Preparation, Standardization and Evaluation of Polyherbal Formulations for their Antiseptic and Disinfectant properties

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Abstract

Statement of the problem: The incidence of nosocomial infections is alarmingly increasing & has emerged as a critical issue in hospital care outcome. Skin being the most exposed part of the body requires protection from pathogens. The management of skin infections requires treatment by topical antiseptic and disinfectant formulations; however, synthetic antimicrobials are associated with harmful side effects and alsoit leads to the development of resistance among microbes.

Plants are rich in a wide varietyof secondary metabolites that can be used to treat and control infections.There is a necessity to explore more phytoconstituents and develop safe and effective herbal antiseptic and disinfectant formulations. The purpose of the present study was to formulate, standardize and evaluate the safety, efficacy and stability of herbal formulations.

Methodology: Extracts of ten plants were screened for antimicrobial activity against the selected microorganisms and the active extracts were shortlisted. The selected extracts were subjected to phytochemical screening, quantification of tannins and phenols and chromatographic fingerprinting was carried out. Combinations of extracts were prepared and evaluated for synergistic antiseptic and disinfectant effects and the most active combinations were selected. Eight formulations namely herbal cream, gel, sanitizer, hand wash, soap, tooth paste, mouth wash and tooth powder were prepared using the selected extract combinations and standardized. The safety and efficacy of prepared formulations was evaluated by conducting animal and clinical studies. Accelerated stability studies were performed at the end.

Findings: The active extracts were found to contain phenolic compounds. Extracts when used in combination exhibited synergism. The formulations were found to be safe, stable and more effective. The dental formulations were effective in reducing the dental plaque and oral microbial count.

Conclusion& Significance: It was concluded that the plant extracts when used in combinations exhibited betteractivity as compared to individual extracts. The prepared formulations were safe, stable and significantly effective.

Figure-1: Diagram depicting the importance of herbal antiseptics & disinfectant formulations to combat various factors



Recent publications

1. **Zeeshan Afsar*,** Nethaji Ramalingam, Kumanan R, Babu Ganesan, Vimal KR, Phytochemical analysis, antimicrobial screening and green synthesis of silver nano particles from *Lantana camara* flower extract. Indian Journal of Applied Research 2022; 12(11): 1-3.
2. **Zeeshan Afsar***, S Naveen Kumar, B J Mahendra Kumar, A S Aravind Ram, Syed Aamir, Preparation, antimicrobial evaluation and standardization of polyherbal formulations. Asian Journal of Phytomedicine and Clinical Research 2021; 9(3): 91-107.
3. Syed Asadulla, Salma Khanam, **Zeeshan Afsar***, Comparative qualitative and quantitative phytochemical evaluation of *Embeliaribes*Burm F obtained from different sources. International Journal of Science & Research 2020; 9(3): 246-51.
4. **Zeeshan Afsar***, Salma Khanam, Salahuddin MD, Syed Aamir, Evaluating the disinfectant efficacy of polyherbal formulations containing the extracts of *C fistula, F*

religiosa, M pinnata and *W thyrsoidea*. World Journal of Pharmacy & Pharmaceutical Sciences 2018; 7(10): 1338-1351.

5. **Zeeshan Afsar***, Salma Khanam, Syed Aamir, Formulation & comparative evaluation of polyherbal preparations for their disinfectant effects. International Journal of Therapeutics 2018; 1(1): 54-65.
6. **Zeeshan Afsar***, Salma Khanam, Aravind Ram AS, Evaluation of synergistic antimicrobial efficacy of plant extracts and their formulation as topical agents. International Journal of Research & Development in Pharmacy & Life Sciences 2017; 6(5): 2779-2785.
7. **Zeeshan Afsar***, Salma Khanam, Formulation and evaluation of polyherbal soap and hand sanitizer. International Research Journal of Pharmacy 2016; 7(8): 54-57.
8. **Zeeshan Afsar***, Salma Khanam, Antimicrobial activity of the extracts of *Cassia fistula* and *Milletia pinnata* against ampicillin resistant strains of clinical origin. Asian Journal of Phytomedicine & Clinical Research 2014; 2(1): 22-29.
9. Salma Khanam, **Zeeshan Afsar***, Herbal Disinfectants: A review. World Journal of Pharmaceutical Research 2013; 3(1): 258-273.

Biography



Dr. Zeeshan Afsar has 16 years experience in Teaching and Research. He has authored six books which are related to the field of Natural products, Herbal drugs, Pharmacognosy and Phytochemistry. Dr. Zeeshan Afsar has developed expertise in screening medicinal plants for various activities. He has done extensive research on herbal antiseptics, disinfectants, preparing polyherbal formulations, their standardization and evaluation. He has also evaluated plants for their thrombolytic activity. Dr. Zeeshan is a goodteacher and motivator for students and has guided them in various projects.

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