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Formulation and evaluation of press-coated montelukast sodium tablets for pulsatile drug delivery system

Patil S V, Patil S S, Sahoo S K and Janugade B U
Ashokrao Mane College of Pharmacy, India

Pulsatile drug delivery system is having foremost applications in chronotherapeutics where the delivery device is capable of releasing drug after predetermined time-delay refers to a lag time. In the current study, an oral press-coated tablet of montelukast sodium was prepared using direct compression and wet granulation methods to achieve the predetermined lag time preferred in the nocturnal asthmatic attacks. This press-coated tablet was formulated containing inner core with drug and outer barrier layer with different compositions of hydrophobic polymer ethylcellulose and hydrophilic polymer low-substituted hydroxypropylcellulose. Press coated tablets have shown distinct lag time from 30 minutes to 5 hours. It has signified that lag time decreases with increasing weight ration of low-substituted hydroxypropylcellulose and decreasing that of the ethyl cellulose. The tablet has shown highest lag time of five hours with ethylcellulose and lowest lag time of 30 minute with low-substituted hydroxypropylcellulose. Press coated tablets coated by dry mixing and by wet granulation showed significant variations in lag time. As compared to dry mixed blend method wet granulation method has shown a decrease of lag time.

sachinpatil79@rediffmail.com