V SUMMARY

Pharmaceutical product ranks next to the food products i.e., second in the world market, which throws light on the importance and utility value of drugs to the society. Ethnopharmacologists, botanists, microbiologists, and natural-products chemists are combing the Earth for phytochemicals and "leads" which could be developed for treatment of infectious diseases. While 25 to 50% of current pharmaceuticals are derived from plants, none are used as antimicrobials. Traditional healers have long used plants to prevent or cure infectious conditions.

This work deals with the discovery of a new herbal drug capable of controlling the growth and multiplication of human pathogenic fungus, Candida albicans and curing the candidiasis. This fungus was considered to be more problematic since it not only causes superficial infection affecting skin, mucous membrane, eyes, nails, etc, but also causes systemic infection affecting respiratory, circulatory, reproductive and nervous systems.

About 31 plants referred to in the Siddha, Ayurveda, Unani and other traditional systems of medicine in India as having antifungal activity and a herbal preparation made by us were selected. Selection of a vaginal isolate from I.B.M.S from among Candida albicans isolates was made as well as a MTCC (No: 227)
strain was supplied to us both of which were used for study. Characteristic features, culture conditions and biochemical tests and TEM studies were done for both the isolate and MTCC strain to confirm the organism as Candida albicans. Conditions for maintaining them were also standardized.

Standardization of in-vitro antifungal assay by agar disc diffusion assay (Kirby - Bauer method) was done and plant extracts of various solvents of different concentrations and a herbal preparation formulated by us were tested. The treatment that shows significant zone of inhibition against the fungus were chosen. These were subjected to phytochemical tests. The herbal preparation was found to be more effective than other treatments and hence this treatment was used for further analysis. This herbal preparation was made into an ointment form in white petroleum jelly base and was used in preclinical trials in animal model (Wister rat), to study its activity, side effects, toxicity, effective concentration and safety. The preclinical trials have been carried out in this model by causing dermal wounds, followed by inducing candidiasis and application of the drug to cure it. Incidence of infection, its proliferation and cure were all studied and substantiated by KOH mount study of skin scrapings in the wound area. Along with this wound healing activity, effective concentration of the formulation was studied by comparing with standard antifungal agent Amphotericin B.

Effectiveness of the herbal preparation against the superficial candidiasis in human beings was further confirmed by performing clinical trials (Phase I). The preparation was found to be effective against both superficial candidiasis and tineasis.