Objective of the present work:

Inflammatory bowel disease (IBD) is an umbrella term which includes Crohn's disease and ulcerative colitis. IBD can be seen most frequently in the early adult life. Most widely used classes of drugs for the therapy include 5-amino salicylic acid (5-ASA) drugs (Pertuit et al., 2007), steroids and immunosuppressant (long term therapy). All these classes are potent enough but are not devoid of side effects. For example 5-ASA drugs causes anemia, skin rashes, heart burn, reduced sperm count during therapy and are to be taken in high doses. Corticosteroids are associated with hypertension, diabetes, insomnia, osteoporosis, muscle weakness, delayed healing, peptic ulcers, glaucoma, growth retardation, psychiatric disturbances and weight gain while immunosuppressant cause bone marrow suppression, blood problems, kidney and liver damage (Gurudu et al., 2002). The risk of reoccurrence of the disease and colon carcinoma is more if these diseases are not properly treated. So, curcumin was selected as a drug in order to treat these diseases because it has been found to be safe and effective molecule, which is also proved to be a potent anti-inflammatory (Negi et al., 1999; Ramsewak et al., 2000), anticancer (Kawamori et al., 1999) and antioxidant (Ruby et al., 1995; Motterlini et al., 2000). It can be used up to 8 gram per day in human volunteers (Cheng et al., 2001).

Oral delivery of curcumin is associated with intestinal metabolism which renders biologically less active components. It is also reported that curcumin has poor bioavailability and it is unstable in basic and neutral pH conditions. Considering all the above, this project undertaken for site specific delivery of curcumin to the colon by formulating encapsulated and compressed dosage forms that retard the drug release in the tracts of the upper GIT (stomach and small intestine). Compressed dosage form consists of biodegradable polysaccharide as the main constituent; the dosage form is degradable by a wider range of microbial species and shows rapid drug release in the presence of degradable polysaccharides in the tablet. Working on this rationale, the aim was to develop oral colon targeted formulation using natural polysaccharides remain undigested in the stomach and small intestine and are degraded by the vast anaerobic microflora or pH of the colon, e.g., bacteroides, bifidobacteria, eubacteria, and clostridia to smaller monosaccharides, which are then used as energy source by the bacteria (Singh et al., 2012).