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Design and Optimization of Controlled Release Ketoprofen Tablets

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***SUMMARY*.The aim of this study is to develop and optimize controlled release ketoprofen formulations using central composite design (CCRD) (Design Expert software, version 7.0.0). Fifteen different formulations (F1-F15) were designed by response surface methodology with CCRD. All the formulations are compressed by direct compression method. Microcrystalline cellulose (Avicel PH-102) (30-45%), methocel K4M (15-25%) and magnesium stearate (1-2%) were selected as independent variables while % friability, % drug reléase, and Carr's index were chosen as a response variables. Different physico-chemical tests were performed. Results were found to be in adequate limits. It was found that central composite design can be used as cost effective tool for optimization and development of controlled release formulations.**

RESUMEN. El objetivo de este estudio es desarrollar y optimizar las formulaciones de liberación controlada de ketoprofeno utilizando el diseño compuesto central (CCRD) (Design Expert software, versión 7.0.0). Quince formulaciones diferentes (F1-F15) fueron diseñadas por la metodología de superficie de respuesta con CCRD y comprimidos por el método de compresión directa. Celulosa microcristalina (Avicel PH-102) (30-45%), Methocel K4M (15-25%) y estearato de magnesio (1-2%) fueron seleccionados como variables independientes, mientras % de friabilidad, liberación del fármaco %, y el índice de Carr se eligieron como variables de respuesta. Se realizaron diferentes pruebas físico-químicas. Los resultados estuvieron dentro de los límites, confirmando que el diseño compuesto central se puede utilizar como herramienta de costo eficaz para la optimización y desarrollo de formulaciones de liberación controlada.

KEY WORDS: Controlled release, Direct compression, Ketoprofen, Optimization.

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