OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference and Exhibition on
Biowaivers & Biosimilars
September 23-25, 2013 Hilton Raleigh-Durham Airport at RTP, NC, USA

# Effect of superdisintegrating agent and osmogens on metronidazole loaded colon targeting drug delivery system

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Site-specific drug delivery (colon-targeting delivery) system is widely used for the management of colonic diseases like inflammatory bowel disease (ulcerative colitis and crohn's disease) and colon cancer, and provides local delivery of drug for the treatment of colonic diseases, where it is necessary to attain high drug concentration.

The Site-specific colon targeted system containing metronidazole using various natural biodegradable polymers i.e. guargum, xanthan gum, carragennan and pectin alone or in combination as a coating material. The polymeric films were characterized for their physical appearance, influence of disintegrating agents on the water uptake, hardness, and disintegration time and *in-vitro* release.

*In vitro* dissolution studies showed that metronidazole bearing tablets coated with polymeric blend containing guar gum, xanthan gum and carrageenan in ethanol:water 50:50 solvent released drug in simulated gastrointestinal conditions mainly at colonic environment. The release of drug was drastically reduced; regression coefficient value r2 and $T_{lag}$ time of the formulations were varied due to presence of disintegrating agents and osmogens. Results indicated that the nature of drug transport of coated formulations showed supercase-II type release. Statistical analysis of release data indicated that release pattern of metronidazole is significantly affected by the nature of polysaccharide used for coating and coating composition. The presence of superdisintegrant/ osmotic agent inside core formed time-controlled drug delivery systems that could facilitate drug delivery into different segments of the gastro intestinal tract [GIT] depending upon the coat weight and the type of these agents. The result concluded that the formulations containing superdisintegrating agent (24 mg) showed a best drug delivery system for colon targeting.

## Biography

Abhishek Kumar Jain has completed his Ph.D. at the age of 30 years from Department of Pharmaceutical Science, M. L. Sukhadia University, Udaipur, India. He is the Associate Professor, Department of Pharmaceutics, Sagar Institute of Research and Technology-Pharmacy, India. He has published more than 19 papers in reputed journals and serving as an editorial board member of 4 reputed journals and as a reviewer in 5 journals.

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