CHAPTER 7 CONCLUSION

The intricate network that makes up our immune system is vital to our defense against external diseases and damaging stimuli. The two different immune units that the immune system uses to function are innate immunity and Adaptive defense. The first line of defense for the host is the innate immune response. Defense, but the development of an adaptive immune response takes several days. Into operation. If our body is under attack from an invasive pathogen or damaging stimuli Inside of our bodies, a complicated series of processes take place that entail the function of several types of inflammatory cells, such as macrophages and neutrophils, and is referred to as the inflammatory reaction, and inflammation is the name given to the process. Generally speaking, there are two types of inflammation based on the duration and severity.

Numerous medications have been created to date to lessen inflammation. Illness produced by the body, such as those treated with traditional NSAIDs, etc. However, these traditional medications have long been known to have negative effects. People have been anticipating the application of organic phytochemicals in medicine. Understanding Ayurveda and the traditional remedies utilized in the area have always searched for when creating novel medications for a range of illnesses. The current investigations are intended to provide a revolutionary medicine delivery method, such as the transdermal patch.

The study comprises standardizing seed extracts from the *Simmondisiachinesis family of Simmondsiaceae and the B. Lanzan family of Anacardiaceae* using a variety of characteristics, such as ash value, extractive value, and loss on drying, preliminary phytochemical screening, and fluorescence analysis. After standardization, the chemical components and % yield were extracted for additional screening. Following drug characterization, pre-formulation experiments were conducted to determine the drug's organoleptic properties.

- The drugs were examined for its organoleptic properties like colour and odour and it was observed that *B. lanzan* was light yellow and *S. Chinesis* Pale yellow colored liquid.
- The calibration curve was plotted between concentration and absorbance. The correlation coefficient 'r^2' values were calculated as 0.999 and 0.998 for colchicine the parameters are listed in Table 6.3.
- FTIR spectrum for both the drugs was compared with the standard spectrum. It was observed that there are similar peaks for functional groups in the standard spectrum

which was reported in pharmacopeia and the spectrum was found to be compatible for each other. This shows that the drugs are pure.

- From above analysis it was found that the saponification values obtained for both the oils were within the range of their standard values. It can be said that the saponification value of *Buchananialanzan* possesses high saponification value. The lower acid value shows low rancidity of oil. But higher value which was found in the case of *simmondsia chinesis* shows more rancid than other one. The percent free fatty acid and glycerol varied from 2.26% to 8.83% and 1.02% to 14.2% respectively.
- It was found that the pH of formulations fall under range of 6.70 to 7.95 which shows its acceptability towards application to skin as all the values are close or near neutral pH. It means the optimized gel was compatible with skin.
- No any sign of irritation was observed upon topical application of gel, evidences towards the safety profile of gel.
- The acute toxicity was performed on albino mice. Acute toxicity studies reveled that, no any abnormalities were shown by the mice throughout the study.
- Prepared gel formulations were subjected to skin irritation test and allotted score depending on the reaction shown on the skin of volunteers the score below 2 shows acceptability of gel formulations to be applied on skin.
- The optimized gel showed acceptable physical properties, pH, viscosity, spreadability, and extrudability..
- The release of Phytoconstituents would in controlled manner at the site of action thereby decrease the possible side effects.
- The zero-order plots were found to be fairly linear. In order to determine the exact mechanism of drug release from liposomal gel the *in vitro* release data were fitted to Korsmeyer Peppas equation and the ‘n’ values were calculated. ‘n’ values were found to be in the range of $0.5<n<1.0$, which suggests that the drug release mechanism from the gel followed non- Fickian diffusion mechanism (Anomalous transport). Liposomal gel released drug in controlled release manner in 12hour but in case of marketed formulation there is no controlled release of drug from gel.
- Additionally, the formulation stored in the cool condition for stability purpose over a period of four weeks no any change in content of the formulation.

GOAT SKIN DRUG RELEASE

- Mathematical models play a vital role in the interpretation of mechanism of drug release from a dosage form. It is an important tool to understand the drug release kinetics of a dosage form. The drug release was found to be best fitted by Higuchi square root model r2 =0.865 for BL4 which implies that release of drug as a square root of time dependent process and diffusion controlled. The dissolution data was also plotted according to Hixson –Crowell model r2 =0.9182 for BL4 which describes that change in surface area and diameter of the formulation with the progressive dissolution as a function of time. Also, the model Korsmeyer-Peppas power law equation states the type of diffusion, which was evaluated by value, n (Release exponent) which is higher than 0.875 which implies that the drug release from the system follow Super case II transport
- The drug release was found to be best fitted by Higuchi square root model r2 =0.865 for BL5 and r2 =0.8365 for BL6 which implies that release of drug as a square root of time dependent process and diffusion controlled. The dissolution data was also plotted according to Hixson –Crowell model r2 =0.9182 for BL5 and r2 =0.9725 for BL6 which describes that change in surface area and diameter of the formulation with the progressive dissolution as a function of time. Also, the model Korsmeyer-Peppas power law equation states the type of diffusion, which was evaluated by value, n (Release exponent) which is higher than 0.875 which implies that the drug release from the system follow Super case II transport
- Mathematical models play a vital role in the interpretation of mechanism of drug release from a dosage form. It is an important tool to understand the drug release kinetics of a dosage form. The drug release was found to be best fitted by Higuchi square root model r2 =0.7343 for SCO4 and r2 =0.865 for SCO5 and r2 =0.7652 for SCO6 which implies that release of drug as a square root of time dependent process and diffusion controlled. The dissolution data was also plotted according to Hixson –Crowell r2 =0.8631 for SCO4 and r2 =0.8282 for SCO5 and r2 =0.9182 for SCO6 which describes that change in surface area and diameter of the formulation with the progressive dissolution as a function of time. Also, the model Korsmeyer-Peppas power law equation states the type of diffusion, which was evaluated by value, n (Release exponent) which is higher than 0.79 which implies that the drug release from the system follow Super case II transport

SNAKE SKIN DRUG RELEASE

- Mathematical models play a vital role in the interpretation of mechanism of drug release from a dosage form. It is an important tool to understand the drug release kinetics of a dosage form. The drug release was found to be best fitted by Higuchi square root model r2 =0.865 for BL4 and SCO4 and r2 =0.865 for BL5 and SCO5 and r2 =0.865 for BL6 and SCO6 which implies that release of drug as a square root of time dependent process and diffusion controlled. The dissolution data was also plotted according to Hixson – Crowell r2 =0.9182 for BL4 and SCO4 and r2 =0.9182 for BL5 and SCO5 and r2 =0.0.9182 for BL6 and SCO6 which describes that change in surface area and diameter of the formulation with the progressive dissolution as a function of time. Also, the model Korsmeyer-Peppas power law equation states the type of diffusion, which was evaluated by value, n (Release exponent) which is higher than 0.8751 which implies that the drug release from the system follow Super case II transport