Poster Presentation

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Salts of amoxapine with improved solubility for enhanced pharmaceutical applicability

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Co-crystal engineering involves utilizing science to combine and optimize the properties of multiple compounds for specific applications such as improving energetic materials, pharmaceuticals, and other compounds. One of most widely studied application of co-crystallization is used in the formation, design, and implementation of active pharmaceutical ingredients. By changing the structure and composition of the API one can alter the physical properties like solubility, melting point, thermal and air stability, and bioavailability. The objective of pharmaceutical co-crystals is to create co-crystal analogs that have properties that differ vastly from the pure API's without making and/or breaking covalent bonds. Amoxapine is a benzodiazepine derivative and exhibits anti-depressant properties. Amoxapine has very low solubility in water so it was co-crystallized with natural biocompatible acids in 1:1 ratio in appropriate by the solvent drop grinding method. The formation of novel salts was confirmed by powder X-ray diffraction method and the single crystals of the salts of amoxapine with acids were grown by the solvent evaporation method in various solvents at room temperature. Crystal structure of the salts was determined by single crystal X-ray diffraction (SCXRD). The solubility of salts was determined in water by the shake-flask method using UV–VIS spectroscopy at room temperature. Dissolution study of salts in tablet form was determined by paddle type dissolution tester using UV–VIS spectroscopy. Salts of amoxapine with different acids were successfully developed and the crystal structure was determined. Enhanced solubility and faster dissolution rates were found in the salts of amoxapine for enhanced pharmaceutical application in drug formulation.

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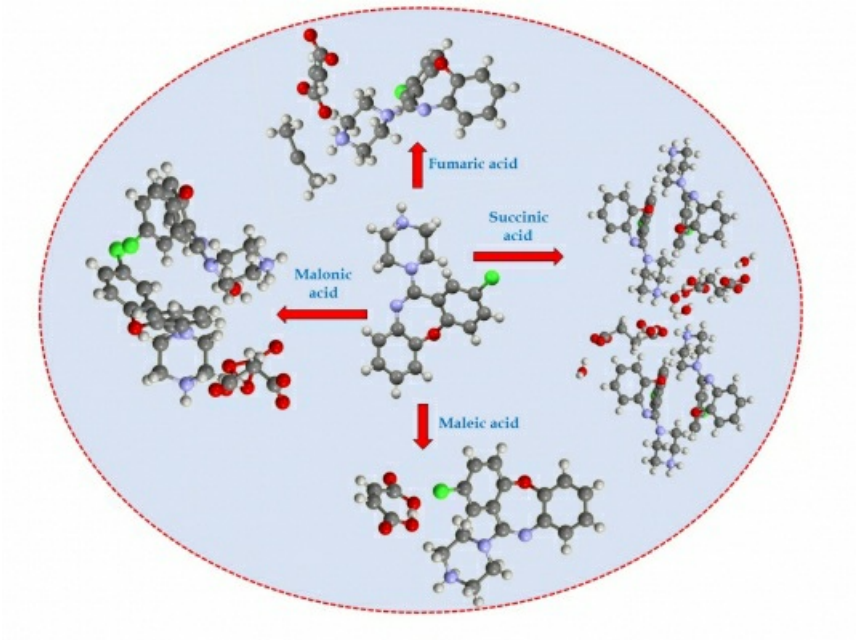

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