6 CONCLUSION

In the present investigation an attempt has been made to prepare and characterise the raupya bhasma. Characterisation of raupya bhasma using modern analytical techniques enhances its acceptability in modern medicine. On the basis of analysis using Zeta sizer it was concluded that the size of raupya bhasma lies in nano range. It means raupya bhasma is the ancient concept of silver nanomedicine/nanoparticle. SEM data confers that raupya bhasma is crystalline in nature. It was further supported by XRD. On the basis of XRD pattern, it is also concluded that raupya bhasma is composed of oxide of silver. FT-IR data confirms that bhasma is free from any organic impurity. Silver content was determined using ICP-MS method. Thermogram of TGA can be used as a standard for evaluating raupya bhasma. The study is important because of the fact that raupya bhasma was standardised for the first time by modern analytical techniques which can be used as a standard to ensure the quality.

Anti-inflammatory activity of raupya bhasma was determined using protein denaturation method, using egg albumin obtained from hen’s egg. It was found that rapya bhasma posses better anti-inflammatory activity than declofenac sodium. From the IC$_{50}$ values it became evident that raupya bhasma is more active than diclofenac sodium, being effective in lower concentrations. The anti-denaturation effect was further supported by the change in viscosy. It has been reported that the viscosity of protein solution increases on denaturation.

The present investigation is significant because of the fact that anti-inflammatory activity of raupya bhasma has been reported for the first time.

Ulcerative colitis is a condition of inflammation of colon, raupya bhasma could be a suitable candidate for treatment of ulcerative colitis. Moreover, it could also be used for other inflammatory diseases like oxidative stress, tumour necrosis factor alpha, interleukins which are related to denaturation of proteins and are the mediator of inflammation, in addition also the causative factors of cancer.
Chapter 6: Conclusion

Anti-cancer (colon cancer) activity of raupya bhasma was determined by MTT assay using HCT 118 cell lines and it was found that raupya bhasma possess better anti-cancer activity as compared to 5-FU. The anti-cancer activity of raupya bhasma was determined for the first time in this study.

The study is also important because formulation of raupya bhasma (microsphere and coated granules) was prepared for the first time for targeting to colon. It enhances the efficacy at lower dose.

In vitro drug release has been carried out using human faecal content and goat caecal content. But both methods are not convenient either at laboratory scale or at industry scale. So the present study realises the usage of probiotic culture in dissolution media to mimic the colonic microflora conditions in order to evaluate in vitro drug release behavior of formulations meant for colonic delivery. The novel approach exploits development of dissolution media used for evaluating drug release of pharmaceuticals meant for colon specific drug delivery. More specifically, it pertains to the development of animal sparing dissolution media for testing the drug release of polysaccharide based formulations used for colon specific drug delivery.