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Formulation Development and Optimization of Rapidly Disintegrating Tablet (RDT) of Piroxicam 20 mg using Central Composite Design

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***SUMMARY*. In the present research work, rapidly disintegrating tablets (RDT) of piroxicam were designed by Design Expert® software and optimized. The RDT formulation was developed considering croscarmellose sodium and crospovidone as independent varibles. Disintegration time, *in vitro* dispersion time, and wetting time were considered as reponses. Different pharmacopeial and non-pharmacopeial tests including hardness, friability, disintegration time, assay, and dissolution on the developed tablets were performed. *In vitro* dispersion wetting time and water absorption testing were performed additionally to characterize RDTs. Among nine different formulations (P4, P6, P8, and P9)showed better results and were considered for further studies. Accelerated stability studies were also performed on selected formulations. P4 showed better shelf life of 14.83 months and was considered as optimized formulation.**

RESUMEN. En el presente trabajo de investigación, tabletas de desintegración rápida (RDT) de piroxicam fueron diseñadas por el software Design Expert® y optimizadas. La formulación de RDT se desarrolló considerando la croscarmelosa de sodio y la crospovidona como variables independientes. El tiempo de desintegración, el tiempo de dispersión *in vitro* y el tiempo de humectación se consideraron como respuestas. Se realizaron diferentes pruebas farmacopeicas y no farmacopeicas que incluyen dureza, friabilidad, tiempo de desintegracion, ensayo y disolución en las tabletas desarrolladas. El tiempo de humectación de la dispersión *in vitro* y las pruebas de absorción de agua se realizaron adicionalmente para caracterizar las RDT. Entre nueve formulaciones diferentes P4, P6, P8 y P9 mostraron mejores resultados y se consideraron para estudios adicionales. También se realizaron estudios de estabilidad acelerada en formulaciones seleccionadas. P4 mostró una mejor vida útil de 14.83 meses y se consideró como una formulación optimizada.

KEY WORDS: croscarmellose sodium, crospovidone, piroxicam, rapidly disintegrating tablet.

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