Effect of glidant in the formulation of goat milk tablet

Nurul Issttifaiyah Aminuddin, ***Mohd Akmal Azhar****

Faculty of Chemical and Process Engineering Technology, Universiti Malaysia Pahang, 26300 Pahang, Malaysia

ABSTRACT

Milk is an essential part of children's diets and can help them grow and develop properly. Goat milk is an excellent source of nutrition, providing a number of important vitamins and minerals. Despite this, the consumption of milk decreases as children grow older, mainly due to the availability of alternative drinks and an aversion to its taste. Therefore, this study aims to develop goat milk in the form of tablets using direct compression methods. This study focuses on improving goat milk's flowability and compressibility by changing the talc amount as a glidant used in the formulation. Six formulations containing 2% to 12% talc were prepared, designated F1 through F6. The results showed that adding talc as the glidant component improved the flowability of the blended powder, with the highest flowability observed at 10% talc concentration in formulation F5. It improved the flowability from “very, very poor” to “passable”, as determined by the USP standard. However, the flowability drops with excess glidant concentration, which is 12%. This study highlights the importance of glidants in improving powder flowability and the need for using suitable concentrations to prevent negative effects on the product's quality. Thus, pure goat milk in the form of liquid can be replaced by goat milk tablets prepared by the direct compression method. The compressibility and flowability of the powder mixed with the goat milk formulation were successfully improved, with good tablet hardness, uniformity of weight and a low friability index.

KEYWORDS

Goat milk; Direct compression; Tablet dosage; Glidant; Flowability; Talc

ACKNOWLEDGEMENTS

This study was supported by a grant (RDU220345) from Universiti Malaysia Pahang.

REFERENCES

[1] S. Chauhan, P. Powar, R. Mehra, A review on nutritional advantages and nutraceutical properties of cow and goat milk, Int. J. Appl. Res. 7 (2021) 101– 105.

[2] M. Akmal Azhar, N. Salim, Isolation and molecular characterization of local goat milk casein for nutraceutical value, MATEC Web Conf. (2017).

[3] R. Panta, V.K. Paswan, P.K. Gupta, D.N. Kohar, Goat's Milk (GM), a Booster to Human Immune System against Diseases, in: S. Kukovics (Ed.), Goat Science, IntechOpen, Rijeka, 2021.

[4] N. Khaowphan, A. Mitrevej, N. Ruangwises, Nutritional values and stability of goat milk tablets, Mahidol Univ. J. Pharm. Sci. 37 (2010) 12–20.

[5] N.S. Umar, M.D.M. Rani, Z.A. Rahman, K.N.N. Aripin, F.H. Addnan, M.S.M. Aris, et al., Goat's milk consumption among Muslim Malaysian residents in Pulau Langkawi, Kedah. Adv Sci Lett 23 (2017) 4660–4663, https://doi.org/10.1166/ASL.2017.8896.