>5</sup> and some of them are being tested for anti-bacterial activity also<sup>7,8,9,13</sup>. The present investigation was undertaken to study the anti-bacterial activity of mother tinctures prepared from five medicinal plants which are used as medicines for various diseases.

#### MATERIALS AND METHODS:

'In-Vitro' screening of anti bacterial activity of homoeopathic mother tinctures of *Alpinia galanga* (Whole plant), *Chenopodium ambrosioides* (Aerial vegetative part), *Eichhornia crassipes* (Leaves), *Eichhornia crassipes* (Whole plant), *Psidium guajava* (Leaves) and *Valeriana officinalis* (Rhizomes) was carried out against *Pseudomonas aeruginosa*, *Proteus vulgaris*, *Citro bacter freundii* and *Staphylococcus aureus* species by Agar diffusion method<sup>4</sup>. Sterile filter paper (Watman No.1) discs of 6 mm. diameter were thoroughly soaked in the respective drugs and subsequently allowed to evaporate its alcohol content. These discs were placed on petri-dishes containing 100 ml. of Mueller Hinton agar medium (Hi-media chemicals) already inoculated with 24 hours old culture of a selected bacterial strain. Incubation was done at 37°C for 24 hours. The anti-bacterial activity was observed in terms of inhibitory zone appeared around the filter paper discs and graded as mild to moderate depending upon the area of inhibitory zone.

