liver metabolism and presence of food. The second category represents physicochemical properties of a drug, including solubility, intestinal permeability, drug pKa, lipophilicity, stability, surface area and particle size. The third category contains dosage form factors, such as solution, capsule, tablet, suspension and formulation additives (Karalis et al., 2008).

1.1.4. Advantages and disadvantages of oral drug delivery

Oral drug delivery offers several advantages, but also disadvantages, depending on the nature of the drug being delivered. The advantages of the oral route for drug delivery include firstly, the cost of oral therapy is generally much lower in comparison to parenteral and other routes of delivery. Secondly, compared to all other possible routes of drug delivery, oral drug administration is the most common and convenient administration method and demonstrates high patient acceptability and compliance. Thirdly, the total surface area of the small intestine in humans is approximately 200 m^2, which represents a large effective surface area for drug absorption. Fourthly, rich blood supply because the vascular surface of the gastrointestinal mucosa ensures rapid absorption and onset of action, as well as the maintenance of sink conditions. Fifthly, prolonged retention of the drug moiety is possible within the GIT, if the appropriate delivery system is used. This allows a lowering of the dosing frequency. Finally, the oral drug delivery offers the potential to achieve zero-order controlled release and the controlled release offers the further advantages of avoiding the peaks (risk of toxicity) and troughs (risk of ineffectiveness) of conventional therapy, reducing the dosing frequency, and increasing patient compliance (Zhang et al., 2002; Patel et al., 2011).