Pharmacophore

ISSN-2229-5402



Journal home page: <u>http://www.pharmacophorejournal.com</u>

ENHANCEMENT OF PIOGLITAZONE HYDROCHLORIDE SOLUBILITY THROUGH LIQUISOLID COMPACT FORMULATION USING NOVEL CARRIER NEUSILIN US2

Bhushan Rajendra Rane^{1*}, Dnyaneshwar Sopan Gaikwad¹, Ashish Suresh Jain², Prashant Lakshaman Pingale³, Nayan Ashok Gujarathi⁴

- 1. Department of Pharmaceutics, Shri D. D. Vispute College of Pharmacy & Research Centre, Panvel-410221, India.
- 2. Department of Pharmacognosy, Shri D. D. Vispute College of Pharmacy & Research Centre, Panvel-410221, India.
- 3. Department of Pharmaceutics, GES's Sir Dr. M. S. Gosavi College of Pharmaceutical Education and Research, Nashik-422005, India.
- 4. Department of Pharmaceutics, SVKM's Institute of Pharmacy, Dhule-424001, India.

ARTICLE INFO

ABSTRACT

Main objective behind formulating any dosage form is to develop the optimized and stable dosage Received: from which will releae the drug fastly in conventional formulations. Various approaches such as, 28 Mar 2022 solid dispersion, crystal engineering, ball milling, complexation, and self-emulsifying drug delivery Received in revised form: systems have all been used in recent research to increase the solubility of the drug, but the 05 Jun 2022 liquisolid compact has demonstrated superior results for enhancing dissolution. In most of the cases Accepted: absorption of drug is less which is due to various factors one of the most important factor is drug solubility. Liquisolid compacts are a novel and promising addition to such a novel goal because the 10 Jun 2022 liquisolid technology has been successfully used to treat low-dose poorly soluble drugs. A Available online: thiazolidinedione, pioglitazone HCl is primarily prescribed to type 2 diabetics as an anti-28 Jun 2022 hyperglycemic medication. Compared to traditional carrier materials, Neusilin US2 performs better as a carrier material in liquisolid compact. Drugs from BCS Class II can be easily formulated using liquisolid compact by the simple blending method. A drug having a low dose can be formulated by Keywords: Thiazolidinediones, this method. Pioglitazone HCl, Diabetic, Liquisolid technology, Poorly soluble Copyright © 2013 - All Rights Reserved - Pharmacophore drugs, Neusilin US2

To Cite This Article: Rane BR, Gaikwad DS, Jain AS, Pingale PL, Gujarathi NA. Enhancement of Pioglitazone Hydrochloride Solubility Through Liquisolid Compact Formulation Using Novel Carrier Neusilin US2. Pharmacophore. 2022;13(3):64-71. https://doi.org/10.51847/aJMSk1Iooy

Introduction

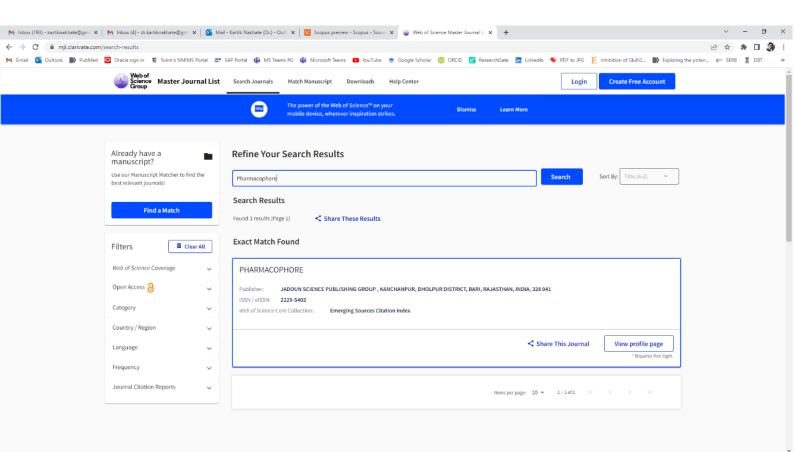
The efficacy of the drug depends on the availability of bioavailability depending on the melting of the drug cells. One of the most crucial factors in achieving the desired drug concentration in the distribution system to reflect the drug response is solubility. Drugs with a low solubility in water will ordinarily release at a slower rate due to their low solubility in GI content. The dissolution rate is the process that determines how quickly drugs are absorbed. To speed up the rate of dissolution, drugs that are poorly water soluble are in demand. Contrarily, this enhances bioavailability and absorption. There are ongoing developments in formulation techniques for improving poorly soluble substances' dissolution [1].

Liquisolid compacts are one of the most innovative and promising approaches to encourage the eradication of waterinsoluble medications among them. Liquisolid compacts are pills or tablets that release immediately or continuously after being swallowed, along with the addition of any necessary adjuvants for tablets or encapsulating them [2].

With a neutral pH, Neusilin® US2 is a synthetic, amorphous magnesium aluminum oximetasilicate that can be utilized for both wet granulation and direct compression of solid dosage forms [3].

Only if a maximum liquid load on the carrier material is not exceeded can one obtain an acceptable flowing and compressible liquid-solid system depending on the excipient ratio (R) of the powder substrate. The weight ratio of the liquid formulation (W) and the carrier material (Q) in the system is known as the "liquid/carrier ratio" or "liquid load factor" (Lf [w/w]) [4]:

Corresponding Author: Bhushan Rajendra Rane; Department of Pharmaceutics, Shri D. D. Vispute College of Pharmacy & Research Centre, Panvel-410221, India. E-mail: rane7dec@gmail.com.



Type here to search	ं 🔁 🕐	Ħ	Î			0	۲	🧑 Web of Science Ma	2021-22	X∄_Data-Criterion 3_2	[] 15 Enhancement of	?	🥚 34°C Sunny 🔨 /	∉ d≫ ENG 17:01 □
---------------------	-------	---	---	--	--	---	---	---------------------	---------	-----------------------	----------------------	----------	------------------	------------------