

Cocrystals of ethenzamide with polyphenols: Solid state characterization and preliminary evaluation of biopharmaceutical parameters.

F. J. Acebedo-Martínez,¹ C. Alarcón-Payer,² J. Gómez-Morales,¹ A. Domínguez-Martín,³ D. Choquesillo-Lazarte¹

¹Laboratorio de Estudios Cristalográficos, IACT, CSIC, Granada (Spain),

²Hospital Universitario Virgen de las Nieves, Granada (Spain),

³Department of Inorganic Chemistry, University of Granada, Granada (Spain)

j.acebedo@csic.es

In the last decades, pharmaceutical cocrystallization has been recognized as an interesting approach to modulate the physicochemical properties of active pharmaceutical ingredients (APIs) [1]. Ethenzamide is an anti-inflammatory and analgesic drug, which major drawback is the low solubility in aqueous medium. On the other hand, polyphenols have been widely studied due to their antioxidant properties and their implication in the prevention of degenerative diseases, particularly cardiovascular diseases. These molecules are also “generally recognized as safe” (GRAS), which gives the opportunity to use them as cofomers in pharmaceutical cocrystallization [2].

In this study six new ethenzamide-based cocrystals were obtained by mechanochemical synthesis. A complete solid-state characterization was carried out by X-ray diffraction, spectroscopic and thermal techniques. Accelerated aging conditions (40°C and 75% of relative humidity) were used to evaluate their stability. To complete the study, *in vitro* cytotoxicity essays were performed by co-culture of mesenchymal stem cells (MSCs) with the new multicomponent materials. The results will be discussed to evaluate the influence of the position of the -OH groups, in the cofomer molecule, on the physicochemical properties of the new cocrystals.

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[2] Scalbert, A., Johnson, I.T., Saltmarsh, M. (2005). J. Am. Clin. Nutr., 81, pp. 215S-217S.

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