

PERFORMANCES OF PREGELATINISED SAGO STARCH (PS) AS DIRECTLY COMPRESSIBLE EXCIPIENT IN TABLET FORMULATIONS

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Abstract

This study evaluates the performances of pregelatinised sago starch (PS) as a directly compressible excipient in tablet formulations using Paracetamol as a model drug in comparison to Avicel PH 101 and Spress® B820. All formulations produced tablets of good physical characteristics. Paracetamol tablets formulated with Avicel PH 101 (Formulation 1), Spress® B820 (Formulation 2) and PS (Formulation 3) exhibited satisfactory disintegration properties. Only Formulation 1 did not comply with the USP for dissolution requirement. Introducing Avicel PH 101 and sodium starch glycolate into Formulation 2 and 3, labeled as Formulation 4 and 5 respectively, notably decreased compression pressure required to produce desired tablet hardness, shortened disintegration time and increased the dissolution rate. Formulation 4 and 5 also exhibited equivalent dissolution profiles, possibly similar in bio-equivalency and stable under accelerated stability study. Overall, the performances of PS are satisfactory; thus, PS is superior against Avicel PH 101 and comparable to Spress® B820.

Key words: sago, starch, pregelatinised, performance, formulation, tablet

1. Introduction

Direct compression is a preferred method in manufacturing tablets as it offers simplicity and cost effectiveness (Bolhuis and Chowhan ,1996; Govedarica et al., 2011; Patel and Patel, 2009; Shankar et al., 2012; Weisser et al. 2001). In direct compression, tablets are formed by compressing directly from the powder mixtures consisting of drug(s) and suitable material aids which are also known as directly compressible excipients (Bolhuis & Chowhan, 1996; Weisser et al., 2001). The urgency of directly compressible excipient(s) in this matter is based on the fact that most drugs are poorly compressible (Marwaha et al., 2010; Gohel and Jogani, 2005; Shangraw, 1989).

Spray dried lactose is the first excipient designed for direct compression; it was introduced in the early sixties (Bolhuis and Chowhan, 1996). Since then, many excipients had been introduced in the pharmaceutical market as directly compressible excipients. For instance, corn starch has been successfully modified into pregelatinised form and marketed as flowable and compressible starch with commercial name Uni-pure® DW (National Starch & Chemical Co., USA), Uni-pure® LD (National Starch & Chemical Co., USA), Starch® 1500 (Colorcon Inc., USA) and Spress® B820 (Grain Processing Corp., USA).

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PharmSciTech 2003, 4(4), 1 – 11.