

Optimization of Pregelatinized Taro Boloso-I Starch as a Direct Compression Tablet Excipient

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Abstract : Background: Tablets are still the most preferred means of drug delivery. The search for new and improved direct compression tablet excipients is an area of research focus. Taro Boloso-I is a variety of *Colocasia esculenta* (L. Schott) yielding 67% more than the other varieties (Godare) in Ethiopia. This study aimed to enhance the flowability while keeping the compressibility and compactibility of the pregelatinized Taro Boloso-I starch. Methods: Central composite design was used for the optimization of two factors which were the temperature and duration of pregelatinization against 5 responses. The responses were angle of repose, Hausner ratio, Kawakita compressibility index, mean yield pressure and tablet breaking force. Results and Discussions: An increase in both temperature and time resulted in decrease in the angle of repose. The increase in temperature was shown to decrease the Hausner ratio and to decrease the Kawakita compressibility index. The mean yield pressure was observed to increase with increasing levels of both temperature and time. The pregelatinized (optimized) Taro Boloso-I starch could show desired flow property and compressibility. Conclusions: Pregelatinized Taro Boloso - I starch could be regarded as a potential direct compression excipient in terms of flowability, compressibility and compactibility.

Keywords : starch, compression, pregelatinization, Taro Boloso-I

Conference Title : ICPP 2023 : International Conference on Pharmacy and Pharmacology

Conference Location : Cape Town, South Africa

Conference Dates : November 06-07, 2023