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Self-microemulsifying, Reconstituted Granules for Oral Administration of Curcumin: Development and *In Vitro* Characterization

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***SUMMARY*. Self-microemulsifying, reconstituted granules for oral administration of curcumin were prepared using a wet granulation technique. Mannitol and lactose were used as solid carriers, and SCMC, acacia and PVP K-30 as binders. Granule flow properties were evaluated by bulk and tapped densities, angle of repose, Carr's index, and Hausner ratio and deemed to be passable to good. Scanning electron microscopy revealed that increased binder concentrations results in condensed granules with smoother surfaces. The optimal granule formulation exhibited complete solubility and presented as a spherical microemulsion with a droplet size of 36.13 ± 0.08 nm. The antioxidant activity of the optimized formulation was equivalent to ascorbic acid and higher than that of butylated hydroxytoluene. Reconstituted granules containing self-microemulsifying curcumin could provide a potential approach to deliver poorly water soluble compounds for oral administration.**

RESUMEN. Se prepararon gránulos reconstituidos automicromulsionantes para la administración oral de curcumina usando una técnica de granulación húmeda. El manitol y la lactosa se usaron como portadores sólidos, y SCMC, acacia y PVP K-30 como aglutinantes. Las propiedades de flujo de los gránulos se evaluaron mediante densidades aparejadas y medidas, ángulo de reposo, índice de Carr y relación de Hausner, y se consideró que eran aceptables a buenas. La microscopía electrónica de barrido reveló que el aumento de las concentraciones de aglutinante da como resultado gránulos condensados con superficies más lisas. La formulación óptima de los gránulos exhibió solubilidad completa y se presentó como una microemulsión esférica con un tamaño de gotita de 36,13 ± 0,08 nm. La actividad antioxidante de la formulación optimizada fue equivalente a la del ácido ascórbico y más alta que la del hidroxitolueno butilado. Los gránulos reconstituidos que contienen curcumina automicroemulsionante podrían proporcionar un enfoque potencial para administrar compuestos poco solubles en agua para administración oral.

KEY WORDS: curcumin, reconstituted granules, self-microemulsifying formulation.

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