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## ANTI BACTERIAL ACTIVITY OF SOME HOMOEOPATHIC MOTHER TINCTURES

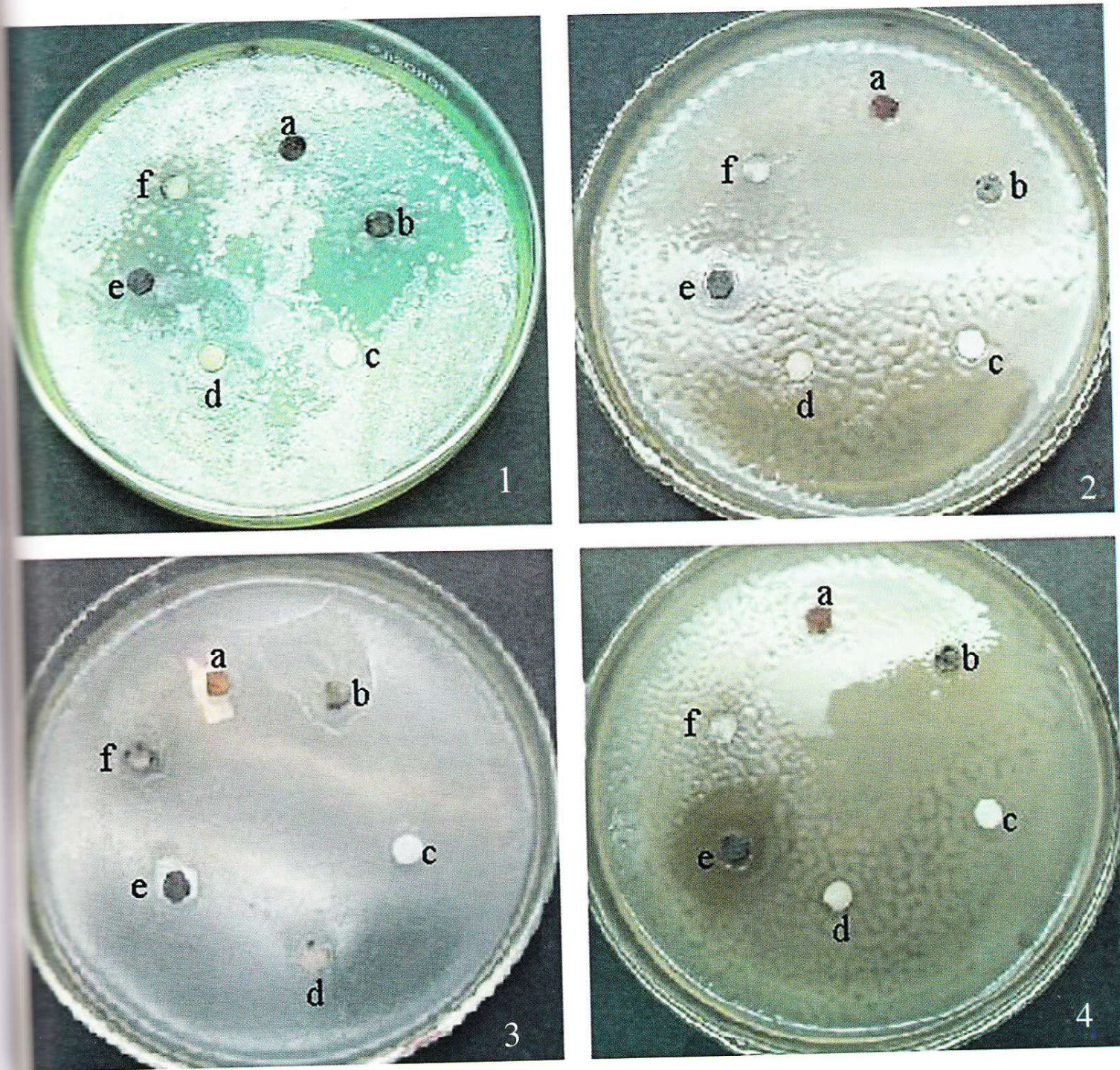


Fig: 1-4 : Different Bacterial Strains (1) *P. aeruginosa*, (2) *P. vulgaris*, (3) *C. bacterium*, (4) *S. aureus*.  
 (a) *A. galanga*, (b) *C. ambrosioides*, (c) *E. crassipes* (whole plant), (d) *E. crassipes* (leaves),  
 (e) *P. guajava*, (f) *V. officinalis*,

Note: Appearance of growth inhibitory zone varying mild to moderate in all the tested organisms treated with

## RESULTS AND DISCUSSION:

Flavonoids, terpenoids, alkaloids, essential oils and several naturally occurring metabolites including organoteterocyclic compounds are reported to possess anti-bacterial, anticancer and other pharmacological activities<sup>6,10,14,20,25</sup>. Several workers<sup>12,24,27</sup> have reported anti-bacterial activity of crude extract of various medicinal plants. In the present study homoeopathic mother tincture of five medicinal plants were screened for their anti - bacterial activity.

*Psidium guajava* Linn. is used in alternative system of medicine for treatment of bronchitis, diarrhoea, rheumatism, wounds, tooth-ache and disease of the digestive functions<sup>17</sup> and could be suitable source of natural anti-oxidant activity<sup>15</sup>. Tyagi *et al.*<sup>28</sup> have reported anti-bacterial activities in aqueous and alcoholic extracts of leaf. Anti-diarrhoeal and anti-microbial activities in rats were also reported by Lin *et al.*<sup>22</sup> in aqueous and methanolic extracts of leaf of *P. guajava*. *Alpinia galangal* wild., is used for the treatment of rheumatic arthritis, inflammation, headache, lumbago, bronchitis, and diseases of the heart and kidney<sup>18</sup>. The rhizome produced fall in blood glucose level in normal rabbits<sup>2</sup>. Synthetic alkyl esters similar in structure found in rhizome of *A. galanga* has been found to possess anti-microbial and bactericidal activities<sup>23</sup>. The volatile oil obtained from *Chenopodium ambrosioides* Linn., is used as an anthelmintic against intestinal parasites including roundworms, hookworms and intestinal amoebae<sup>1</sup>. The fresh extract of aerial part has anti-trypanosomal compounds<sup>19</sup>. Essential oil isolated from *C. ambrosioides* recorded as most powerful licidal and niticidal activities<sup>21</sup>. *Eicchornia cressipes* solms., is used as remedy to treat goiter<sup>3,26</sup>. *Valeriana officinalis* Linn. is an anti-spasmodic and depressant Central Nervous System and is used in hysteria,

hypochondriasis and chorea and allied affections<sup>18</sup>. It also stimulates the immune function of bone marrow cells<sup>11</sup>.

Though synthetic alkyl esters 2 - endo - hydroxy-1, 8 - cineole has been reported to be anti - microbial and bactericidal, the same was not confirmed in naturally occurring alkyl esters of *A.galanga* by Miyazawa and Hashimoto ( 2002 ). However, in the present investigation, the mother tincture ( i.e. alcoholic extract ) of *A.galanga* did not show any anti - bacterial activity ( Fig.1- 4a ) but *P.guajava* mother tincture exhibited mild to moderate anti - bacterial activity against all the 5 strains of microbes tested (Fig.1- 4e) while remaining 4 mother tinctures did not show any anti-bacterial activity against any of the strains tested (Fig.1- 4b, c, d, f).

The anti-bacterial principle observed in *Psidium guajava* mother tincture against all the tested micro-organisms would support to develop an economical , non-toxic and potential anti- bacterial medicine on scientific basis for homoeopathic system of medicine.

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