SCREENING FOR ANTIBACTERIAL AND SELECTED MINERAL COMPONENTS IN THE STEAM DISTILLATE OF *AEGLEMARMELOS*

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Virtually all the Siddha, Ayurvedic ,Unani treatments are based on the use of extracts from medicinal plants. Staphylococcus aureus is a facultative anaerobic gram (+) vecoccal bacterium. Evidence shows that attempting to control Staph.aureus with oral antibiotics is not efficacious. The rise of resistance to antibiotic treatments, is a problem in clinical medicine and biological control therapy helps in the treatment of Staph.aureus infections. Therefore we planned a study to see the efficacy of bael flower distillate in controlling different bacterial species. Steam distillate is called as " Theeneer" in siddha system of medicine. *Aeglemarmelos* belongs to Rutaceaefamily (Tamil Name- Vilvam, English name- Bael fruit tree, Sinhala name- Beli). Steam distillate was prepared by mixing Bael flowers and water in the ratio of 1:20, soak for 24 hours, distillation was carried out in the traditional steam distillation apparatus and the distillate was heated to obtain the final product (Vilvampootheeneer) which was collected and bottled in a sterilized container. In vitro screening for antibacterial activity and mineral composition were carried out using agar well diffusion method and standard AOAC methods respectively.The standard antibiotic Streptomycin shows higher inhibition than the distillate for all tested bacteria.Highest inhibition for*Serratia sp.*(42±0.84mm) followed by *Klebsiella sp.*(38±0.21mm),*E.coli*(35±0.21mm),*Bacillus sp.*(32±0.02mm) ,*Staphyllococcusaureus* (31±0.07mm),and*Proteus vulgaris*(31±0.14mm). *Pseudomonas aerogenosa*was not atall inhibited by standard antibiotic Streptomycin during 48 hrs. incubation period. After 72 hrs of incubation only an inhibition zone was observed for*Pseudomonas aerogenosa*(18±0.35 mm).Distillate also shows remarkable antibacterial effect to all tested bacteria except *Pseudomonas aerogenosa* (*Staph.aureus* 40±0.02 mm, *E.coli* 20±0.01mm, *Klebsiella sp.* 15±0.02mm, *Serratia sp.* 15±0.00mm, *Proteus sp.*15±0.01, *Bacillus sp.* 12±0.14mm).Inhibition of *Staphyllococcusaureus* by distillate was remarkably higher than bacteria tested and increased with time and the inhibition zone was found to be higher than that with Streptomycin after 72 hrs of incubation(15mm,20 mm,40 mm after 24 hrs.,48 hrs., 72 hrs. incubation respectively).Distillate contains some important minerals (Ca^{2+} 5.37 ppm,Mg^{2+} 4.62ppm,NO_3 2.4ppm).Effect of distillate on *Klebsiellasp.*,*Serratia sp.* and *Proteus sp.* is more or less similar. Staphyllococcusaureus is a common causative organism of skin infections, food poisoning (fever,abdominalpain,diaeehea), life threatening diseases like pneumonia,meningitis,osteomyelitis etc.Bael flower distillate can be used as a medicated herbal water and as a substitute for mineral water because it is natural and has good acceptable aroma. If it is bottled and sold, there will be a high demand for this product.Inorder to get the approval for this to be a marketable product, further studies should be carried out to see the microbiological and organoleptic quality changes with time and storage life of this product.

Key words: Bael flower distillate, antibacterial effect, minerals, natural