



# ***INNOPHARM3***

**22-23 OCTOBER 2018**

3rd International Conference on  
Academic and Industrial Innovations:  
Transitions in Pharmaceutical, Medical and Biosciences

**ABSTRACT BOOK**



# DESIGN AND DEVELOPMENT OF ROBOTIC JAW FOR THE *IN VITRO* DISSOLUTION TESTING OF MEDICATED CHEWING GUM

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## **ABSTRACT**

Chewing gum is an emerging alternative drug delivery system for oral and per oral route. It is gaining the popularity because of many advantages like fast absorption, bypass first pass effect and effective buccal drug administration for treating the local diseases. *In vitro* drug release study parameters and equipments for the conventional dosage form like tablets and capsules are very much established and referred in the official compendia. However, these equipments and methods are not suitable for studying the drug release from the chewing gum as it involves process of continuous mastication to release the active ingredients. In the present study, we have developed a simple, robust and economical robotic *in vitro* dissolution tester. Here, we described the design, working and testing parameter of the robotic jaw. To simulate the mastication process, upper and lower jaw was made by using tension adjustable impact plate equipped with crank shaft was designed. The PC interface was used to setup and simulate the parameters like chewing stroke pressure, frequency, temperature of salivary fluid. The impact plate crushes the chewing gum with pre-defined force and chewing frequency. The performance of robotic dissolution tester was evaluated using self formulated chlorhexidine gluconate chewing gum. The drug release from the chewing gum was found to be predictable and reproducible confirming the right designing and fabrication of the instrument. This developed robotic jaw can be used for *in vitro* drug release study of chewing gum dosage form.

**Keywords:** Chewing gum, *In vitro* dissolution testing, Robotic jaw, Mastication parameters