

Effect of feed powder quantity and compression pressure on the tensile strength of Eurycoma longifolia Jack tablets using different binders

ABSTRACT

This study investigated the direct compression properties of Eurycoma longifolia Jack tablets using binary mixtures such as microcrystalline cellulose (mcc) and κ -carrageenan (carr). The mixtures were compacted to various compression pressures ranging from 7.5 to 74 MPa at a constant compression speed of 5 mm/min. The tensile strengths of the tablets were determined by a diametral compression test. A linear relationship between the tensile strength and the compression pressure was observed under the conditions of the test; hence, the slopes of the data were obtained by fitting linear trend lines. This paper shows that binary mixtures of 30% mcc and 70% Eurycoma longifolia Jack give the highest values for constant (a slope) compared with the other binary mixtures of both binders. Thus, this approach can be used to develop formulations for Eurycoma longifolia Jack tablets.

Keyword: Eurycoma longifolia jack; Microcrystalline cellulose; κ -Carrageenan; Binary mixture; Tensile strength